

# ***Integrating an Intellectual Property Strategy into Your Business Plan***

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# Key IP Questions for a Start-Up

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- What are the primary benefits of integrating IP strategy into your business plan?
- What are the most relevant classes of IP to your business?
- What are the relative strengths and weaknesses of different types of IP?
- How does IP support your business model? - *What kind of company are you?*
- What is *Directed IP Development*?
- What is the difference between an *IP Factory* and a *Patent Troll*?
- What are the strategic objectives of directed IP development?
- What are the sources of IP risk for a start-up?
- How does a start-up combine *make* and *buy* IP acquisition strategies?
- Does outsourcing IP development make sense for you?
- Should you use a focused IP accelerator?

# *What are the Primary Benefits of Integrating IP Strategy into Your Business Plan?*

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- Creating “*Sustainable Competitive Advantage*”  
business (not legal) perspective -  
use of IP as a strategic asset rather than a legal right
- Managing Risks and Vulnerability  
defensive perspective - anticipating and avoiding IP-based risk
- The objective is to balance -  
maximization of IP-based *business opportunities* and  
minimization of IP-based *threats*

## *What are the most relevant classes of IP to your Business?*

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- Utility Patents --> *inventions*
- Trade Secrets --> *non-public know-how*
- Copyrights --> *“works” (code, documentation)*
- Trademarks --> *brand identity*
- Design Patents --> *external product design*
- Mask Works --> *chip layout/topography*
- Domain Names --> *internet presence*

# *Strengths and Weaknesses of Different Types of IP*

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- Patents - Pro
  - Provides “exclusionary” power re claimed subject matter
  - Independent development is never a defense
  - Protection lasts 20 years from initial filing
- Patents - Con
  - High eligibility threshold - must be *novel* and *non-obvious*
  - Time sensitive - must file before any public (non-conf.) disclosure
  - Requires an *enabling* disclosure of exemplary implementation
  - Competitors are free to “design-around” your claims
  - Expensive: \$20K per application plus \$100K prosecution till grant
  - Controversy over applicability to software & business methods

# *Strengths and Weaknesses of Different Types of IP (cont.)*

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- Trade Secrets - Pro
  - Eligibility threshold lower than patents -
    - Must not be generally known
    - Must provide competitive advantage
  - Can be protected indefinitely - as long as no loss of secrecy
  - Most suitable for process/manufacturing info
- Trade Secrets - Con
  - Independent development is always a defense
  - Competitor extraction of T/S by legitimate reverse engineering is ok
  - Requires internal controls & NDAs to maintain secrecy
  - Must exercise care in hiring new employees from competitors
  - Departing employees are always a potential source of loss of T/S

# *Strengths and Weaknesses of Different Types of IP (cont.)*

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- Copyrights - Pro
  - Eligibility threshold is very low - must only be *original*, i.e., some non-trivial portion not copied from another source.
  - Very inexpensive - protection arises upon creation; registration is optional
- Copyrights - Con
  - Independent development is always a defense
  - Protects *expression* but not *underlying ideas*
  - Protection for “functional works” (such as software) is very narrow - Essentially anti-piracy protection

# *Strengths and Weaknesses of Different Types of IP (cont.)*

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- Trademarks - Pro
  - Policy basis is consumer protection
  - Protects products and services against “confusingly similar” brands
  - Can cover a broad range of products and services
  - Supports first mover advantage
- Trademarks - Con
  - In Europe, rights are based on registration; in US, based on use
  - Infringement requires proof of *likelihood of confusion* of relevant customers

# *How Does IP Support Your Business Model?*

*What kind of company are you?*

*What is (are) your Primary Revenue Source(s)?*

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- **Products**
- **Services**
- **Technology**
- **IP**

# *What is “Directed IP Development”?*

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The IP Development Spectrum extends

from “Traditional” R&D --

- IP is a by-product of research and product development  
(IP is the fruit that falls from the R&D tree)

to “Pure” IP --

- IP is the (only) product

# The IP Development Spectrum

IP is created as a *by-product* of R&D\*      QUALCOMM, RAMBUS      MOSAID, TESSERA      INTERTRUST      WALKER DIGITAL      INVENTION FACTORY      IP\* is the product



(Note that technology companies often move to the right as they mature)

\* R&D includes Business Methods

\* IP includes know-how

# *IP Factories vs. Patent Trolls*

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- *IP Factories* create an ongoing stream of innovation protected by IP in the form of patents, process know-how, copyrighted code, protected chip designs, proprietary databases, etc.
  - ROI is generated by transfer of enabling technology and licensing of associated IP rights
  - The technology is typically transferred in the form of digital designs (e.g., IP cores, IP blocks, macrocells, etc) and consulting services
  - Typically these companies have three operations units:  
R&D, IP licensing and customer support
  - Examples: MOSAID, Interdigital, ARM, MIPS Tessera,

## *IP Factories vs. Patent Trolls (cont.)*

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- *Institutional Patent Aggregators* -- sometimes referred to as “*Patent Trolls*” -- generate ROI from monetizing (via licensing) previously issued patents acquired from third parties or developed internally.
  - The only “product” is a non-exclusive license
  - The customer value proposition is, “We have patents that cover your business, pay us a royalty or we will sue you.”
  - Because they make no products, they have no exposure for patent counter-suit by their targets; they only thing that will make them go away is \$\$\$
  - Examples: NTP, Acacia Research, Intellectual Ventures

# *IP Factories - Past & Present*

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- MOSAID, Tessera, InterDigital, MIPS, ARM (began as chip product companies)
- Applied Minds (Danny Hillis, Glendale)
- Invent Resources (Richard Pavelle, Boston)
- Interval Research (Paul Allen, Silicon Valley)
- Deka R&D (Dean Kamen, Manchester, NH)
- Sarcos Research (Salt Lake City)
- Generics Group (Cambridge, England)

# ***Strategic Objectives of Directed IP Development***

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- **Offensive Positioning**
- **Defensive Positioning**
- **Positioning for Acquisition**
- **Facilitating Joint Development Relationships  
and Strategic Alliances**
- **Creation/Acceleration of Markets for Core Products**
- **Development of IP in Complementary Product Markets**
- **Solution of *Choke-Point* Technical Problems**
- **Identifying, then occupying, *White Space* opportunities**

# ***Strategic Objectives of Directed IP Development (cont.)***

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## **1. Offensive Positioning**

Focus is on IP relevant to emerging industry standards

Traditionally, start-ups are not in a position to enforce IP rights

-- but this is changing, e.g., Intertrust

## **2. Defensive Positioning**

Focus is on IP relevant to competitors' activity

i.e., cross-licensing potential

## **3. Positioning for Acquisition**

Focus is on IP relevant to competitors of prospective acquiror(s)

# ***Strategic Objectives of Directed IP Development (cont.)***

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## **4. Facilitating Joint Development Relationships and Strategic Alliances**

Creative use of Exclusive Field of Use licenses  
Example: Boeing

## **5. Creation/Acceleration of Markets for Core Products**

Example: Intel -

“encouraging” development of computation-intensive software applications to promote market for next generation microprocessor (e.g., 3D rendering)

# ***Strategic Objectives of Directed IP Development*** (continued)

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## **6. Development of IP in Complementary Product Market(s)**

Example: Apple Macintosh ---> iPod

## **7. Solution of *Choke-Point* Technical Problems**

Toll-Collector Model

Example: Semiconductor Road Map “Red Bricks”

## **8. Identifying, then occupying, *White Space* opportunities**

# *Red Brick Example: ITRS Design Technology Metrics (1999)*

<i>Year Technology Node</i>	<i>1999 180 nm</i>	<i>2000</i>	<i>2001</i>	<i>2002 130 nm</i>	<i>2003</i>	<i>2004</i>	<i>2005 100 nm</i>
MPU new design cycle (months)	36	36	36	32	32	32	30
MPU transistors per designer-month (300-person team) (thousand)	2	3	4	7	10	15	20
ASIC new design cycle (months)	12	12	12	12	12	12	12
ASIC transistors per designer-month (50-person team) (million)	0.3	0.4	0.5	0.7	1.0	1.3	1.8
Portion of verification by formal methods	15%	15%	15%	20%	20%	20%	30%
Portion of test covered by BIST	20%	20%	20%	30%	30%	30%	40%

*Solutions Exist*

*Solutions Being Pursued*

*No Known Solutions*

## *What are the Sources of IP Risk for a Start-Up?*

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- Third Party Patent Claims
- Third Party Trade Secret/Copyright Claims
- Third Party Trademark Claims

# *What are the Sources of IP Risk for a Start-Up?*

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- Third Party Patent Claims

- Direct competitors

- most serious risk area for start-ups

- Operating companies with large patent portfolios

- usually not interested in going after start-ups

- Patent trolls

- ditto

# *What are the Sources of IP Risk for a Start-Up?*

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## Third Party Patent Claims (cont.)

Risk management measures --

- Patent clearance searches
  - but it can be expensive and often impractical
  - and what do you do if you find a problem?
    - design-around
    - negotiate for a license
    - develop legal arguments - prepare for battle
    - do nothing and hope that you're not noticed
- Build a defensive patent position - takes time and/or money
- Consider a strategic alliance with a large patent owner.

# *What are the Sources of IP Risk for a Start-Up?*

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- Third Party Trade Secret & Copyright Claims

Unlike patent claims, these are based on *improper derivation*  
(and are thus more controllable)

Must be very careful in hiring new employees from competitors

Unmonitored employee incorporation of open source software into products can be a problem

Outsourcing product development (e.g., software) can introduce additional risk

Consider use of “clean room” product development techniques

# *What are the Sources of IP Risk for a Start-Up?*

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- Third Party Trademark Claims

Conduct trademark clearance searches before adopting new marks

Changing trademarks is usually not a big problem for a start-up

# *Two Fundamental Changes in IP Development Strategy*

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- Combining *Make* and *Buy* IP Acquisition Strategies
- IP Development Outsourcing
  - Both are generally applicable to more mature companies but in some situations (as will be discussed) they may be used by start-ups

# *How Can a Start-Up Combine “Make vs. Buy” IP Development Strategies?*

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- *Advantages of IP Buy vs. IP Make*
  - Patents take 3-5 years minimum from filing to grant
  - By then, the technology/market may have moved out from under the patented solution
- *Where does the Buy money come from?*
  - From the primary investors -
    - but they have a historical bias against investing in IP development
    - corporate spin-outs have an advantage over start-ups
  - From dedicated IP fund investors -
    - but this creates dilution issues for the lead investors
  - Via creative IP acquisition arrangements
    - e.g., no/low front-end payment plus revenue sharing
- *In-licensing alternatives - use of exclusive FOU licenses*
- *See [Open Innovation](#) by Henry Chesbrough (UC-Berkeley)*

# *Outsourcing IP Development*

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- Hybrid Model between *Make* and *Buy* modes of IP development
- See-before-you-buy
- Advantages:
  - Access to world-class technical experts
  - Ability to pull-the-plug at various development milestones (or at will)
  - No internal corporate politics
  - No HR issues: client can either hire some or all team members - or terminate them without cause

# *Outsourcing IP Development*

(continued)

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- IP Ownership/Payment Alternatives
  - Company engages, and compensates, outside expert consulting team to solve a particular technical problem set; client owns any and all IP (patent rights, know-how) created, whether or not project is completed.
  - Company identifies problem(s) to expert consulting team, but does not pay for efforts to solve; client gets an option to acquire/license any technology/IP developed.

# *Focused IP Accelerators*

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- Innovation Workshops
  - Technical experts are internal but outside *innovation facilitators* conduct group brainstorming sessions
  - Emphasizes cross-disciplinary/specialty interchanges
  - Focus is on creating patentable solutions
  - Examples: Vincent & Assoc., ICMG, Acorn, IP Capital

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# ReCap

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- Technology companies are increasingly looking beyond their own “R&D” to improve their IP position.
- Strategic objectives determine the *direction* of directed IP development.
- Outsourcing directed IP development can be an attractive alternative to internal development.
- Innovation Accelerator consultants can add IP value.
- The day of the *IP Factory* has arrived.

# *Do Early-Stage Investors Care About Patents?*

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Answer: It depends ....

# *Do Early-Stage Investors Care About Patents?*

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- It depends on the technology --
  - Bio/Pharma
  - Nanotech/Materials
  - Semiconductors
  - Networking/Telecom
  - Software
  - Business Methods

These differences reflect the risk uncertainty associated with *patent validity* in each of the areas

# ***Do Early-Stage Investors Care About Patents?***

***(cont.)***

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- It depends on the pace of technology evolution --
  - Innovative technology without strong IP protection means that your competitive advantage may be limited to

lead time aka *first mover advantage* --

larger competitors can replicate your product or service in much less time

*however*, in some fast moving markets, this may be enough i.e., by the time competitors can get a copy to market, you introduce your next version

# *Do Early-Stage Investors Care About Patents?*

*(cont.)*

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- It depends on the maturity of the IP --
  - Traditionally, early-stage technology means early-stage IP
    - This means IP value can be very speculative (depending on the technology, see above)
    - Early stage investors (angels, VCs) will typically cash-out long before IP value has been established
    - As a result, their motivation may be to spend as little money as possible on IP development
  - This paradigm is starting to break-down
    - Start-ups are beginning to supplement IP make strategies with IP buy strategies

# ***Do Early-Stage Investors Care About Patents?***

***(cont.)***

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- It depends on the IP sophistication of the investor --

Some early stage investors, e.g., Piemontech, are very IP focused.

In addition, capital sources are now becoming available to fund both *make* and *buy* models of IP development

## *Concluding Thought*

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- A sound intellectual property strategy is not the answer to all the problems faced by a start-up.

– However,

thoughtful integration of an IP strategy into the business plan (and the underlying business model) can produce significant results in terms of increasing return on investment.