Intellectual property and innovation

Innovation Series

Interactive Tayside and BioDundee

07-Sep-05

Dorna Caskie

Overview

The thrill of anticipation

- Intellectual property primer
- Definition and types of innovation
- The deteriorating spirit of patent law
- Business trends in litigation
- “Top ten” corporate pitfalls
- The innovator’s dilemma
- Principles of disruptive innovation
- Creating value from IP
- Observations about Scotland’s opportunities
- Some references

A note on the “fair use” minefield…

Let’s keep the presenter out of jail

- All copyrighted materials in this presentation are included under the presumption of “fair use”:
  - **The information is provided as part of an educational experience,**
  - **This evening’s activity is an activity sponsored by a governmental body and is not a commercial or for-profit event,**
  - **The presentation itself does not represent a huge or valuable effort on the part of the author,**
  - **Only small parts of larger copyrighted works are included**
  - **The value of the original works will not be diminished as the result of this presentation**
- The presenter respectfully assumes that the audience may be further inspired to consult or acquire the referenced works, which are listed at the end of this presentation.

Intellectual property primer

Definitions

- Intellectual property is the group of legal rights to things people create or invent. Intellectual property rights typically include patent, copyright, trademark and trade secret rights.
  - **A *patent* is represented by a specific kind of legal document that includes a general description of the invention, the field of invention, background (importantly including a careful explanation of how your invention differs from "prior art"), the preferred embodiment of the invention, and specific claims.**
  - **A *copyright* is defined as the exclusive right of a creator to reproduce, prepare derivative works, distribute, perform, display, sell, lend or rent their creations.**
  - **A *trademark* (or "mark") is a word, name, symbol, device, or a combination of these that indicates the source of goods or services. The significance of the trademark is that it distinguishes the products or services of one business from those of others in the same field.**
  - **A *trade secret* is any confidential formula, pattern, process, device, information, or compilation of information that is used to obtain an advantage over competitors who do not know or use it.**

Intellectual property primer

Notes specific to the USA

- Things you can protect:
  - ***Utility patents*** **apply to manufactured articles, machines, a composition or formula, or a process for making or doing something**
  - ***Design patents*** **apply to new and original shapes of surface treatments of manufactured articles, either aesthetic or functional.**
  - ***Plant patents*** **apply to asexually produced plants – no seeds involved – OR to any new variety of plant.**
- An example of a North American software protection cocktail:
  - **One part copyright, to protect the way the underlying process is presented by the program instructions**
  - **One part patent, to protect the process itself (as well as all its instantiations)**
  - **One part trade secret, whereby you keep the program instructions confidential and protect them as a trade secret**

Intellectual property primer

Notes specific to Scotland

- Intellectual property is a form of incorporeal, moveable property, consisting of:
  - **Copyright**
  - **Patents**
  - **Trademarks**
- The protection of which has been further extended by legislation to:
  - **Rights in performances**
  - **Registered designs**
  - **Design rights**
- Historically, there was a difference between intellectual and artistic rights, which is no longer observed
- While patents and invention privileges can be traced back to the middle ages, most current patent law arose during and after the industrial revolution.

Definition of innovation

Focusing on the business significance

- *Innovation* is the creation of a distinguishable device or process as the result of study and/or experimentation.
  - **"Discovery" is not innovation, but an application of a discovery could be.**
- The result of innovation should be useful, commercially applicable, and has been known to change human history.
- Innovation doesn't have to be totally unique, complex, or expensive – or even taken into use.
- What's important to business is that the innovation process transforms ideas into commercial products.

Types of innovation

More gems from http://en.wikipedia.org/wiki/Innovation

- In business and economics, innovation is often divided into four types:
  - ***Product*** **innovation, which involves the introduction of a new good or service that is substantially improved. This might include improvements in functional characteristics, technical abilities, ease of use, or any other dimension**
  - ***Process*** **innovation involves the implementation of a new or significantly improved production or delivery method.**
  - ***Marketing*** **innovation is the development of new marketing methods with improvement in product design or packaging, product promotion or pricing.**
  - ***Organizational*** **innovation involves the creation of new organizations, business practices, or ways of running organizations.**
- Impacts on existing markets or businesses can vary
  - ***Sustaining*** **or incremental innovations can be applied without changing an organizations approach to their market.**
  - ***Disruptive*** **or radical innovations significantly change a market or product category.**

The deteriorating spirit of patent law

Because we don't live in a perfect world

- The application of real property patents to intellectual property was intended to enhance the speed and quality of the production of goods.
  - **Full public disclosure of information would be rewarded by a brief monopoly on the invention.**
- However, intellectual property requires protection against actions such as trespassing and damage because it is valuable.
- The speed and flexibility of markets amplifies risk.
- In a litigious society, intellectual property law can be an impediment to business
  - **Invention "rights to exclude" can inhibit ability to freely exercise R&D**
  - **Open source software culture represents a series of risks.**
  - **95% of patent litigation in USA is activity filed under Federal patent law and must be acted on through Federal courts.**
  - **Some states even have additional, state-specific laws covering "misappropriation" of ideas and creative objects.**
  - **Fear and unnecessarily defensive actions or ignorance of applicability can create thrashing in the courts and patent process.**
  - **Lower quality of patents can complicate litigation duration and expense.**

Business trends in IP litigation

A sampling of cautionary tales

- There is an increase in the number of patents being filed
  - **For example, Microsoft filed about 10 times more patents in FY'05 than it did 10 years ago.**
  - **Prior art citations in general provide influence metrics for companies**
  - **Identification of "essential patents" by IP owners increases significance of protection.**
- There is an increase in patent filing investments
  - **Expanding jurisdiction of patent legislation on technology**
  - **Size of patents portfolio is used as metrics on technological strength AND VALUE of a company**
- There is an increase in licensing agreements
  - **Businesses are interested in creating revenue using patents -- product creation is often not feasible for the patent holder.**
  - **Options include joint ventures, off-shore development, and broad cross-licensing**
- There is an increase in aggressive enforcement
  - **Regulatory framework continues to support patent owners**
  - **Trade relationships mean that the era of the "Wild, Wild East" is ending**
  - **However, anti-globalization and anti-trust efforts are helping to equalize access to medicine, information, and technology**

“Top ten” corporate pitfalls

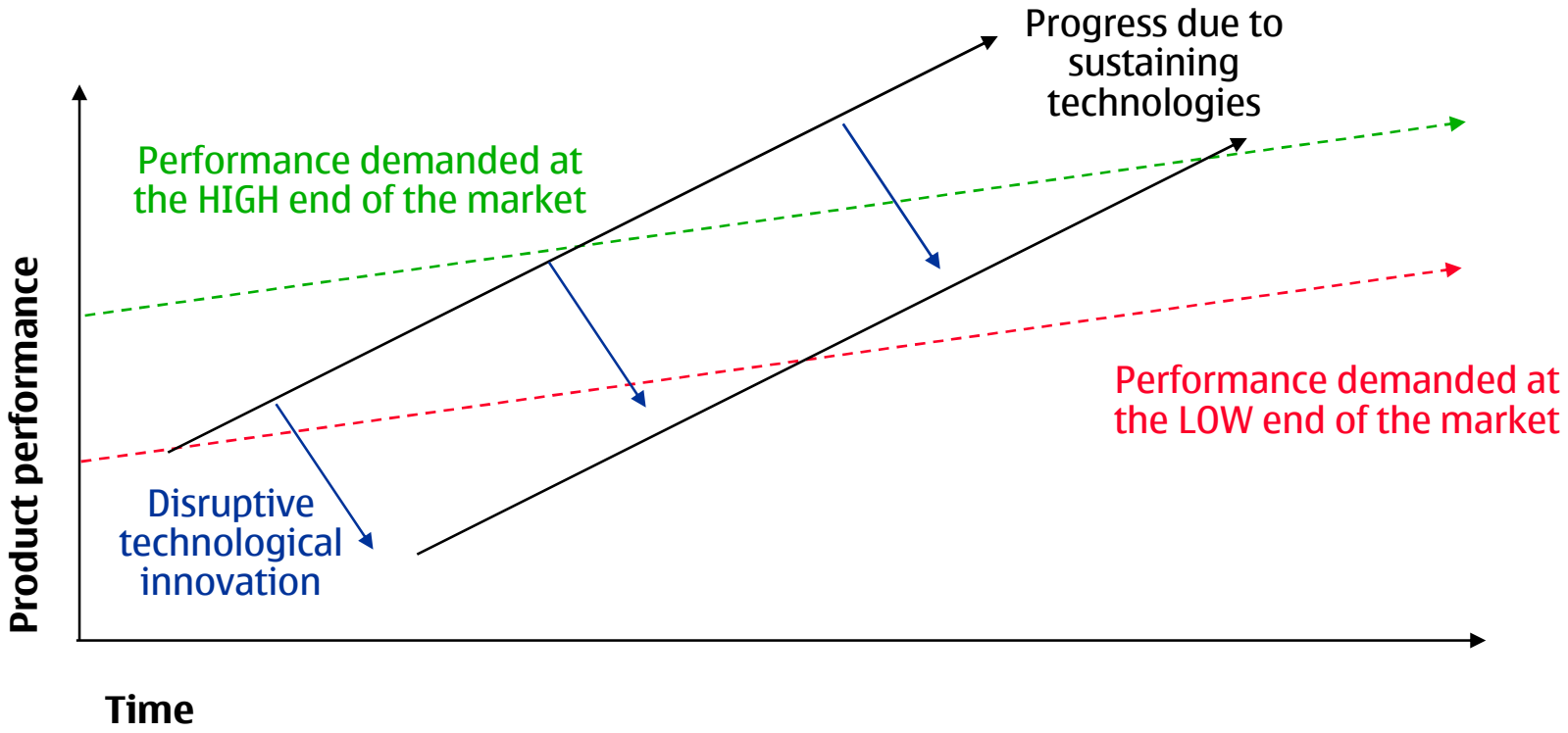
From Patents, Copyrights and Trademarks for Dummies

- Choosing a utility patent when other protection will fit the bill
- Filing when you can’t afford it
- Going it alone
- Concealing the past
- Showing your hand
- Naming a non-inventor
- Disclosing too little
- Disclosing too much
- Waiting too long
- Accepting money in exchange for a share of the profits

The innovator's dilemma

From The Inventor's Dilemma

- Great companies can fail when they do everything right.
- As markets compress, the management of sustaining and disruptive technologies is critical



Principles of disruptive innovation

The difficulty of managing the next disruption

- Companies depend on customers and investors for resources
  - **Established firms stay on top of the wave of sustaining technologies**
  - **Smaller firms or firms with smaller market scope are prone to more significant disruptions**
  - **Mainstream firms "quarantine" a disruptive technology by setting up a new and independent business around it.**
- Small markets don't solve the growth needs of larger companies
  - **Big firms tend to lead in sustaining innovation, smaller firms are (obviously?) more agile in the emerging markets**
- Markets that don't exist can't be analyzed
  - **By their very nature, established analytical methods don't work.**
  - **New techniques such as discovery-based planning can help.**
- Technology supply may not equal market demand
  - **The basis of competition changes when the market cannot absorb technology or change.**

Creating value from IP

Once you've got something good…what to do with it

- Proprietary product supplies and refurbishment
- Shameless redeployment of existing technology
- License characters... *or tartans?*
- Increase technology adoption through standards activities, private collaboration, or patent pooling
- Joint ventures, including acquisition of "dying" markets that are easily exploited.
- Patent licensing
- Technology licensing
- Trademark and franchise licensing "Scotland the brand"
- Sales and transfer of intellectual property

A little bit about Nokia

01-August 2005… IP value matters to Nokia, too.

10!

BusinessWeek online

Top 20 Innovative Companies in the World

2005 poll of 940 senior executives in 68 countries by Boston Consulting Group

COMPANY	RESPONSES	WHY
APPLE	24.84%	Delivers **great consumer experiences with outstanding design;** steady flow of new ideas that redefine old categories, such as music players; continual evolution of business model and brand.
3M	11.77	Strong **internal culture of creativity with formal incentives** to innovate. Results in a high success rate in turning ideas in health care, industrial components, and other areas into profitable products.
MICROSOFT	8.53	Strong **management pushes continuous improvement of products,** expansion into new markets and rapid strategy changes when necessary.
GE	8.53	Management **practices that are ahead of competition,** along with strong training, are allowing CEO Immelt to reinvent GE's business model and culture to promote innovation.
SONY	5.94	Understands **the importance of media convergence;** creates new user-friendly electronic products with great design.
DELL	5.62	Superior business-process model **built on ruthless cost-cutting and innovations** in supply-chain management.
IBM	5.29	Wants to **use its powerful IT base to solve customers' problems** and even run their businesses.
GOOGLE	5.18	Steady stream of **new tools and services provide simple solutions** to complex problems. Dominates online search and is growing fast in advertising; strong connection with customers.
P&G	4.21	Continuous **product innovation based on understanding of changing consumer lifestyles.** In a switch, now seeks outside partners for new expertise, ideas, and even products.
NOKIA	4.21	Sharp **design, changes models rapidly, and adds features** effortlessly, based on a close reading of customer desires in the emerging mobile lifestyle.

Observations about Scotland's opportunities

"No people so few in number have scored so deep a mark in the world's history as the Scots have done."
-J.A. Froude (1818-1884), English historian

- Scotland's ability and capacity to innovate is well-known and proven
- The current technology market is both mature and volatile
- It is an opportune time for intelligent, focused, and swift actions
- Build the foundation for innovation -- regulatory, investment, and political climate
- Promote the demonstrated talent of your people
- Create the physical, technological, and leadership infrastructure
- Remove encumbrances
- Tell the world…

Some references

- Holyoak and Torremans Intellectual Property Law, fourth edition, by Paul Torremans, © Oxford University Press 2005, ISBN 0-406-97361-X
- Information Technology Law, fourth edition, by Ian J. Lloyd, © Oxford University Press 2004, ISBN 0-406-97578-7
- Patents, Copyrights, & Trademarks for Dummies, by Henri Charmasson, published by Wiley Publishing, Inc., © Henri Charmasson 2004, ISBN 0-7645-2551-4
- Harvard Business Review on Breakthrough Thinking, [various articles and authors], published by Harvard University Press, © 1977, 1997, 1998, 1999 President and Fellows of Harvard College, ISBN 1-57851-181-X

References (continued)

- The Innovator's Dilemma – When new technologies cause great firms to fail, by Clayton M. Christensen, published by the Harvard Business School Press (part of the "Management of Innovation and Change Series"), © 1997 by the President and Fellows of Harvard College, ISBN 0-87584-585-1
- Property Law, second edition, by Peter Robson and Andrew McCowan, part of the "Greens Concise Scots Law" series, published by W. Green/Sweet & Maxwell, © 1998 Peter Robson and Andrew McCowan, ISBN 0 414 01229 1
- The Mark of the Scots, by Duncan A. Bruce, published by Carol Publishing Group 1997, © Duncan A. Bruce 1996, ISBN 1 –55972-356-4

Other quotes and illustrations as noted.