

Stanford Case Studies

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Some Stanford Case Studies

- 1970 WYLBUR \$1Million
- 1971 FM Sound Synthesis \$23M
 - Inventor: Professor John Chowning, Music Department
- 1974 Genetic Engineering \$255Million
 - Inventors: Professor Stanley Cohen (Stanford Genetics Dept) & Professor Herbert Boyer (UCSF)
- 1996 Google \$336Million
 - Inventors: Graduate Students Larry Page and Sergey Brin, Computer Science Department
- Plus a medical device case study

The Wylbur Story

- The Beginnings - 1970
- The Company Visit - 1971
- The Threatening Letter - 1972
- OTL to the Rescue: Registration of Copyright and Trademark
- A Happy Ending: A very successful licensing arrangement

Wylbur Licensing History

- 1972-1976: Non-exclusive Site Licenses for one time fee of \$2,000
- 1976: Exclusive Software Distribution Agreement with On-Line Business Systems (OBS); 15% royalty on sales of Wylbur (Stanford can still distribute Wylbur to education institutions)
- 1982: Revised Agreement with OBS with royalties of: 7.5% for 1st \$700k; 10% to \$1M; 12.5% to 1.25M; 20% thereafter
- 1983: Addition Trademark Licensing Agreement with OBS allowing use of Wylbur trademark for added 1% royalty
- 1994: Royalties end; Product is out-dated; Total royalties of just under \$1M

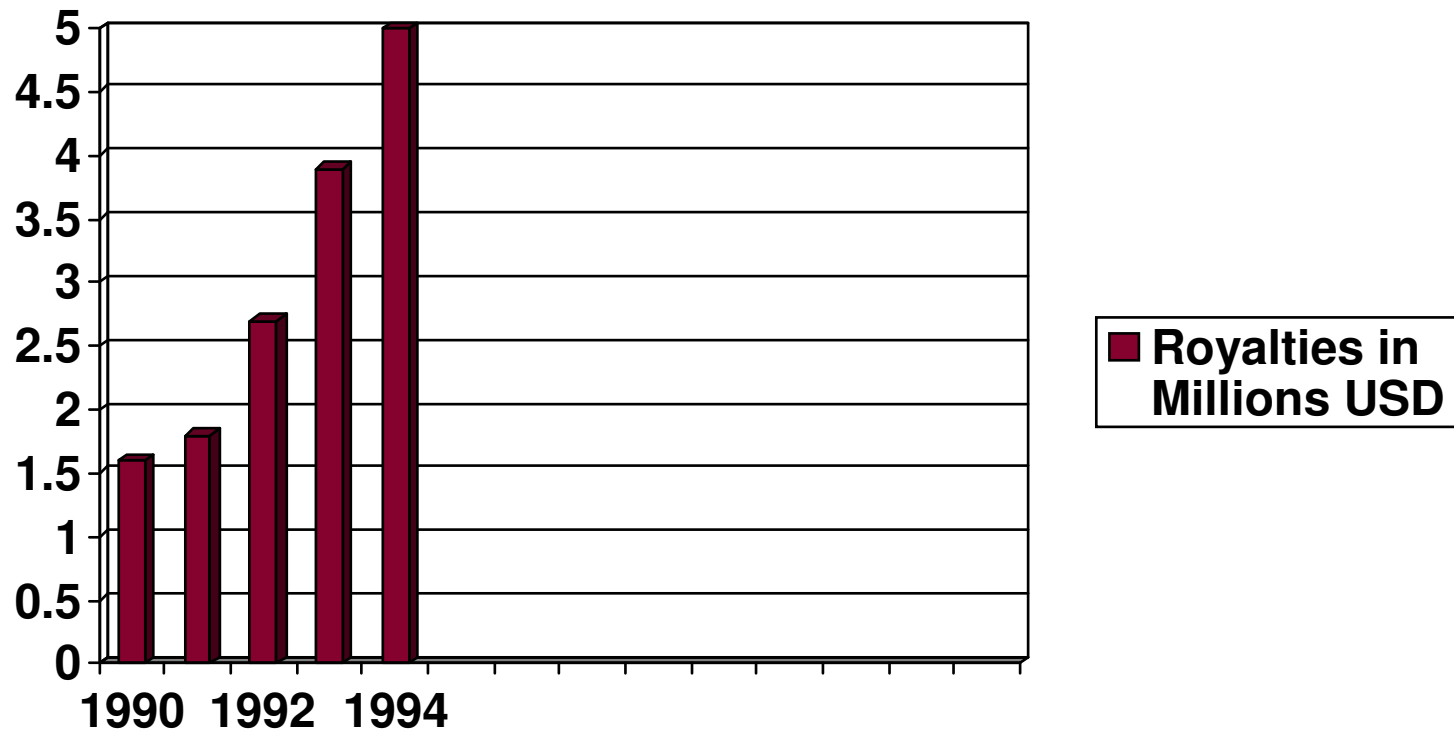
FM Sound Synthesis

- 1971/73: Marketed in U.S. No one interested
- 1974: Meetings with Yamaha in L.A. & Japan; Yamaha Engineer (Mr. Ishimura) predicts product in 10 years; Letter Agreement signed
- 3/75: Exclusive License Agreement signed for sale of musical instruments
- 5/75: Patent Application Filed (issued 4/77 and expired 4/94)
- 5/81: Replacement Agreement Signed (after 5 amendments to initial Agreement) to now include royalties on sales of computer chips

FM Sound Synthesis(2)

- 1984 Yamaha DX Series of Sound Synthesis Keyboards Introduced: Very successful product line
- 1980s: Sound Generation Chips for PCs
- 1990s: Mr. Ishimura becomes President of Yamaha
- 1994: Patent Expires; Royalties end
- Today: Musical tones in cell phones use FM Sound Synthesis technology disclosed in 1971

FM Sound Synthesis Royalty Income



Stanford OTL Royalties

- 1969 - 1980 Total Royalties of \$4M
- 1981 - 1990 Total Royalties of \$40M
- 1991 - 2000 Total Royalties of \$400M
- However, essentially all of the \$400M came from inventions disclosed in the 1970s

Components for Successful Licensing Program

- A Pipeline of Disclosed Innovation
- An Efficient Process to:
 - Evaluate and Select
 - Protect (usually by patenting) and Market
 - Negotiate License Terms and Monitor Compliance Terms
- Patience

Genetic Engineering

- 11/72: Meeting in Hawaii Restaurant
- 3/73: Successful Results
- 11/73: Publication of Results (Establishes Patent Bar Date of 11/74)
- 5/74 Newspaper article on genetic engineering forwarded to Niels Reimers; He meets with inventors who do not wish to file for a patent
- 6/74 - 11/74: Inventors agree to a patent; then must obtain ownership rights from research sponsors

Genetic Engineering(2)

- 11/74: Process Patent Application Filed (Issued 12/2/80 and expired 12/2/97; Open Patent Prosecution; Two Continuation Applications later filed on Products
- 12/74: Call for safety guidelines for genetic engineering research (Issued by NIH in 1975)
- 1976: Article in Science magazine on safety issues lead to NIH and Congressional Reviews; Outcome is an ok for Stanford to proceed with patenting and licensing
- 8/81: Non-exclusive licenses made available with 12/15 deadline to get favorable terms; License is printed in booklet form to discourage change requests

Genetic Engineering(3)

➤ Favorable Terms

- Low earned royalty rate (1/2 to 1%)
- \$10k Issue Fee & \$10K/year; Issue Fee and first five years get 5x credit (\$300k) against earned royalties

➤ 12/81: 73 licenses signed and submitted

➤ 1985: First Licensed Product Sold: Human Insulin developed by Genentech & made and sold by Eli Lilly under trade name Humulin

➤ 12/97: Patents expire with over 400 licenses in place world-wide

Google (Googol)

- 1996: “PageRank” invention disclosed by Larry Page (Sergey Brin technologies added later)
- 1/97: PageRank marketed to InfoSeek, Excite, AltaVista, and Deutsch Telecom
- 3/97: Chairman of CSD wishes to know what will be licensed and who gets credit: Research sponsor is \$3.4M NSF Digital Libraries Project
- 1/98: Provisional Patent filed (Issued 9/01)
- 7/98: InfoSeek offers \$40K for non-exclusive or \$30k/year for 5 years for exclusive license

Google (Googol) (2)

- 7/98: Page rejects offer and decides to start a company; has Angel Investors willing to back him (e.g., Andy Bectelsheim)
- 8/98: About \$1M raised from Angel Investors
- 9/98: Change in strategy: Will start a full service internet search business now utilizing technology developed by Sergey Brin
- 10/98: Chairman of CSD requests a review; Listing of all components for Google prepared; Review and sign-off from other researchers on Digital Libraries Project
- 3/99: License Agreement signed
 - Extensive list of “Licensed Technology”
 - Option to “Joint Inventions”
 - Otherwise typical terms for a start-up license; e.g., equity in lieu of cash for the License Issue Royalty

Google (Googol) (3)

- 6/99: \$25M from Kleiner Perkins (John Doerr) and Sequoia Capital (Michael Moritz); On condition that a qualified CEO is hired soon
- 9/01: First patent Issues; Two Joint Patents pending
- 8/04: Google IPO via Auction Format; \$2B raised
- 2005: Stanford sells equity for \$336M (over 1.8M shares due to three 2 for 1 stock splits and no dilution as no venture funding rounds after 6/99)
- 2005: Page and Brin each worth over \$10B

Medical Device Case Study

- The Invention: Use of LEDs to treat Jaundice in Newborns; Traditional treatment used banks of florescence lights that required close monitoring in hospital due to health risks
- Interdisciplinary Development Effort arranged by me
- Parts (panels and LEDs) funded by OTL Birdseed Fund
- Excellent results reported at major conference
- Three parties request a license (a very rare occurrence)
 - Large Multi-National Company
 - Small Company in Photo Therapy Products business
 - Proposed Start-up company not related to Stanford

Medical Device Case Study

- The Decision Process: Each party to prepare a business plan describing the resources they would use and the expected timeline to bring a licensed product to market
- The small company was selected because:
 - This would be a major product line for them
 - They had in place engineers with expertise in the field and an existing marketing and distribution network
 - They had in our opinion the most realistic development and marketing plan
 - Had the start-up had the involvement of the Stanford inventors, it would have been a more difficult decision

BIO-X at Stanford

- Major Interdisciplinary Program involving collaborations between medical specialists, engineers, and scientists.
- Has a large state of the art building to house and support collaborations.
- Has an annual call for proposals that the Program selects from and funds those selected
- Innovation from Bio-X results in several start-up companies out of Stanford each year in medical field
- Origin is a collaboration between a Nobel Prize winning Physicist and a well known biologist. They suggested to Stanford's President that a formal Program be started who then got Jim Clark to donate \$150M
- Further information at the web site biox.stanford.edu

THE END

- Thank You for your Attention!
- AND, for information on Stanford's Innovative Support Program for Medical Innovation, go to:
- biodesign.stanford.edu