Any make-up reports submitted by 15Nov10 are marked on the sign-up sheets.
Syllabus:

1. Why should software be valued?
3. Market value of software companies.
4. Intellectual capital and property (IP).
5. Open source software. Scope. Theory and reality
6. Life and lag of software innovation.
7. Sales expectations and discounting.
9. The role of patents, copyrights, and trade secrets.
10. Offshoring [Prof. Gupta]
11. Separation of use rights from the property itself.
12. Risks when outsourcing and offshoring development.
13. Effects of using taxhavens to house IP.
There is at least one type of trade secret that is recognized by federal law:

- Exclusive access for 4 (small molecules) or 12 (biological) years to the `sponsor’ of IP material collected for
  - Clinical trial data
  - Software to design drugs
  - Drug-making processes
  - Software to control drug-making processes

Even though the information must be made available to the FDA for drug approval.
Offshoring

Task transfer to Enterprises in Foreign countries

Two aspects:

1. Work migration: jobs are moved to lower-cost countries

2. Support software etc. is moved to enable similar productivity in those countries

Income is generated by people and (intellectual) capital
What is intellectual property (IP)

Typical ranges for a creative company

• Total value of a company (~ market value) 100%
  1. Tangible property (in knowledge-based enterprises) < 20%
  2. Workforce—in-place (not property these days) ~30%
  3. Intellectual property (unique to the company) ~50%
    ▪ Patents 5% to 20% of the IP
    ▪ Copyrights held 0% to 5% of the IP
    ▪ Software 10% to 50% of the IP
    ▪ Trademarks 20% to 50% of the IP

IP is an essential component for a company to generate income and to grow.

Rights to IP can be isolated from its physical representation.
IP Hypothesis

• Offshoring of jobs is effective because of concurrent Intellectual Property (IP) transfer
• Much of that IP is corporate property
• Transfer of corporate IP is poorly understood
  ➢ IP as property is not well defined, hard to measure
  ➢ There are many components to IP, coming from
    ▪ open source, R&D, marketing, reputation as
    ▪ Patents, copyright, trade secret (covered by NDAs)
• Still, IP transfer is a valuable, significant export
Another Type of Foreign Entity: CFH

• Owned, Controlled Foreign Corporations
  ➢ CFC provides control over IP

• Owned, Controlled Foreign Holding Companies
  ➢ Buy and hold the IP, but do not actually use it
    ▪ No physical holdings, only rights, no protection problem
    ▪ Used to keep funds and IP outside of home country
    ▪ Increases flexibility of investments
    ▪ Often in a tax haven
      o Taxes only due when funds flow to a country that taxes
      o Little transparency for outsiders, stockholders, employees

2. *USco* may sell its HQ building to a real-estate enterprise *REco* with a provision that the *REco* will lease the building back to *USco*.

3. If *USco* has received a fair value for the building, *USco*’s total tangibles remain unchanged until it spends the money it received.
   - *REco* may offer an attractive lease because of tax advantages.

4. Actually, *REco* can be set up by *USco* and controlled by *USco*, which also remains its only tenant.

5. Nobody moves and few employees will notice a change.
   - There is a new brass plaque on the building
   - A sign `*REco*’ on the door to the rooms housing the people who maintain the HQ.
   - The public consolidated annual report of *USco* only lists the name and location of the controlled subcorporation *REco*; the assets of both are combined.

6. Since the lease receipts at *REco* and payments by *USco* are similar, the more complex financial flow is invisible.
Internal sale for intangibles

Procedure functionally identical to tangible example, but

- **Even less visible**
  - IP transactions are harder to value than buildings
- **IP is a much larger fraction of corporate value than HQ**
- **The consumers of the IP are the sales organizations**
  - Not the tenants
- **Typically involves three or more entities**
  1. **Parent company, creator, or sponsor**
     - Creates and maintains the IP
  2. **IP holding company, often in a tax haven**
     - Buys IP initially and pays for its maintenance. Licenses its use.
  3. **IP consumer: selling company**
     - Buys license to use the IP in products it sells, pays royalty to IP holder
  4. **Off shore IP generators** → more to come
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Types of Foreign Entities

• **Independent Foreign Contractors**
  - IFC may serve multiple customers
    - Share trade secrets with competitors
  - Owners need contracts to protect the IP
    - Hard to monitor and enforce

• **Owned, Controlled Foreign Corporations**
  - CFC provides much more control over IP
  - Ownership often in third-party countries
    - Avoids taxation of sales to other countries
Knowledge is the Link

To be effective a worker has to know what has to be done

- That knowledge consists of
  - The technology
    - Documentation, prior versions, quality control
  - The business methods
    - How technology in the product is marketed
    - The flow from buyers to improved products and methods

- Companies distinguish themselves by proprietary IP
  1. Patents, sometimes Copyrights
  2. Confidential Documents
  3. Knowledge within its people - protected by NDAs
To illustrate: a Sequence of Hx cases

- Moving from Sales to Transfer of property
  - Country-based vs. Global companies
- Moving from Tangible to Intangible
  - Visible & measurable, barely so, or not at all
- Intangible property with Intangible knowledge
  - Services versus Patents and Trade Secrets
- Outsourcing
  - Work and its enablers: human and intellectual capital

Definitions emerge as we proceed through 10 cases
Case 1: Tangible export only

U.S. Machine tools * producer U

* To simplify: tools are not innovative, could be be built anywhere

- U exports its products to foreign countries
  - Receives payments for those exports
  - Pays taxes on resulting profit

IP Note: U supplies documents for use of the machines. Those documents may be copyrighted. But copyright does not protect intellectual contents, only protects outright copying. Rarely valued.
Case 2: Tangible transfer

Global Machine tools: producer G

- Exports machines to G’s CFC factory F, to be used in production of other products at F

  - G receives transfer payments T from F for those exports
  - Must show that the transfer price T is reasonable
    - Should match prices of external sales by G, or by other Co’s
    - Unreasonably low transfer prices imply U.S. tax avoidance and hiding profits at a foreign base.

  - Pays taxes on resulting profit

But it's hard to be profitable without distinguishing abilities: IP
Case 3: Tangible + market value transfer

Renowned r Global Machine tools producer R

Reputation r is due to investment in quality and advertising

- Exports machines to its CSC factory Q

- Gets higher prices $T+$ for external sales because of r

- R receives transfer payments for the internal exports
  - Transfer price includes r when based on its $T+$ export prices
  - Harder to assess when there are no exports, and other companies in the business have different reputations
  - Reputation r is IP due to marketing & product quality.
    - fast effect - long-term effect.

- Pays taxes on resulting profit
Case 4: Intangible export ≈ Case 1

U.S. Software tools creator and producer

• Exports software to foreign countries
  ➢ Receives payments for those exports
  ➢ Pays taxes on resulting profit

• Problem: software is easily copied
  ➢ Protection desired, achieved by combination of
    Only issuing licenses -- avoids property rights issues
    Copyright laws and patents -- requires govmnt cooperation
    Making copying hard -- technology game
    Restricting maintenance -- works for critical packages
Case 5: Intangible transfer ≈ Case 2

U.S. Software creator and producer with foreign distribution

- Exports software products to foreign subsidiary, to be marketed and sold there
- Receives transfer payments for those exports
  - Must show that the transfer price is reasonable
    - By comparison with other sales by self, or by other co’s
      - More difficult to assign value than tangibles.
  - Pays taxes on resulting profit
Case 6: Intangible manufacturing

U.S. Software producer with foreign distribution

- Exports software master to its subsidiary, to be copied*, marketed, and sold there
- Receives transfer payments for single export
  - Must show that the transfer price is reasonable
    - One instance allows thousands of sales, generates substantial ongoing income over its lifetime
    - Valuation requires projection of income over its lifetime
      - When is income realized? What is the life of the software?
  - Pays taxes on resulting profit

* equivalent to manufacturing; writing software is considered R&D
Case 7: Intangible transfer, joint creation

Software producer with foreign specialists

- Exports software master to its subsidiary, and adapted, copied, marketed, and maintained there
  - Source of foreign part of knowledge is remote
  - Assume cost of all R&D centrally accounted

- Receives transfer payments for those exports
  - Must show again that the transfer price is reasonable
  - Share R&D cost according to locale of revenue
  - Credit foreign R&D against foreign revenue
  - Pays taxes on U.S. assignable profit of foreign sales
Case 8: Shared intangible creation

Global Software producer

• Develops globally, perhaps 24/7
  ➢ Shares all knowledge globally at initiation
  ➢ Assume cost of all R&D centrally accounted

• Transfer payments should move both ways
  ➢ Must show that the transfer prices are reasonable
    ▪ Use of prior IP accounted for, or Buy-out
    ▪ Allocation? cost, hours?
    ▪ Compute balance
  ➢ Pays taxes on U/S. balance of profit.
Case 9: Extreme offshoring

Company offshores everything

R&D, Production, distribution, service, feedback

- All IP has been exported
  - Value of export is value of entire company, except for tangibles (HQ building, cash, option income)
  - All income is offshore
  - Only profits needed for dividends are repatriated
  - No U.S. taxable income on continuing operations
  - Initial export of IP should be (have been) taxed?
Doonesbury 1/2

September 21, 2003

Bernie?
Hey, Mike! What's up?

Space for Lease
Call
(415) 555-1234
ext 217

What happened?

I'm standing in front of your office, and it's vacated! What's going on?

You didn't hear? We closed the facility.

1-Dec-10
We've outsourced everything offshore: back office, customer service, even distribution.

My margins are way better now. You might want to consider doing the same thing with your operation.

Gee, I dunno...

I'm telling you, Mike, it's the way to go. Let's talk about it over lunch. Set it up with my secretary.

Um...okay. Where is she?

India. Just call the main number.
Case 10: Inversion

The foreign subsidiary (CFC) uses its profits to buy the U.S. Base (USB) company

- CFC (Chord6) creates a second-level subsidiary (Chord64) in the U.S.
- Chord64 merges with USB, considered a (368)(a)(2)(E) reorganization
- USB stockholders trade their shares for Chord64 shares, may be taxed
- USB is now a subsidiary of Chord6; and Chord6 is not subject to U.S. tax
- Stockholder value is unchanged, but their control is diminished

- For sales to the U.S., royalty is now due to the IP owner, the CFC
  - Tax deductible expense
IP flow without return

Income → Capital → Income

US taxes

IP

Foreign taxes ?

Tax havens
IP flow with fair return

Income

Capital

US taxes

Foreign taxes

balance
2.3 Unbalanced IP flow

$ Buy in

Income
Capital

$US taxes

IP
 imbalance

Capital

Foreign taxes ?
Capital creates more IP and Income
Tax avoidance

• To avoid paying US taxes in the income generated by offshoring the holding company is moved to a foreign tax haven (CFH).
  ➢ Formally that move amounts to an export

• Since IP is intangible, it can be placed far away from the US and offshore workers.

• Only the CFH existence needs to be reported, not its assets in IP and accumulated $$
Exports and Transfers go both ways

- There is innovation everywhere
- If the U.S. imports IP, the receiver should pay
  - Basic and fundamental research in the U.S. is declining
    - Growth was motivated by WW II experience [Vannevar Bush]
    - Many countries now fund fundamental research
  - The ratio of applied to basic research is increasing
    - Industrial research is mainly applied
    - Technological research is rarely basic
  - Development requires more resources
    - Industrial and management infrastructure
    - Demonstration and Beta sites - early adopters
Taxhavens

Places where

1. Taxes are low
2. Financial and IP supervision is minimal
3. Reporting requirements are minimal

• Two types

1. Primary tax havens (about a dozen countries)
   ▪ Small populations,
   ▪ Can live largely of license fees
     ○ Cayman Islands: pop. 50K, 90K companies @ 3000/year

2. Semi-taxhavens (more, but often changing)
   ▪ Large populations, need jobs
   ▪ Enact, often temporary, tax benefits for foreign work
With Taxhavens: Three-party flow

Parent corporation

Salaries $ 
License fees $ $ 

Initial purchase $ $ 

Sub corporation “CFH” purchased the rights to

Know How of the workforce

Offshore job sites

Integration

IP documentation

High-value Products

Rights to the Intellectual Property

non-routine profits

1-Dec-10 CS207 34
Capital flow with a tax haven

Tangibles are harder to move than IP
Job Flow
Capital and IP creates more IP and Income

Capital & IP at source

Income

Capital and IP in CFH

Income
Longer term effect

• Repatriation of $$ from the CFH to the US is taxed.
• Current workers are paid by the CFH.
  US and offshore employees are unaware of the source of their paycheck
  ➢ The CFH acquires an increasing fraction of the IP
  ➢ The CFH is paid an increasing fraction of the income
  ➢ The CFH in time can becomes richer than the company.
• It is more efficient for the company to invest in low-tax countries and create jobs there.
  ➢ Job losses in the U.S. increase
• Eventually the CFH can buy the parent company.
  ➢ Control by stockholders is gone as well
Effects over time

To analyze the effects over time, consider the following structure:

1. **Initial IP transfer**
   - From the parent corporation to the primary tax haven.

2. **Taxing country**
   - IP at the parent corporation.
   - $ for dividends.
   - $ for initial IP.
   - Right to use the IP.

3. **Primary tax haven**
   - IP held at the CFH.
   - $ to maintain the IP.
   - Ongoing IP rights.
   - IP available for more new projects.

4. **Profit share**
   - Profit share for parent.
   - Profit share for CFH.
   - All untaxed.

5. **New projects**
   - New projects in semi-tax havens/low cost countries.
   - New IP.

6. **Time**
   - New profits only for CFH.

By sequencing these elements over time, the diagram illustrates the flow of funds and the impact on tax implications, providing insights into the benefits of such a structure.
Problems

• There is a lack of trustworthy data

1. $209M spent [US commerce department, 2003]
   + 4,663 jobs lost [U.S. labor dept, 1Q04]

2. $2,400M income [Business week, in 2003]
   + 50,000 jobs gained [Indian NAS&S Cos, Fy04/4]

• Attitudes are inconsistent

Greenspan 1: IP rights have assumed increasing importance [27Feb03]

Greenspan 2: Our economy is best served by full and vigorous engagement in the global economy – when defending reducing protection [11Mar03]
Related Intellectual capital issues

Not all intellectual capital is owned, property, IP

1. Education: Services that transmit valuable, but non-*proprietary* knowledge to others.
   - If receiver pays, certainly can take it anywhere
   - If the state pays, can it / should it be reimbursed? Now not.

2. Publication: IP placed into the public domain is no longer IP
   - Who benefits?
     - The reader gets knowledge / The writer gets fame
     - Society becomes more egalitarian, effective

• These 2 aspects can easily confuse IP discussions
Need increased understanding and accounting for IP exports (making them visible)

To rationalize political concern by populists & traditional conservatives versus strong lobbyists pressures and globalists

Correct pricing, licensing and its taxation of IP exports

• will increase corporate profits in the U.S.
• reduce cash in offshore accounts, more for U.S. investment
• provide taxes that could be used to compensate
  • for R&D support provided by the government
  • for educational costs
  • for unfunded retirement benefits of workers whose IP was outsourced

• Is unlikely to stop offshoring substantially
• Amounts would be large in a number of cases
• But …. 