INTELLECTUAL PROPERTY AND INTELLECTUAL CAPITAL: A VIEW FROM THE BAY AREA

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BAY AREA (AND SILICON VALLEY) ELEMENT OF SUCCESS

- Knowledge Intensity
- Mobile Quality Workforce
- Rewards Risk Taking
- Open Business Environment
- Venture Capital
- Community Collaboration
- Quality of Life
- Government Involvement
- University encouragement of entrepreneurial spirit and collaboration with industry
- Federal funding (primarily DoD and NIH) of electronics and biomedical innovations
- Local institutions supporting cooperation and exchange of information among competing firms
- Non-hierarchical organizational structure of firms
- Flexible management

BUSINESS LANDSCAPE

Employment size of firms in USA show a balanced system of corporations and SMEs.

<table>
<thead>
<tr>
<th>EMPLOYMENT SIZE OF ENTERPRISE</th>
<th>FIRMS</th>
<th>ESTABLISHMENTS</th>
<th>EMPLOYEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>All firms</td>
<td>25,409,525</td>
<td>26,911,465</td>
<td>115,074,924</td>
</tr>
<tr>
<td>Nonemployer firms</td>
<td>19,523,741</td>
<td>19,523,741</td>
<td>n/a</td>
</tr>
<tr>
<td>Employer firms</td>
<td>5,885,784</td>
<td>7,387,724</td>
<td>115,074,924</td>
</tr>
<tr>
<td>Firms with 1 to 19 employees</td>
<td>4,453,810</td>
<td>4,504,763</td>
<td>21,197,087</td>
</tr>
<tr>
<td>Firms with 20 to 99 employees</td>
<td>526,355</td>
<td>692,677</td>
<td>20,642,614</td>
</tr>
<tr>
<td>Firms with 100 to 499 employees</td>
<td>86,538</td>
<td>330,447</td>
<td>16,757,751</td>
</tr>
<tr>
<td>Firms with 500 employees +</td>
<td>17,047</td>
<td>1,056,482</td>
<td>56,477,472</td>
</tr>
</tbody>
</table>

IMPORTANCE OF SMALL BUSINESSES TO THE U.S. ECONOMY
Small firms:

- Represent 99.7% of all employer firms.
- Employ just over half of all private sector employees.
- Pay 44 percent of total U.S. private payroll.
- Have generated 64% of net new jobs over the past 15 years.
- Create more than half of the non-farm private GDP.
- Hire 40 percent of high tech workers (such as scientists, engineers, and computer programmers).
- Made up 97% of all identified exporters and produced 30% of the known export value in FY 2007.
- Produce 13 times more patents per employee than large patenting firms; these patents are twice as likely as large firm patents to be among the one percent most cited.


Venture capital distribution in the 3rd quarter 2009: Bay Area 46%, South. Cal 10%
REGISTERED PATENTS IN USA, 2006

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Patents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>San Jose, CA</td>
<td>3,867</td>
</tr>
<tr>
<td>2</td>
<td>Sunnyvale, CA</td>
<td>1,881</td>
</tr>
<tr>
<td>3</td>
<td>Austin, TX</td>
<td>1,071</td>
</tr>
<tr>
<td>4</td>
<td>Palo Alto, CA</td>
<td>1,601</td>
</tr>
<tr>
<td>5</td>
<td>Fremont, CA</td>
<td>1,440</td>
</tr>
<tr>
<td>6</td>
<td>San Diego, CA</td>
<td>1,382</td>
</tr>
<tr>
<td>7</td>
<td>Cupertino, CA</td>
<td>1,360</td>
</tr>
<tr>
<td>8</td>
<td>Boise, ID</td>
<td>1,360</td>
</tr>
<tr>
<td>9</td>
<td>Mountain View, CA</td>
<td>1,128</td>
</tr>
<tr>
<td>10</td>
<td>Santa Clara, CA</td>
<td>1,096</td>
</tr>
<tr>
<td>11</td>
<td>Houston, TX</td>
<td>1,071</td>
</tr>
<tr>
<td>12</td>
<td>San Francisco, CA</td>
<td>1,022</td>
</tr>
<tr>
<td>13</td>
<td>Portland, OR</td>
<td>784</td>
</tr>
<tr>
<td>14</td>
<td>Seattle, WA</td>
<td>756</td>
</tr>
<tr>
<td>15</td>
<td>Los Altos, CA</td>
<td>719</td>
</tr>
<tr>
<td>16</td>
<td>Rochester, NY</td>
<td>664</td>
</tr>
<tr>
<td>17</td>
<td>Plano, TX</td>
<td>643</td>
</tr>
<tr>
<td>18</td>
<td>Saratoga, CA</td>
<td>620</td>
</tr>
<tr>
<td>19</td>
<td>Menlo Park, CA</td>
<td>619</td>
</tr>
<tr>
<td>20</td>
<td>New York, NY</td>
<td>614</td>
</tr>
</tbody>
</table>

Bay Area leads the nation in patents issued: 10 of the 20 most inventive towns in America in Silicon Valley, 12 are in California. [Cities ranked by the number of patents issued. Wall Street Journal, 2006]

In the book “Patent Failure” James Bessen and Michael Meurer found patent system ineffective and expensive, affecting not only patent owner but also customer who are using that product. First, the real need for the patent system is for small entities. Large firms can protect their markets just fine by their size alone. Large firms are seldom responsible for groundbreaking technologies. They’re good at refining, but seldom do they come up with revolutionary innovations. That is what small firms most often do. The objective of large firms is not to fix the patent system, but to destroy it or pervert it so only they may obtain and defend patents. Patents are a threat against their market dominance. They would rather use their size alone to secure their market position. Patents of others, especially small entities, jeopardize that.

- Revolutionary innovations originate with small inventor/firms
- Patents are crucial to small firms

PATENTS AND PROPERTY

- Property rights encourage investments, transactions and economic growth
- Patents have a mixed record, current outlook is troubling
- Patent law fails as a property rights system and imposes a tax on most innovators

PATENT INCENTIVES AND DISINCENTIVES

- Patent encourages innovation
- Defense against patent lawsuits discourages innovation because innocent infringement common

PATENTS AND PROPERTIES

<table>
<thead>
<tr>
<th>LAND</th>
<th>PATENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry, third party verification, deference to fact-finders</td>
<td>Hidden claims, low quality opinion letters, little deference</td>
</tr>
<tr>
<td>Physical possession</td>
<td>Scope broader than embodiments; patents and claims are cheap</td>
</tr>
</tbody>
</table>
Low risk of invalidity, title insurance | No insurance, relatively high risk of invalidity

COMPLEXITY
- E-commerce firm faces between 4000-11000 patents
- Semiconductor firms faces 100’s of patents
- 3G standard 7600 patents
- 65% of firms do not conduct a patent search before initiating product development
- 39% of applicants disclose zero prior art patents

IDEAL: PATENT LIKE A PROPERTY
- Make property rights more transparent
- Better claim interpretation
- Robust definiteness requirement

REVIEWING COMPETITORS’ PATENTS
Reasons for reviewing competitors’ patents
- To determine which products or services you can freely provide or you cannot provide without incurring possible liability for patent infringement
- To see which products or services your competitors may have worked on or are currently working on, or may work in their future
- To learn what the state of the art is to avoid “reinventing” the wheel in your own
- Advanced patent search tools are available

US PATENT SYSTEM IS STRUCTURED TO ENCOURAGE PATENT FILING EARLY
- Current thinking: early filing system is beneficial, facilitating commercial development, eliminating wasteful patent races
- Missing: early filing forces inventors to make filing decisions and draft applications with little technical or market information about the invention.
- Result: File first and ask questions later. File early, file often attitude.

FILING EARLY AND OFTEN EXACERBATES MANY OF THE PATENT SYSTEM’S PROBLEMS
- Rising number of applications, contributing to the backlog on the PTO that reduces the quality of examinations and issued applications
- The more the patents are filed, the more likely they go underdeveloped because of the great uncertainty and the minimal investment at the time of filing
- Asserting the early filed patents in court is a cheaper option, creating patent trolls who use patents solely to extract rents from those already engaged in commercial development
- The dearth of information and high level of uncertainty at the time of filing also contributes to the lack of clarity in the patents’ specification and claims, causing patent boundaries to be unclear
An actual reduction to practice requirement should be used to optimize the filing time. The requirement would ensure that actual implementation information is available prior to filing, while stopping short of requiring full blown commercialization.

KEY INGREDIENTS OF AN EFFECTIVE PATENT APPLICATION

- Patent applications are expensive to write and prosecute
- Low value (silly or marginal idea) patents are not worth as much, now or later

PATENTS ARE PUBLIC: ARE YOU BETTER OFF WITH A TRADE SECRET?

- Pros: they never expire
- Cons: copycats cannot be penalized

HOW GOOD IS YOUR IDEA

- You want to only file perfect ideas. Have you the advantage of hindsight?
- Many patent ideas are non-obvious variations and extensions of existing invention and products
- Some ideas are astute applications of old ideas to new environments
- It is important to appoint someone skilled in the area of your invention to read over your idea (use NDA if not another employee) and provide comments

OPTIMIZING TIME

- Most patent attorneys are not the expert in your area of specialty
- Your initial communication to them on the idea, its importance, and relevance to your company and the industry is usually quite critical
- Attorneys will often tape your conversation because they may not grasp all the fundamental concepts at the first conversation. Will your explanations stand up to repeated play-back?
- Having technical documentation written (even in early draft form) before filing the application is always a huge plus
- Patents have useful monetary benefits
- Patents can make or break a business model and a company
- A successful patenting program often comes from within a company’s culture and goals
- You can make it easier by following simple do’s and don’ts
- Writing an effective patent application comes from better communication between you, the inventor, and the patent attorney

MONETIZING INTELLECTUAL PROPERTY

There are many avenues to monetize the IP a company believes has value.

**Standard** options

- Sell the Intellectual Property
- Technology Licensing
- Patent Licensing

**Innovative** option
Get Patent Management in Exchange of a Small Equity

EARLY STAGE COMPANIES

- Make early decisions as to what patent and what remains are trade secrets
- Target between 3 and 5% of R&D budget for intellectual capital management (patents and trade secret protection)
- Implement a robust intellectual capital management (ICM) program

Early stage companies need to identify early in their IC

- Human capital: who are your internal technology leaders?
- Do you have unique processes, business methodologies?
- Where does your technology come from, and what changes/innovations are you making to it?

MID-LIFE COMPANIES

- Re-evaluate trade secret categories based on issued and allowed patents, publications, competitor disclosures
- Morph IC management program from “capture and categorize” mode into “analyze and act”
- Likely patenting improvements to existing technologies rather than fundamental technology.
- Such patents are likely narrower than early patents

Early and mid-stage companies focus on patenting their own technology

MATURE COMPANIES

- Develop and implement a patent acquisition/publication strategy
- Trade patent licenses to startups in exchange for equity interest and/or option to acquire
- Evaluate opportunities to participate in standard bodies
- Beware the creation of de facto standards

PATENTS versus TRADE SECRETS

- Patents disclose to your international competitors the best mode for practicing your technology
- Legal reverse engineering may render your unpatented trade secrets into industry standards

CREATING AN INTELLECTUAL CAPITAL CULTURE

- What is “Intellectual Capital” and why it is important
- Institutionalize culture of internal information sharing
- Training on protection of company (and customer) confidential information

INTELLECTUAL CAPITAL
“Every company depends increasingly on knowledge: patents, processes, management skills, technologies, information about customers and suppliers, and old-fashioned experience. Added together this knowledge is intellectual capital.”

Tom Stewart, Brainpower (Fortune, June 3, 1991)

"Intellectual capital is becoming corporate America's most valuable asset and can be its sharpest competitive weapon. The challenge is to find what you have-and use it".

Tom Stewart, Intellectual Capital. The New Wealth of Organizations

"Intellectual capital [...] is the sum of a firm’s ideas, inventions, technologies, general knowledge, computer programs, design, data skills, processes, creativity and publications.”

Patrick Sullivan, Profiting from Intellectual Capital, 1998

- Patents play a crucial role in the development of the company and need to be carefully managed
  - They disclose your technology
  - They protect your technology
- An effective Intellectual Capital balances:
  - vs. trade secrets
  - against what competitors are doing
  - against what public bodies are doing
- There are different strategies for different stages of company development

OPTIMIZING THE VALUE OF IP: THE SKYPE CASE

Skype is a medium company, having 100-250 employees, and Skype founders ring up their second big eBay payday (John Murrell, Good Morning Silicon Valley, Nov. 6th, 2009)

[... ] you have to tip your cap to the Scandinavian team of Niklas Zennstrom and Janus Friis. First the founders of Skype got eBay to pay close to $3 billion for the Net telephony pioneer while somehow retaining control of its key technology. And now [...] they've won themselves a healthy chunk in exchange for that technology.

eBay and the investors group seeking to buy Skype announced they had come to terms with Zennstrom and Friis over the licensing dispute that stood in the way of the sale. In exchange for rights to the Global Index P2P technology, the pair will get 14 percent of Skype back, plus seats on the board. All in a deal that values Skype at $2.75 billion.

[...] Investor Marc Andreessen said, "Everything is settled — all lawsuits, all IP. The IP is now owned by Skype. The company is free and clear to execute to its full potential.

“There is fighting, and then there is negotiation. “We believe it is a plus to have founders involved. They now have a complete alignment of interest.”