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The Johnson School

NBA 600
Digital Music
Class 6, Mon 11/5
(Originally Wed 10/31)

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Digital Music

- Last time talked about economics of digital goods and services
- Today focus on music industry
 - Technological changes and relation to strategic landscape
- Similar issues for video
 - But more amateur produced video
- First a brief overview of copyright and intellectual property protection

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Intellectual Property Protection

- Three distinct areas
 - US law, but considerable effort to align laws of major countries through international treaties
- Patent protects inventions
 - Products or processes “reduced to practice”
 - Not text, film, music (creative works)
- Trademark protects names or symbols
 - Reputation and name of firm or product
- Copyright protects creative works
 - Original works of authorship

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Goals of Intellectual Property Law

- Achieve balance between public and private good
 - Creator, inventor or owner has presumably expended considerable effort/resources
 - Developing an invention – patent protection
 - Building and maintaining a brand – trademark
 - Authoring a work – copyright protection
 - Creator might not share work broadly if do not receive some protection – depriving public
 - Public at large should have access while protecting rights of owners

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Copyright

- Protection provided to authors/owners
 - Original works: literary, dramatic, musical, artistic, and certain other intellectual works
 - Generally gives owner exclusive right to
 - Reproduce the copyrighted work
 - Prepare derivative works
 - Distribute copies
 - Perform or display the copyrighted work publicly
- Limited term – works enter public domain after some time period or upon declaration
 - Owner loses exclusive rights

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What Copyright Protects

- Works embodied in some fixed form
 - Not a performance, but a script or a recording
- Actual expression not thing described
 - E.g., in a computer program copyright protects the actual code not the problem that it solves
 - Other implementations are not protected
 - However, derivative works are protected
 - If someone takes code and modifies it or copies substantial portions
- Copyright holder has right to control how material is distributed or reproduced

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Limitations of Copyright

- Fair use of copyrighted works
 - Quotation or reference
 - E.g., reviews, scholarly works, articles
 - Parody
 - 1994 supreme court decision – “Pretty Woman”
 - Roy Orbison vs. 2 Live Crew
 - Copies for personal use – so-called fair use
 - 1984 supreme court decision – video taping
- Lists of facts are not creative works
 - 1991 supreme court decision – phone directory
 - After NYNEX CD ROM directory case

Determining Fair Use

- Defense against infringement not a right
 - Open to judgment, and thus litigation
- Four factors in determining fair use
 - Purpose and character of use
 - Commercial versus non-commercial
 - Nature of copyrighted work
 - How “creative” is the original work
 - Amount and substantiality of portion used
 - Both quality and quantity of copied material
 - E.g., characters, scenes may make substantial
 - Effect upon potential value of copyrighted work

DMCA

- Digital Millennium Copyright Act
 - Passed in October 1998 in response to Internet
 - Also part of WIPO copyright treaty
- Main feature over prior copyright law
 - Ban on technological tools that can be used to violate copyright
 - Rather than just on copyright violation itself
 - Substantial implications for “fair use”
 - No person shall circumvent a technological measure that effectively controls access
 - While certain copying may otherwise be allowed can be prevented with digital protection

DMCA and Reverse Engineering

- Several companies, notably Lexmark embedded software in their products
 - E.g., toner cartridge that won't work with printer without program in cartridge
 - Argued that copying infringed DMCA “access control”
- After initial victory, was overturned in district court and refused hearing by supreme court
- Broader questions about reverse engineering

Digital Music Industry

- Early 2000's rise of Internet and file sharing
 - CD sales down 10-12% starting 2001-02, still falling at double digit rates
 - But not uniformly across region, genre
 - Song downloading became rampant
 - Napster, follow-ons such as Kazaa, BitTorrent
 - Subpoenas of ISP's and (threats of) lawsuits against file downloaders
 - RIAA industry group proponent of theory that downloading causing sales downturn

New Technology Generations

- When a better distribution technology arises sales using the old medium have historically declined
 - Rate of 10-15% per year
 - Cassette tapes replacing vinyl albums
 - Compact discs replacing cassette tapes
 - Online replacing compact discs
- Is online music a replacement technology?
 - Extent to which format and convenience rather than whether “free”

Music Industry Sales Today

- Oct '06, chairman of EMI said CD format is dead
 - People primarily rip to portable music players
 - Still room for physical media but need “additional content”
- Q3 '07 music industry sales
 - CD's down 18.5%
 - Digital downloads (paid) up 46.3%
- Online delivery now about 20% of total revenue

Multitude of Factors

- Changes in competitive landscape with rise of Internet and other forms of leisure activity
 - Substitutes, supplier power, buyer power, barriers to entry, internal rivalry
- New technology changing value of compact disc as means of distribution
 - Preferred means among consumers
- Importance of experience as means of creating potential audience/customers

Changes in Substitutes for CD's

- Increases in other activities that may compete for time with music listening
 - Cell phone usage
 - Replacing “Walkman” on campuses
 - Video games
- File downloading replacing CD purchase
 - Massive popularity of Napster and follow-on systems such as Kazaa, BitTorrent
 - Large fraction of all Internet traffic
 - Potentially lower quality but higher convenience than CD

Changes in Buyer and Supplier Power

- Buyers
 - More informed consumers
 - Internet sites, chat, search
 - More consumer choice
 - Of format and outlets
 - Of substitutes
- Suppliers
 - Artists, potential for direct-to-consumer
 - Distribution channels
 - CD printers, retail, radio/cable, online

Barriers to Entry and Rivalry

- Barriers
 - Production and distribution easier and cheaper
 - Online versus CD printing, distribution, channels
 - Identifying and signing talent
 - Promotion and branding
- Rivalry
 - Uniting against “common enemy” via industry trade groups such as RIAA
 - Little attempt to innovate using new technologies or media

Value of Music in Different Forms

- Why listen to free music sources
 - Radio, cable, download
- Why buy music
 - In various forms
 - CD
 - Online download
- Personal purchase vs. gift
- Cost, convenience
 - Non-monetary costs

Forrester and Gartner Studies

- Surveys of online consumers shows heavy downloaders still buy the most music
- Forrester identified several groups
 - Offline and nonusers: never download or burn
 - Dabblers: have tried but do infrequently
 - Learners: download, rip or burn 3-8 times/mo.
 - Lovers: over 9 times/mo.
- Lovers and learners make up 22% of population but buy 36% of music

Empirical Studies Rare

- Surveys problematic
 - Self reporting accuracy
 - Purchase behavior in absence of file sharing
 - Don't consider whether downloads increase consumption rather than decreasing sales
- Econometric study based on actual download data
 - Instrumented file sharing systems
 - Estimate 0.01% of all downloads Sep-Dec 2002
 - Compared with various other measures to investigate relationship of downloads and sales

File Sharing Downloads and Sales

- Strong positive relation between number of sales and number of downloads
 - Can simply reflect item popularity
- Similarly high positive relation between airplay and both sales and downloads
- More complex models show little negative effect of downloads on sales
 - One study concludes 5,000 per lost sale
 - Low percentage of album sales
 - Another study concludes slight positive effect

Paid Song Downloads

- Apple iTunes site got things “right” by Forrester/Gartner criteria – launched 6/03
 - Broad range of music, ease of use, pay-per-song, browsing, acceptable price
 - First year of operation did not quite hit \$100M revenue goal
 - Sold billionth track in early '06, 2 billionth in early '07, 3 billionth in summer '07
- What is longer term viability of this model as new distribution medium?
 - Fee for convenience, virus free, fast, ...

Strategic Shifts

- What is Apple's competitive position relative to the recording industry?
- War of words between Jobs and industry execs
 - September '05, Jobs called labels greedy for wanting to force rise in iTunes prices
 - Says continued success has to compete with free file sharing
 - Spring '07 – Apple goes on offensive against DRM
 - Announces DRM free EMI catalog in April

Evolving Industry Structure

- Apple and other online providers
- Role of record labels
 - Band to customer? Madonna, Prince, Radiohead
- Where value is provided and can be captured
 - Performances and merchandising versus recordings
- Where revenues and profits go
- Power of independent artists

Complexity of Industry

- Complicated for consumers
 - If only certain artists/formats available in certain sales venues
 - Easier to get illicit copies?
- Complicated for providers
 - Individual license agreements, often with many parties involved
 - Single track or video can involve material from many others
- What effect on revenue?

Next Time

- DRM and Darknets
- Remember make-up class will be tomorrow, Tuesday, at 1:25 in B10