



[Strategic Approaches To Using Patent Information](#)

[Andy Gibbs](#)

date: Tuesday, April 24, 2007

Defining Innovation

For the purposes of this paper, innovation is defined as the "Advancement of Applied Technology".

At the lowest level, *innovation* is a process used by engineers and inventors. However, from a higher level, *innovation* is a process that can drive a corporation's

overall process of R & D and corporate strategic development.

Still further, the *innovation* process spills over into many operational areas within an organization other than R&D, namely, marketing, legal, finance, and corporate strategy.

Each of these organizational departments, as well as the engineers and inventors, benefit greatly by applying patent information to the various R&D to corporate strategy processes.

What is Patent Information?

"Patent Information" is the information contained

- **within** a patent
- **about** a patent or group of patents

Patents comprise an archive that documents the progress of applied technology through history. An estimated 80% of the information contained in patents is available nowhere else, establishing patents as one of the most valuable technology rich information resources.

Patent information can be (a) Explicit, and (b) Implicit, or "inferred".

EXPLICIT patent information is that which is readily discernable by a person reading a patent.

Such explicit data fields include:

- Patent Title,
- Patent Number,
- Patent Filing and Issue Dates,
- Inventor Name,
- Applicant Name,
- Patent Abstract,
- Patent Citations / References,
- Description of the Invention,
- Patent Claims,
- Drawings,
- and so forth.

IMPLICIT patent information is more difficult to extract from patent documents, but in many ways is much more valuable to the innovation process. Implicit information derived from patent analysis is typically:

- Qualitative: information closely tied to a particular patent document.
- Quantitative: information derived primarily through the application of a statistical process that's usually applied across a group of patents.

Examples of implicit patent information include:

- Number of Patents Owned by the Same Applicant,
- The Number of Patents Competing Within Particular Market Opportunity,
- The Quality of a Patent – or of a Portfolio of Patents,
- The Scope of Protection Afforded by the Claims,
- Industry Trends
- Intelligence Regarding Competitors' R&D Activity, Cycle Times or Focus,
- and so forth.

Patent Information may take the form of table data, graphs, pie charts, bar charts, patent "maps" or other graphic presentation. Visualization is an effective method of viewing and interpreting the result of an analysis of a large

group of patents.

Why Use Patent Information to Promote the Innovation Process?

Since patents establish the “state of the art” in any particular applied technology, at any point in time they define the starting point for subsequent innovation advancement. When patent prior art is deeply assimilated throughout the organization, higher quality innovations will emerge more quickly. The World Intellectual Property Organization (WIPO)ⁱ has found that patent information is used:

- To Promote Creating Thinking and Problem Solving
- To Guide Strategic Management of Research and Development (R&D)
- To support management decisions related to Licensing and Litigation Strategy
- To Value Intellectual Assets for Mergers and Acquisitions (M&A)

Companies are often slow to build innovation strategies that rely heavily on patents, many times because patents appear to be too complicated to understand, because management thinks too much time will be spent reading patents and not inventing, or management thinks that access to patent information is too costly.

The earliest patents received by a company within any particular technology area typically deliver the highest long-term value. Nagaokaⁱⁱ shows us that a company committed to systematically using prior art will realize a faster R&D cycle, and will obtain more valuable patent protection on higher quality innovations.

Since the first-to-file rule determines who wins the technology race, it's important to quickly produce inventions that obtain the broadest patent claims.

A recent study commissioned by the European Patent Organization (EPO)ⁱⁱⁱ showed that the innovation leaders in US and Europe that relied heavily on the use of patent information developed higher quality innovations, and gained competitive advantage over their counterparts that used patent information rarely, or not at all.

As the leaders continue to develop higher quality patents and gain more market share, 80% of them said that they need **even more** information on competitors and markets, followed by information on innovation.

The most innovative companies are most interested in (decreasing order):

1. Technology watch
2. Competitor watch
3. Market watch
4. Alerting services
5. Advisory services

This report also showed that over 80% of all companies regard patent information as being of moderate or high value, primarily using patent information in predevelopment (68%), development (62%) on checking infringement (48%) or continuously as part of their business process (29%).

Although patent offices provide free Internet access to patent data, around 60% of the 1,900 companies interviewed during the EPO study believed that paying for commercial services that could deliver the Implicit Patent Information is justified given the strategic value of the integrated analytics and visual information tools.

On the other hand, many SMEs (small to mid-sized companies with fewer than 500 employees) had little understanding of how they would actually use the patent information; they had no idea what contribution patent information can actually make to their innovation process.

“Patent Information ” is much more than “Patent Data ”

The following case study briefly illustrates how explicit patent information is extracted from a patent database, then shows how implicit information maybe derived from those patents.

One scenario then shows how this patent information can be strategically applied to the innovation process.

Patents contain a wealth of **TECHNICAL**, **COMMERCIAL**, and **LEGAL** information – most all of which can be applied to accelerate the innovation process. Before patent information can be appropriately mined and applied, the objectives must first be established.

CASE STUDY

COMPANY ANALYZING THE PATENT: Samsung

TARGET: Toshiba US Patent 5,481,430; Portable Computer Having Keyboard and Coordinate Input Tablet Hingedly

OBJECTIVE: Determine Samsung's R&D Strategy With Regard To Future Portable Computer Development

ANSWER QUESTIONS IMPORTANT TO RESEARCH & DEVELOPMENT DEPARTMENT:

1. Is the laptop market is still growing strong?
2. How does Samsung compare to competitor: Toshiba in this market segment?
3. Is the Toshiba '430 patent a serious threat to Samsung – does Samsung need to design-around?
4. Does Samsung already have a significant ownership in this technology area?
5. If Samsung decides to invest in more R&D, it can start quickly based on past technology advancements.

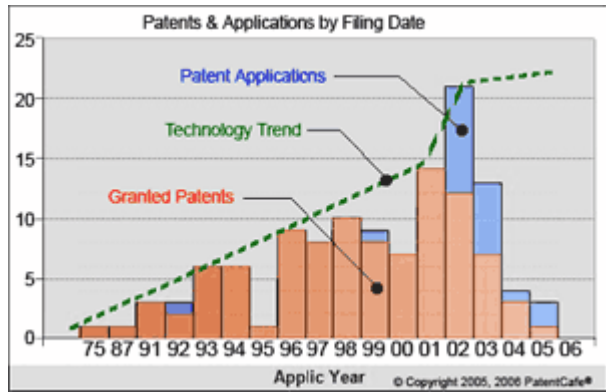
BEGIN PATENT ANALYSIS:

EXPLICIT PATENT INFORMATION: Review bibliographic information available directly from the patent.

- **Applicant:** Kabushiki Kaisha Toshiba, Kawasaki, Japan
- **Abstract:** A main body case for storing a keyboard and an upper case for storing an integrated display/input device are coupled by first and second hinge units, disposed through a groove in the main body case, to be arbitrarily pivotal from a state wherein the keyboard faces the integrated display/input device to a state wherein the back surfaces of the keyboard and the integrated display/input device face each other.
- **Inventors:** Miyagawa, Shigenori, Kobayashi, Koichi, Kunii, Shimpei, Kamio, Shizuo, Sakamoto, Hiroyuki, Sato, Fumitaka, Ishiura, Ryoichi
- **Issued/pub date:** 1/2/1996
- **Filing date:** 12/22/1994
- **Legal status:** Enforceable; expire date: 12/22/2014
- **Claims:** 1. A portable computer comprising: a keyboard for inputting data; a main body case encasing said keyboard; an integrated display/input device, said integrated display/input device having a display device for displaying data and a tablet for inputting coordinate data with said tablet overlaying a display surface of said display device; a ... - And other information contained on the 5,481,430 patent document.

IMPLICIT PATENT INFORMATION (patent information derived through analysis): > Toshiba is a competitor in the market.

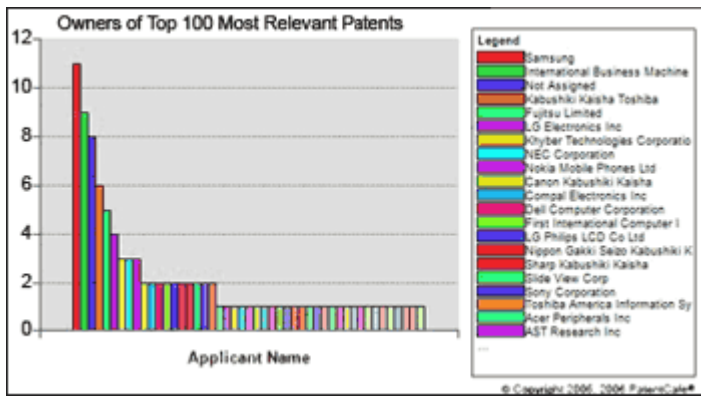
Question 1: Should Samsung make additional R&D investment in this technology area?



Patent Information Analysis:

> The Implicit information indicates that this is a continually growing technology area. The granted patent and published application **trends** both appear to be INCREASING, therefore investment IS JUSTIFIED if this is a market that we want to compete in.

Question 2: Does Samsung need to make additional R&D investments in this technology?



Patent Information Analysis:

> Perhaps NO. Samsung appears to already have a dominant technology position. However, Toshiba may have more patents pending that Samsung does not know about.

Question 3: What is the primary technology taught in Toshiba's Patent?

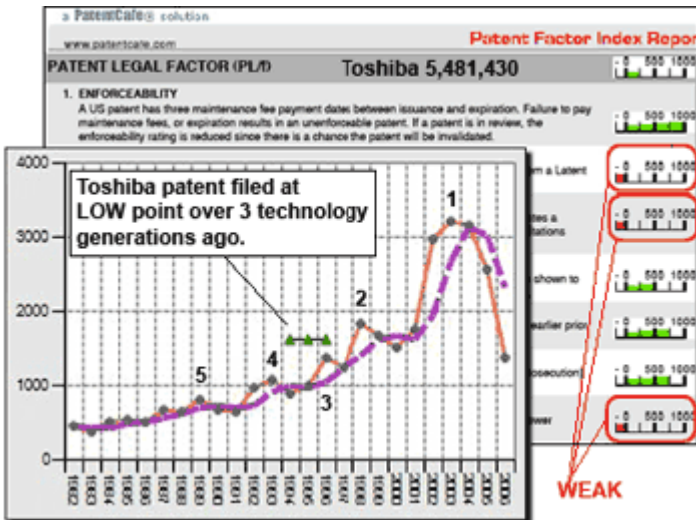
Patent Information Analysis:

> Technology clustering of the top 100 most closely related patents shows what technology is incorporated in Toshiba's patent. Many methods taught in unrelated technology areas and unrelated products (underlined clusters) teach the core technology claimed in the Toshiba patent.

Technology Clusters:

- Cluster: Chairs And Seats, Collapsed To A Compact Bundle Having All Rigid Elongated Elements Extending In A Single Longitudinal Direction
- Cluster: Surgery, With Intermediate Pivot
- Cluster: Recording, Communication, Or Information Retrieval Equipment, Screen Attached At Rear Edge
- Cluster: Rotary Shafts, Gudgeons, Housings, And Flexiblecouplings For Rotary Shafts, Coupling Transmits Torque Via Semicylindrical Segments Separated By Pivot Pin (e.g., Slipper Bearing)
- Cluster: Tent, Canopy, Umbrella, Or Cane, Two Pivot Link
- Cluster: Land Vehicles: Bodies And Tops, Having Pivotal Means
- Cluster: Computer Graphics Processing And Selective Visual Display Systems, Backlight Control
- Cluster: Data Processing: Presentation Processing Of Document, Operator Interface Processing, and Screen Saver Display Processing, For A Small Display Screen (e.g., Personal Digital Assistant, Palm-top)
- Cluster: Education And Demonstration, Letter -bearing Elements Slidable Between Different Grooves
- Cluster: Card, Picture, Or Sign Exhibiting, Having Rearwardly Pivoting Support Leg
- Cluster: Amusement Devices: Toys, Having Longitudinally Folded Or Creased Fuselage
- Cluster: Batteries: Thermoelectric And Photoelectric, Thermocouple Leads Having Disengageable Pressure-type Electrical Connectors
- Cluster: Firearms, Parallel Pivot

Question 4: Is the Toshiba '430 patent a Legal Threat to Samsung? A qualitative patent analysis will highlight '430 strengths and weaknesses.



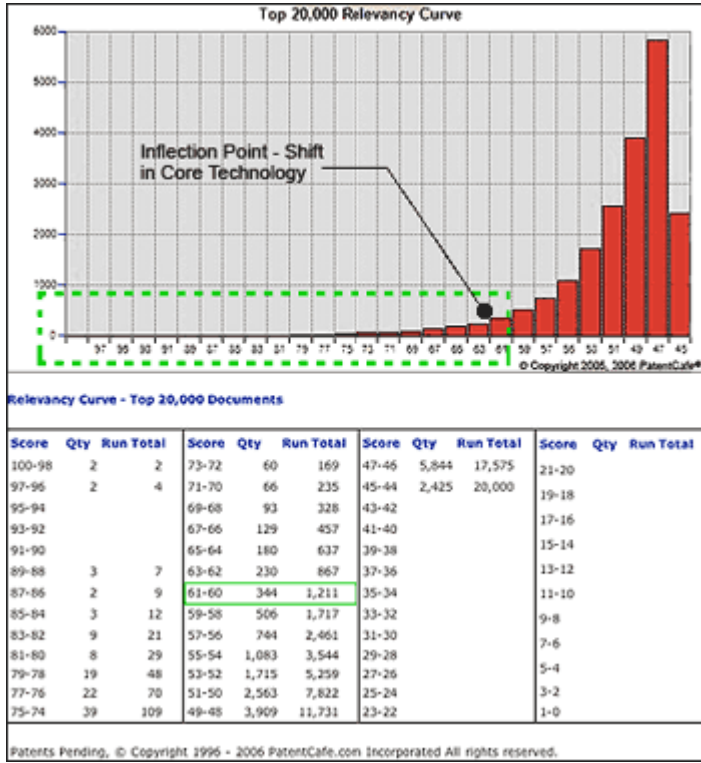
Patent Information Analysis:

> We used a statistical analysis of the Toshiba '430 patent is statistically weak. This patent does not appear to be a competitive threat to Samsung.

Patent Analysis Product Used: PatentCafe Patent Factor Index Report.^{iv} This report analyzed the legal, commercial and technological strength of the Toshiba '430 patent.

A copy of the full PFI Report for the '430 patent is available on request (PDF document).

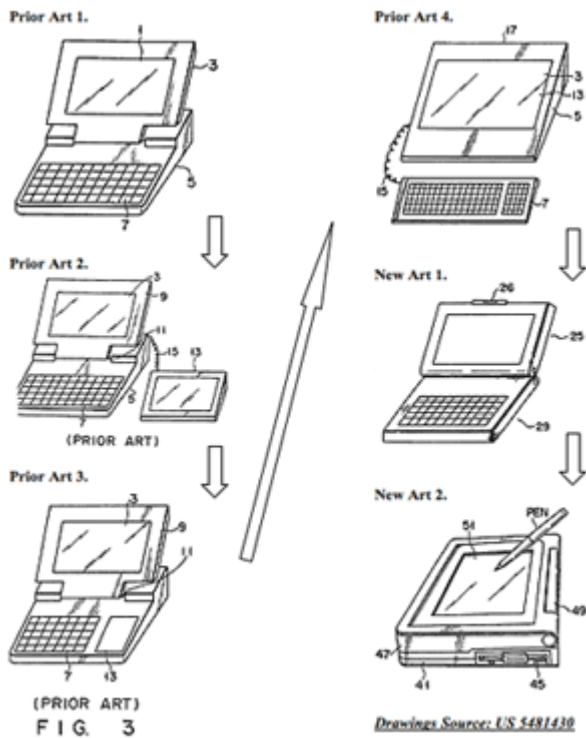
Question 5: How many patents define the marketplace for this primary technology?



> **Patent Information Analysis:** We use a Latent Semantic Analysis search engine to profile and relevancy-rank the top 20,000 patents most related to Toshiba's technology. The first major Inflection Point (see above) that defines the shift from this technology occurs at 61%. About 1,211 of the most relevant 20,000 patents define the core technology.

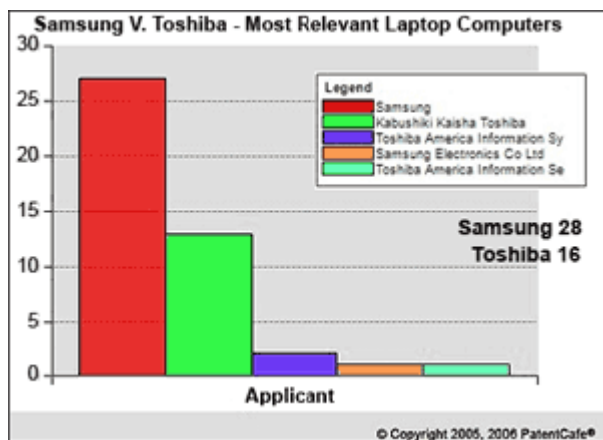
Samsung already has a dominant position in this technology area, so further investment in R&D is probably not justified at this time.

Question 6: Can Samsung leverage prior art if it decides make additional investment in R&D?



> **Patent Information Analysis:** Yes - the Toshiba Patent teaches the design progression within this technology. By data mining other related patents, especially the information contained in the "Background of the Invention" and Cited References, Samsung engineers will be able to quickly identify solutions to problems that may be encountered during the new development process.

Question 7: Does Toshiba or Samsung own the majority of the most relevant art? If Samsung has a priority position, it may not need to invest further in the current technology evolution.



> **Patent Information Analysis:** Samsung owns more of the highly relevant patents in the laptop computer domain than Toshiba. It may not need to invest in further R&D in this area.

Summary of the Strategic Patent Information Analysis:

By Analyzing Explicit and Implicit Patent Information, Samsung has learned that:

1. The laptop market is still growing strong.
2. It already owns more patents related to Toshiba 5,481,430 than Toshiba owns.
3. The Toshiba '430 patent is statistically weak – not considered a serious threat.
4. It owns patents that apply to many technology areas.
5. It has a respectable share of the top 1200 patents in the product domain.
6. If it decides to invest in more R&D, it can start quickly based on past technology advancements.

FINAL R&D STRATEGY:

SAMSUNG SHOULD NOT INVEST ADDITIONAL R&D RESOURCES IN THIS TECHNOLOGY AT THE PRESENT TIME, BUT SHOULD CONTINUE MONITORING THIS TECHNOLOGY AREA TO BE ALERTED TO ANY NEW

PATENT FILING ACTIVITY BY COMPETITORS.

References:

ⁱ ***The Magic of Patent Information***, by Soonwoo Hong, Counsellor, SMEs Division, World Intellectual Property Organization http://www.wipo.int/sme/en/documents/patent_information.htm

ⁱⁱ ***Assessing the R&D management of firms by patent citation: Evidence from US patents***. by Sado Nagaoka, Institute of Innovation Research, Hitotsubashi University, (May 2004)

ⁱⁱⁱ ***Usage Profiles Of Patent Information Among Current And Potential Users***, by the Dutch company Motivaction, Amsterdam, on behalf of the European Patent Office (September 2003). <http://www.european-patent-office.org/news/info/survey2003/index.php>

^{iv} ***PatentCafe Patent Factor Index Reports*** use Latent Semantic Analysis, statistical analysis and regression models to characterize a patent's legal, commercial and technology indices. <http://www.patentcafe.com/index.asp?navid=2&subnavid=6>