CS207 #5, 24 Oct. 2014

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Hewlett 103
Homepage at
https://cs.stanford.edu/wiki/cs207/Main/HomePage

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Syllabus:
The order and coverage is flexible

1. Why should software be valued? Cost versus value.
4. Income from Sales and Service. Alternate Business models
5. Sales expectations and discounting of future income.
7. Software growth.
8. Legal & forensics
9. The role of patents, copyrights, and trade secrets.
10. Life and lag of software innovation.
11. How to grow a software company: organic or by acquisitions
12. Open source software; theory and reality. Freemium.
13. Separation of use rights from the property itself.
15. Role of Government
16. Risks when outsourcing and offshoring development.
17. Effects of using taxhavens to house IP. Abolish Corporate taxation?
Patent troll instance?

Sharing Sound, which holds an actual, government-approved patent. Improbably issued in 2001, Sharing Sound’s absurdly broad patent covers “distribution of musical products by a web site vendor over the internet.”

Actually: specifically includes the generation of a user-specific key that is inserted into the music file at the time of purchase and used in conjunction with keys on the user’s computer to verify authorization. The inventor was Bernhard Fritsch, whose short-lived MCY.com music service launched in early 1999 does appear to have been the first to employ this type of system. Sold the patent to Sharing Sound, instead of creating a product or service with the patent, Sharing Sound lied in wait and finally in May 2010 filed patent infringement lawsuits in the U.S. District Court for the Eastern District of Texas against Apple, Sony, Microsoft, Rhapsody, Brilliant Digital Entertainment (BDE) and Napster, and separately also sued Amazon, Netflix, Barnes and Noble, Wal-Mart, and GameStop. The patent (here is a good summary of it) essentially describes how these companies sell music online. Other than BDE, all of the companies have reportedly settled, the latest being Apple and Rhapsody. But online selling of digital goods was well underway before the Patent Office issued the Sharing Sound patent.

The terms of the settlements remain private, Sharing Sound no doubt kept its monetary demand below the defendants’ anticipated cost of litigation.

[Glenn Lammi: The Legal Pulse; Washington Legal Foundation, 2010 & comments]
Patent bundles

• Many – 100’s – patents are needed for many modern products.
• Negotiating with all the patent owners is much work and leads to costly total royalties ► 20% of cost of GSM phone
• Alternative – standard-specific patent organization ► UMTS for 3G
  1. Bundles all patents needed for a standard, SEP patents
  2. Collects a global royalty from all manufacturers
  3. Reimburses all patent owners – keeps say 6%

    Historical model: U.S. aircraft industry at the start of WW II
    without a patent pool no manufacturer could build good planes

• Bundles also used to negotiate among companies
• Still threatened by patent trolls

    ➢ Costs for a legal defense are huge, often companies just give up
    ➢ Pay-up for a license .  ○ Devise a work-around
More slides on IP protection will be added to the #4 set

• It’s a topic that can fill several courses
  ➢ It is also a topic that has received much attention

• Best move on now.

• In valuations we assume that the IP is protected
  ➢ A topic that has received little attention.

• Any economic assessment on how much to spend in IP protection requires a valuation.
Net income, after sales cost

End of profit on sales

End of profit on all income
Incomes: gross, net, and after cost (-cost)

- Total gross revenue
- Gross sales revenue for Erlang $m=12$ assumption
- Maintenance revenue

Income < unadjusted cost

10% of max

Sales < costs

Maintenance costs

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31-Oct-14 Gio CS207 2014
Life of Software

We learned now why software has a finite life
Although SW can be indefinitely maintained

*Eventually the maintenance costs exceed income*

- A very well-selling product can have a long life
  1. Unique
  2. High quality
  3. Well maintained

- An easy to maintain product can have a long life
  1. Well designed
  2. Insulated from change by established standards
Changing model

• Versions
  ➢ Synchronized
  ➢ Tick-Tock

• Derived products
Making gadgets

Contains
a. Software
b. Firmware
c. Hardware components

Requires
1. Assembly
   induces delay
2. Inventory
3. Physical distribution

Versions
   synchronized or
   Tick-tock
Derived products
Technological products in general

• Multiple contributions to measure
  1. Design—often long-lived architecture.
  2. Performance—use metrics or Log(metrics)
     o [Tick at Intel] Process update
  3. Packaging—enabling broader usage
     o [Tock at Intel] Interface update

• and combine
  ➢ equally (Bayes)
  ➢ or adjusted
• Aggregate version changes are limited
• Patent protection on all segments
Allocation

• When there are multiple products
• When there are other contributors to income
  ➢ Substantial hardware
  ➢ Financial consultants in financial firms
  ➢ Experts in call centers
  ➢ Brand name

Not all of the income can be allocated to the software

• Pareto Optimum
Pareto Optimality
(not Pareto Efficiency : 80/20 rule)

The point were any change lowers the total benefit/cost

• Spending more on software will have less benefit than spending on other stuff
  ➢ People
  ➢ Hardware
  ➢ Advertising
    ▪ For large 10 IT companies the average value allocated to their brand name is 22% (BW survey).

Conclusion:

• If a company is managed optimally, we can allocate IP contribution by multi-year spending patterns
• When is allocation needed?
  1. Tech. , Pharma company:
     ■ income due to R&D versus advertising
  2. Financial Company:
     ■ income due to software versus investment experts
  3. Internal — product mix

• For the Pareto-optimality allocation of income we use cost.
  ➢ But recall: Do NOT use cost as a surrogate for value, value of intangibles come from derived income.
• Many choices now
  a. Technical
  b. Business

Interact with each other.
Discussion

Vishal Sikka, CEO InfoSys, ex-CTO SAP

• Importance of the workforce
  ➢ creates, maintains, exploits IP
  ➢ How to
    ■ Attract
    ■ Motivate
    ■ Update
    ■ Keep
    ■ Reduce
Conflicts

• “At a very well-known vendor, the CMO reported to the EVP of sales. When the CMO tried to insist the software be made more safe and responsive, he was fired. As Jon stated -- and anyone who studies organizations know -- there can be good people participating in terrible decisions about creation of healthcare software products.”
Intellectual Property at a Services Company

Dr. Vishal Sikka, CEO Infosys
24 Oct, 2014
INFOSYS: COMPANY OVERVIEW
Infosys – A Global Leader in Consulting, Technology and Outsourcing Solutions

1981, Started by 7 Engineers
8.25B USD Revenue in 2014
35.5B USD Market Cap (10/2014)

900+ Clients, 20+ Industries, 50+ Countries
~23k Projects presently underway, 82% utilization
98.3% of Infosys Projects are Delivered On-time (Global Industry Avg: 73%)

165,000+ People, 100 Nationalities, 40+ countries
73 Sales & Marketing Offices, 93 Development Centers
35% Female, 97% University Educated, 22% M.S. or Ph.D.

Infosys Mysore: World’s Largest Corporate University
9-time Winner of the Global Most Admired Knowledge Enterprises Award
Infosys Products & Services

Technology Services
Application Development & Management | Engineering Services
Infrastructure Management | Testing | Cloud, Mobile, ...

Business Services
Business Applications | Management Consulting | Oracle, SAP
Sustainability Services

Outsourcing Services
Application Outsourcing | Infrastructure Outsourcing
Business Process Outsourcing | Customer Service
Finance & Accounting | Human Resources | Sourcing & Procurement

Products
Finacle | EdgeVerve | Infosys Information Platform
Infosys Customer Cases

Entire Aircraft Structures and Sub-Systems Are Designed and Developed by Infosys

50+% of all Systems of a Top High-tech Company

National Emergency Warning System across Australia

Millions of Unbanked Users across 800 Locations in India, Banked with Mobile Solution

54 Million Customers in 37000 Branches of ICICI Bank Running on Finacle

Trains and Planes, Drills and Mills, Appstores and More...
IP @INFOSYS
IP at a Products Company vs. a Services Company

**IP at Product Companies**
- IBM
- Microsoft
- Oracle
- SAP AG
- Salesforce

**IP at Services Companies**
- Accenture
- Infosys
- Wipro
- TCS
IP Situation at Infosys

- The Primary Business of Infosys is Services
  - The ownership of IP generated during a service engagement is governed by contractual agreements
  - The IP generated is primarily owned by clients

- Recent Focus Has Been in Creating Infosys IP
  - To be a differentiator in our service offering, allowing Infosys services to be delivered faster, at a lower cost, better quality, etc.
  - Bring in capabilities like automation and artificial intelligence into Infosys offerings
  - Ability to reuse across Service engagements
  - Separately charged – licensed, SaaS, included as premium services, etc.
  - Areas include analytics, automation, artificial intelligence, networking, mobility and edge platforms among others.

- This Needs to be Protected via Patents and other means
Examples of IP at Infosys

- Edge Platforms Offered as SaaS, and On Premise Applications via Subsidiary EdgeVerve
  - AssistEdge, BrandEdge, InteractEdge, TradeEdge, ProcureEdge and CreditFinanceEdge
- Infosys Information Platform
  - Web scale big-data analytics using commodity hardware and open source software
  - Ability to handle all kinds of workloads on a single platform – batch, real-time, streaming, structured and unstructured
- Networking Hardware
  - SDN switches for the Indian Army
- Mobility and Wearables
  - Mobile platform for location-based services
IP Management Strategy at Infosys

IP Value Management – Offensive: Maximize Value

- To maximize the value to the company and its clients by leveraging Infosys intellectual assets
- To augment Infosys brand and strengthen thought leadership
- Be considered an innovator and leader in new paradigms like big-data analytics and artificial intelligence

IP Risk Management – Defensive: Minimize Risk

- Protect, sustain and grow Infosys business model
- To ensure that Infosys intellectual assets are protected and not infringed upon by anyone
- To ensure that Infosys or any Infoscions do not violate or infringe upon anyone else’s intellectual property
Infosys Patent Statistics

Filings - Patent Families

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Patents: Grants - US

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No. of Patent Grants

Cumm Patent Grants
Challenges

- Effective Management of High Usage of Open Source with Compliance.
- Reaching Every Employee and Their Ability to be Adequately IP Aware. In Particular, Making Sure we Protect and Respect our Customer’s IP
- Hiring and Retention of Highly Skilled Software Engineers
- Indian Patent Act – Software per se not patentable.
Plan and Strategy

- Facilitating increased usage of open source – Leverage FOSS Across Projects with Compliance. Increased focus on FOSS training using well known industry experts, including invited talks.

- Focused efforts to hire high quality talent across areas of interest where Infosys wants to build IP

- Working with startups and M&A

- In-house patent drafting and prosecution practice – Optimization of costs

- Macro codes for Project Efficiency – Productivity Improvement and Analytics

- In-house FTO Practice – Risk Mitigation to Minimize Third Party Patent Infringement Risk

- Enhancing eLearning Module on IP – Evangelization for Infoscions on Intellectual Property

- Additional Focused Training – Increased awareness across job levels
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Disclaimers

How to react to software failures

• Freemium none
• I-phone Apps little, at most price refund
• games
• Shrink-wrap
• Enterprise software
• embedded software
  ➢ in chips
  ➢ in cars
  ➢ in planes
  ➢ in nuclear plants