1. Why should software be valued?
3. Market value of software companies.
4. Intellectual capital and property (IP).
5. The role of patents, copyrights, and trade secrets.
6. Open source software. Scope. Theory and reality
7. Life and lag of software innovation.
8. Sales expectations and discounting, Licensing.
10. Separation of use rights from the property itself.
11. Risks when outsourcing and offshoring development.
12. Effects of using taxhavens to house IP. IP transfer
13. IP flow, Abolish Corporate tax. Advertising, Money,
Report notes

• Always date your work. *If it’s on-line it will stay around forever and you don’t want to be embarrassed 10 years later.*

• Few had abstracts; objective statement; (decompose); conclusion
  ➢ Good for your organization to state the objective. Have only one in a paper!
  ➢ Good to get on-line readers to go below the fold

• If you cite web references, keep a copy on your files. *Web pages may disappear or be changed.*

• I also mark writing, although that is not a CS207 objective (*CS73N = WR2*)

• When you mail something out, include your name in addition to the course in the file name. *Makes it easier for the recipient who gets a bunch of `CS207report’ files*

Transfers of rights tangible ≈ intangible

But setting the right value is harder, and easily misused
IP flow in the Hard- & Soft-ware industry

- Design & validation in US
- Technical IP Investment
- Development, testing in the US and at CFCs
- Manufacturing, distribution
- CD creation
- Internet

Product Sales within the US
Income is taxable

Product Sales external to the US
Part of income is due to US contribution & taxable
Flow of IP in the financial industry

- INYB system experts in the US
  - Design & feedback
  - Programming and testing
  - Operations of INYB within the US
    - Finance experts within the US
      - Service Sales within the US
        - All US Income is taxable
    - Operations of INYB external to the US
      - Finance experts at INYB site external to the US
        - Service Sales external to the US
          - Income due to technical US contribution is taxable

- INYB finance experts within the US
  - Financial IP Investment by INB
  - Technical IP Investment by INB

INYB investment bank
Repatriated financial capital

Home Country

Taxhavens

Retained Financial Capital

IP rights create earnings

Non-routine Earnings

ongoing from sales

Foreign Countries (& US ?)

Offshore costs

IP rights stay

IRS

Repatriated financial capital
Retained Financial Capital

IP rights stay

Non-routine Earnings

ongoing from sales

Offshore costs

Foreign Countries (& US ?)

Blocker statement: indefinitely reinvest

Repatriated financial capital

Home Country

Taxhavens

Blocked earnings

IR$
New projects in semi-taxhavens & low cost countries

IP rights held at CONCH.

Right to use the IP

Initial IP & $ buy-in

$ for taxes

$ for dividends

Profit for MNC

Profit share for CONCH

all untaxed

New projects in semi-taxhavens & low cost countries

New profits only at CONCH

Government

Shareholders

Taxing country

Primary taxhaven

IP available for more new projects

Ongoing IP rights

Use of IP

Use of funds

More CFCs

$ available for more new projects

New IP

$ for taxes

$ for buy-in

Buy-in

$ for tax on buy-in

Use of funds

12/1/2012

CS207

9
US total worldwide corporate earnings $1,550B/year (less during 2008-2009)

$1,250B from domestic sources

US-sourced earnings moved abroad = $300B

Earnings on $1,800B income from foreign sources = $400B

US tax paid on US Corporate earnings $335B

US corporate earnings sources → destinations

US corporate tax revenue $340B

Uncollected US tax on US earnings $100B

Uncollected US tax on foreign earnings $130B

US tax paid on foreign earnings

$690B available in tax havens for corporate investment

$620B available for corporate dividends & investment in the U.S.
Proposal: Abolish Corporate Taxation now

Multinationals use tax havens, Domestic businesses cannot

- Unfair taxation! Easy to buy startups, still hard to integrate them

Loss of tax revenue from C-corporations ~75% of business tax - $143B

No `double taxation’ 15% > full 35% (35%) tax on all Dividends  $ 30B

Also full 35% taxes on capital gains (20%), on 70% of revenue $ 69B

Risk is a red herring. Inflation is real but also experienced by businesses and their gains.
   Flexibility of holding term (now 1 year) encourages short term investments

Higher corporate dividend payouts to compensate. Also taxed  $ 10B

More corporate spending: direct effect  $ 20B

Don’t count on indirect effect (Laffer curve)  $ 0B

Total effect (0.5% of tax revenues) loss - $14B
<table>
<thead>
<tr>
<th>Taxed item</th>
<th>Action</th>
<th>Change</th>
<th>Motivation and result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate income tax (CIT) for C-corporations -- not S-corps. LLCs</td>
<td>Abolish</td>
<td>($143.3B)</td>
<td>Cannot be administered fairly</td>
</tr>
<tr>
<td>Dividends to individuals</td>
<td>Tax as income</td>
<td>$30.4B</td>
<td>Treat all sources of individual income identically</td>
</tr>
<tr>
<td>Capital gains by individuals</td>
<td></td>
<td>$69.0B</td>
<td></td>
</tr>
<tr>
<td>Effect of taxation of greater dividend payouts</td>
<td>Corporate</td>
<td>$9.6B</td>
<td>Tax on compensation of shareholders for their increased taxes.</td>
</tr>
<tr>
<td>Direct effect of investment</td>
<td></td>
<td>$20.4B</td>
<td>Purchases (based on DoD spending)</td>
</tr>
<tr>
<td>Research credit, similar corporate tax deductions (loopholes), corporate AMT</td>
<td>No $ change. No tax, no tax credit</td>
<td>No effect of “Laffer curve”</td>
<td>If incentives are still desired, they must be replaced by explicit grants</td>
</tr>
<tr>
<td>Indirect effect of increased investment and repatriation of offshore holdings</td>
<td></td>
<td>(7.2%) of business tax revenues (0.5%) of US tax rev.</td>
<td>No trustworthy data</td>
</tr>
<tr>
<td>Total estimated effect</td>
<td></td>
<td>($13.8B)</td>
<td></td>
</tr>
</tbody>
</table>
Economic Models
[Orrell: Economyths+]

• Used to predict effect of policies and tax changes
  use assumptions → based on easy data availability
  *miss realistic detail*
  ➢ Equilibrium → ignores dynamics and lag: *housing*
  ➢ Normal distribution → based on additive model \( \sum n = \lambda^2 \)
  *many effects are multiplicative: power-law = \( \lambda^{3,4} \)*
  ➢ Symmetric distribution → value S-curve not centered:
  *small (infinitesimal change) calculus symmetric*
  *big change: downside risk hurts more than upside gain*
  ➢ Rational behavior → perfect foresight: X-mas shopping?

• Governments get poor advice
Discussion topics for next, last class

• General IP  3 slides
• Advertising on the web  9 slides
• Corporate growth patterns  9 slides
• Money  5 slides
IP to customers

General Technology Push

Research & Innovation

Tool building

Product building & marketing

Consumer Pull

Business needs

Information Technology

Government responsibilities
Opportunities

• There are big waves where much changes
  1. Introduction of automation into manufacturing
  2. Introduction of data processing in business
  3. Introduction of the Internet into communication
  4. Business and Social networks

• Within a big wave there are many small waves
  1. Management of feedback
     ▪ Product improvement, advertising
  2. Locality of computing
     a. Timesharing - many users use a large computer
     b. Personal computing – local computing is cheap
     c. Cloud computing – remote computing is flexible

All waves create opportunities
Share IP?
Yes, with care

Adobe: Reader free; pay for Composer

XEROX PARC: Smalltalk OO language *nearly dead*

*We got C++ instead*

Industry Group: Standards specifications

Publication in scientific venues *ok, limited impact*

Publication in trade journals *ok, some impact*

Apple vs Microsoft, Xerox vs all: Look and feel

Apple had licensed earlier version, *without overlapping windows.* *Could protect the trashcan*
Adverting Income

• Advertising

  25% of business spending

  ➢ Google Adwords /Adsense to trigger where ads go

    ▪ Show your ad on top or on the side of a search

    ▪ Show your ad on relevant web pages
      
      o Charge by show (eyeballs) or click-through
    
      o Do that until money runs out
    
      o Allocate among competitors according to money made available
  
  ➢ Google tools for measuring Google’s ads impact

    ▪ measurements in other media are ad-hoc
    
      ▪ could be disregarded, but still contribute to the perception.

    Perceptions is also IP, embodied in trademarks etc.
Shortly after the Internet was established to serve a broader community of researchers than the ArpaNet, commercial uses started. Advertising, a consumer of a large fraction of revenue from sales, and requiring little tangible presence, was on reflection, an obvious candidate.
1. Audience

Focused

- Salesforce

In front of competitor’s annual sale meetings 3x

1. Fake demonstrators in SF.
2. Give coffee, mugs, rides, literature to attendees in NY
3. Hire all taxis in Nice, give free rides to meeting in Cannes.

Vs. Superbowl?

- Much buzz
- Huge audience
- Your audience?

2. Address overlapping segments

a. Buyers in corporations
b. Users and employees
   - Understand motivations for change
c. Both

3. Logo & name

Essential for branding

Metaphor

Negative?

4. Timing

Have Product ready

- Few bugs
- Clear operation
- Useful

12/1/2012
Customer Segmentation

• Getting a broad market presence is very hard
  ▪ Superbowl advertising: 30 seconds costs $3M
    o Apple 1984: Macintosh
    o Hulu 2009: Internet video player

➢ Find narrow markets that are now not well served
  ▪ Professional groups
    o Use professional magazines
    o Establish credibility through publishing
  ▪ Social networks
    o Participate
  ▪ Health concerns by symptoms or diagnoses
  ▪ Educational specialties
• I tried Spotify to listen to classical music
  ➢ but the ads they interpose seems use the same music they use for all listeners, and are quite jarring when one has just listened to Bach or Mozart.
  ➢ Their selection is also quite trite

Either serve a community well or not at all
Example
Enterprise SW versus cloud [Benioff:2009]

- SIEBEL sales force management
  1. Price $1,500 per seat, at 200 users = $300,000
  2. $54,000 for support (18%) /year, x 5 = $270,000
  3. $1,200,000 consulting for installation = $1,200,000
  4. $100,000 admin.personnel/year, x 6 = $600,000
  5. $30,000 training / year, x 6 = $180,000

  6 years’ usage

Total = $2,550,000

Note that the customer’s total is >> than the price
Consistency in plans

When comparing business alternatives

• Give each choice the same chance

1. Temporal consistency
   - Computing versus communication
     - Local versus Cloud in 2012
       - *Skate to where the puck is going* [Gretsky]

2. Discount rate

3. Resource prices
   - Green alternatives
     - Benefits may depend on price of oil –
       - if 3 x now, why not invest in oil instead
Cloud delivery by salesforce.com

- Salesforce.com:
  - $150.-month & user only -- monthly billing
  - Make interface look like Amazon – no training needed
  - Low risk for individual adopters
    - Still a high risk for a changeover in large businesses, where changes are controlled by a risk-adverse IT manager or CIO.
  - Start focusing on small businesses
    - Hard to reach a broad market with little cash
    - Must make a lot of noise
  - Later sales force had to change its initial model
    - Deal with large companies
    - Deal with the Dot-com bust, when many companies failed
  - Business must remain flexible
`Buzz’

Customer and potential customer interaction

• In the relevant community
  ➢ The most powerful sales tool
  ➢ Novelty and quality drive buzz
  ➢ Advertising effect is complementary

• Simple stories for the press
  ▪ Writers look for good guys vs bad guys stories
  ▪ Don’t have time to dig deep
  ▪ Match public events
    ○ Be ready - *security SW when there is a big break-in*; ...

• Direct mail ?
  ➢ Sometimes for a specific off-the-net audience
Use your income to grow IP: R&D and Advertising

- Google Adwords /Adsense to trigger where ads go
  - Show your ad on top or on the side of a search
  - Show your ad on relevant web pages
    - Charge by show (eyeballs) or click-through
    - Do that until money runs out
    - Allocate among competitors according to money made available

- Google tools for measuring Google’s ads impact
  - measurements in other media are ad-hoc
  - could be disregarded, but still contribute to the perception.

Perceptions is also IP, embodied in trademarks etc.
Growth

• Organic
  a. Product R&D investments
    ➢ New versions
  b. Product Marketing
    ➢ New, broader applications
  c. Fundamental R&D
  d. Trademark promotion
  e. Curiosity-driven R&D?

• Through acquisitions
  a. Additional products
    ➢ novel – first
    ➢ complementary
    ➢ anti-competitive
  b. Product improvements
  c. IP: Patents … ➢ as with a.
  d. Knowhow of staff

• Paid for by
  a. Profits on existing products (after dividends are paid out)
  b. New investors: venture funders before / stockholders after going public
  c. Loans     Interest on loans up to x can be deducted from taxes
Growth
Based on 100 top public SW companies Q1 2009

Tale of 100 Entrepreneurs


Growth History by Company

Click to interact

- Rocket Ship
- Hot Company
- Slow Burner

Based on 100 top public SW companies Q1 2009
Categories

• Rocket Ship: 28%
  - Autodesk, Electronic Arts, Interwoven → Autonomy, Sybase, Novell
  - Adobe (Xerox Parc), McAfee (Lockheed), Salesforce (Oracle)
    had substantial IP headstarts

• Hot Company
  - Microsoft, Oracle

• Slow Burner
  - SPSS, Ciber inc Consultants, Quality Systems

• Missing
  - Macromedia, acquired by and now incorporated in Adobe, …
  - Google (does not sell Software)

* Graph includes some hardware companies
## Rocketship list

3-6 years to $50M Rev.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activision Blizzard Inc</td>
<td>1979</td>
<td>4</td>
<td>$3,026m</td>
<td>($107m)</td>
</tr>
<tr>
<td>Adobe Systems Inc.</td>
<td>1982</td>
<td>6</td>
<td>$3,680m</td>
<td>$872m</td>
</tr>
<tr>
<td>Autodesk, Inc.</td>
<td>1982</td>
<td>5</td>
<td>$2,172m</td>
<td>$356m</td>
</tr>
<tr>
<td>Blackboard Inc.</td>
<td>1997</td>
<td>5</td>
<td>$312m</td>
<td>$3m</td>
</tr>
<tr>
<td>Cadence Design Systems, Inc.</td>
<td>1983</td>
<td>6</td>
<td>$1,039m</td>
<td>($1,854m)</td>
</tr>
<tr>
<td>Check Point Software Technology, Inc.</td>
<td>1993</td>
<td>5</td>
<td>$608m</td>
<td>$324m</td>
</tr>
<tr>
<td>China Digital TV Holding Co., Ltd.</td>
<td>2004</td>
<td>4</td>
<td>$565m</td>
<td>$34m</td>
</tr>
<tr>
<td>Cognizant Technology Solutions C.</td>
<td>1994</td>
<td>5</td>
<td>$2,816m</td>
<td>$431m</td>
</tr>
<tr>
<td>Electronic Arts Inc.</td>
<td>1982</td>
<td>6</td>
<td>$3,665m</td>
<td>($454m)</td>
</tr>
<tr>
<td>Interwoven, Inc.</td>
<td>1996</td>
<td>6</td>
<td>$260m</td>
<td>$32m</td>
</tr>
<tr>
<td>McAfee, Inc.</td>
<td>1989</td>
<td>6</td>
<td>$1,600m</td>
<td>$172m</td>
</tr>
<tr>
<td>MedAssets, Inc.</td>
<td>1999</td>
<td>5</td>
<td>$189m</td>
<td>($10m)</td>
</tr>
<tr>
<td>Mentor Graphics Corporation</td>
<td>1981</td>
<td>4</td>
<td>$880m</td>
<td>$29m</td>
</tr>
<tr>
<td>Novell, Inc.</td>
<td>1983</td>
<td>3</td>
<td>$967m</td>
<td>($12m)</td>
</tr>
<tr>
<td>OpenTV Corp.</td>
<td>1996</td>
<td>6</td>
<td>$116m</td>
<td>$10m</td>
</tr>
<tr>
<td>Rackspace Hosting, Inc.</td>
<td>1998</td>
<td>6</td>
<td>$532m</td>
<td>$22m</td>
</tr>
<tr>
<td>RealNetworks, Inc.</td>
<td>1994</td>
<td>5</td>
<td>$605m</td>
<td>($244m)</td>
</tr>
<tr>
<td>salesforce.com, inc.</td>
<td>1999</td>
<td>5</td>
<td>$749m</td>
<td>$18m</td>
</tr>
<tr>
<td>Sybase, Inc.</td>
<td>1984</td>
<td></td>
<td>$1,132m</td>
<td>$139m</td>
</tr>
<tr>
<td>Synopsys, Inc.</td>
<td>1986</td>
<td>6</td>
<td>$1,337m</td>
<td>$190m</td>
</tr>
<tr>
<td>Take-Two Interactive Software, Inc.</td>
<td>1993</td>
<td>6</td>
<td>$1,538m</td>
<td>$97m</td>
</tr>
<tr>
<td>Taleo Corporation</td>
<td>1999</td>
<td>6</td>
<td>$128m</td>
<td>$4m</td>
</tr>
<tr>
<td>Verisign, Inc.</td>
<td>1995</td>
<td>4</td>
<td>$962m</td>
<td>$88m</td>
</tr>
</tbody>
</table>

- **2nd largest**
- **largest**

*Net income is convoluted due to acquisitions, write-offs, etc.*
## Hot Company list
### 7-12 years to $50M Rev.

<table>
<thead>
<tr>
<th>Company</th>
<th>Year Founded</th>
<th>Years to $50m</th>
<th>Revenue (2008)</th>
<th>Net Income (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuate Corporation</td>
<td>1993</td>
<td>7</td>
<td>$131m</td>
<td>$14m</td>
</tr>
<tr>
<td>Art Technology Group, Inc.</td>
<td>1991</td>
<td>10</td>
<td>$165m</td>
<td>$4m</td>
</tr>
<tr>
<td>BMC Software Inc.</td>
<td>1980</td>
<td>8</td>
<td>$1,732m</td>
<td>$314m</td>
</tr>
<tr>
<td>CA Inc.</td>
<td>1974</td>
<td>9</td>
<td>$4,277m</td>
<td>$500m</td>
</tr>
<tr>
<td>Citrix Systems, Inc.</td>
<td>1989</td>
<td>8</td>
<td>$1,583m</td>
<td>$178m</td>
</tr>
<tr>
<td>CommVault Systems, Inc.</td>
<td>1996</td>
<td>8</td>
<td>$198m</td>
<td>$21m</td>
</tr>
<tr>
<td>Compuware Corporation</td>
<td>1973</td>
<td>12</td>
<td>$1,230m</td>
<td>$134m</td>
</tr>
<tr>
<td>Concur Technologies, Inc.</td>
<td>1993</td>
<td>10</td>
<td>$215m</td>
<td>$17m</td>
</tr>
<tr>
<td>DemandTec, Inc.</td>
<td>1999</td>
<td>10</td>
<td>$61m</td>
<td>($4m)</td>
</tr>
<tr>
<td>Digital River, Inc.</td>
<td>1994</td>
<td>8</td>
<td>$394m</td>
<td>$64m</td>
</tr>
<tr>
<td>DivX, Inc.</td>
<td>2000</td>
<td>7</td>
<td>$86m</td>
<td>$9m</td>
</tr>
<tr>
<td>Echelon Corporation</td>
<td>1989</td>
<td>11</td>
<td>$134m (525m)</td>
<td>$107m</td>
</tr>
<tr>
<td>i2 Technologies, Inc.</td>
<td>1989</td>
<td>8</td>
<td>$256m</td>
<td></td>
</tr>
<tr>
<td>Informatica Corporation</td>
<td>1993</td>
<td>7</td>
<td>$455m</td>
<td>$56m</td>
</tr>
<tr>
<td>International Game Technology</td>
<td>1971</td>
<td>10</td>
<td>$2,529m</td>
<td>$343m</td>
</tr>
<tr>
<td>Intuit Inc.</td>
<td>1983</td>
<td>8</td>
<td>$3,071m</td>
<td>$451m</td>
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<tr>
<td>JDA Software Group, Inc.</td>
<td>1986</td>
<td>12</td>
<td>$390m</td>
<td>$6m</td>
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<tr>
<td>Longtop Financial Technologies Ltd.</td>
<td>1996</td>
<td>12</td>
<td>$66m</td>
<td>$4m</td>
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<tr>
<td>Manhattan Associates, Inc.</td>
<td>1990</td>
<td>9</td>
<td>$337m</td>
<td>$23m</td>
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<tr>
<td>Microsoft Corporation</td>
<td>1975</td>
<td>8</td>
<td>$60,420m</td>
<td>$17,681m</td>
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<tr>
<td>MicroStrategy Incorporated</td>
<td>1989</td>
<td>9</td>
<td>$360m</td>
<td>$42m</td>
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<tr>
<td>Netezza Corporation</td>
<td>2000</td>
<td>8</td>
<td>$127m</td>
<td>($1m)</td>
</tr>
<tr>
<td>Nice Systems Ltd. (ADR)</td>
<td>1986</td>
<td>11</td>
<td>$624m</td>
<td>$39m</td>
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<tr>
<td>Nuance Communications Inc.</td>
<td>1992</td>
<td>9</td>
<td>$868m</td>
<td>($30m)</td>
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<tr>
<td>Omniture, Inc.</td>
<td>1996</td>
<td>11</td>
<td>$296m</td>
<td>($45m)</td>
</tr>
<tr>
<td>Open Text Corporation (USA)</td>
<td>1991</td>
<td>8</td>
<td>$726m</td>
<td>$53m</td>
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<tr>
<td>Oracle Corporation</td>
<td>1977</td>
<td>10</td>
<td>$22,430m</td>
<td>$5,521m</td>
</tr>
<tr>
<td>Parametric Technology</td>
<td>1985</td>
<td>7</td>
<td>$1,070m</td>
<td>$80m</td>
</tr>
<tr>
<td>Progress Software Corporation</td>
<td>1981</td>
<td>10</td>
<td>$516m</td>
<td>$46m</td>
</tr>
<tr>
<td>Red Hat, Inc.</td>
<td>1993</td>
<td>9</td>
<td>$523m</td>
<td>$77m</td>
</tr>
<tr>
<td>Sourcefire, Inc.</td>
<td>2001</td>
<td>7</td>
<td>$76m</td>
<td>($6m)</td>
</tr>
<tr>
<td>SuccessFactors, Inc.</td>
<td>2001</td>
<td>7</td>
<td>$112m</td>
<td>($65m)</td>
</tr>
<tr>
<td>Super Micro Computer, Inc.</td>
<td>1993</td>
<td>9</td>
<td>$541m</td>
<td>$25m</td>
</tr>
<tr>
<td>Symantec Corporation</td>
<td>1982</td>
<td>8</td>
<td>$5,874m</td>
<td>$464m</td>
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<tr>
<td>The Ultimate Software Group, Inc.</td>
<td>1990</td>
<td>9</td>
<td>$179m (3m)</td>
<td></td>
</tr>
<tr>
<td>Websense Inc.</td>
<td>1994</td>
<td>9</td>
<td>$296m (30m)</td>
<td></td>
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</tbody>
</table>
Slow Burner list
13-30 years to $50M Rev

<table>
<thead>
<tr>
<th>Slow Burner</th>
<th>Year Founded</th>
<th>Years to $60m</th>
<th>Revenue (2008)</th>
<th>Net Income (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advent Software, Inc.</td>
<td>1983</td>
<td>15</td>
<td>$264m</td>
<td>$19m</td>
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<tr>
<td>ANSYS, Inc.</td>
<td>1970</td>
<td>26</td>
<td>$386m</td>
<td>$82m</td>
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<td>Blackbaud, Inc.</td>
<td>1982</td>
<td>17</td>
<td>$303m</td>
<td>$30m</td>
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<td>CIBER, Inc.</td>
<td>1974</td>
<td>20</td>
<td>$1,192m</td>
<td>$30m</td>
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<td>Deltek Inc.</td>
<td>1983</td>
<td>15</td>
<td>$289m</td>
<td>$24m</td>
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<tr>
<td>EPIQ Systems, Inc.</td>
<td>1988</td>
<td>16</td>
<td>$236m</td>
<td>$14m</td>
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<td>Macrovision Solutions Corp.</td>
<td>1983</td>
<td>17</td>
<td>$330m</td>
<td>$21m</td>
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<td>MICROs Systems, Inc.</td>
<td>1977</td>
<td>14</td>
<td>$954m</td>
<td>$101m</td>
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<tr>
<td>MSC Software Corp.</td>
<td>1963</td>
<td>25</td>
<td>$247m</td>
<td>($3m)</td>
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<tr>
<td>National Instruments Corp.</td>
<td>1976</td>
<td>14</td>
<td>$740m</td>
<td>$107m</td>
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<td>OPNET Technologies, Inc.</td>
<td>1986</td>
<td>17</td>
<td>$101m</td>
<td>$1m</td>
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<tr>
<td>Pegasystems Inc.</td>
<td>1983</td>
<td>15</td>
<td>$162m</td>
<td>$7m</td>
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<td>Quality Systems, Inc.</td>
<td>1974</td>
<td>29</td>
<td>$187m</td>
<td>$40m</td>
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<td>Quest Software, Inc.</td>
<td>1987</td>
<td>13</td>
<td>$735m</td>
<td>$68m</td>
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<td>Renaissance Learning, Inc.</td>
<td>1986</td>
<td>13</td>
<td>$108m</td>
<td>$8m</td>
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<td>Retailix Limited</td>
<td>1982</td>
<td>20</td>
<td>$221m</td>
<td>($1m)</td>
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<tr>
<td>SPSS Inc.</td>
<td>1975</td>
<td>14</td>
<td>$303m</td>
<td>$36m</td>
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<td>Synaptics, Incorporated</td>
<td>1986</td>
<td>15</td>
<td>$361m</td>
<td>$31m</td>
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<td>TeleCommunication Systems, Inc.</td>
<td>1987</td>
<td>13</td>
<td>$220m</td>
<td>$56m</td>
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<tr>
<td>VancelInfo Technologies Inc.</td>
<td>1995</td>
<td>13</td>
<td>$103m</td>
<td>$16m</td>
</tr>
<tr>
<td>VASCO Data Security Internat.</td>
<td>1991</td>
<td>15</td>
<td>$133m</td>
<td>$24m</td>
</tr>
<tr>
<td>Wind River Systems, Inc.</td>
<td>1983</td>
<td>14</td>
<td>$329m</td>
<td>($2m)</td>
</tr>
</tbody>
</table>

All smaller
Acquisitions

• A common path for
  a. Exit from a startup venture \(\rightarrow\) seller
  b. Growth of a larger company \(\rightarrow\) buyer

• 2 parties at `Arms-length`
  1. Willing seller
  2. Willing buyer

  ▪ Assumption here: *no funny business*
    o Buyer has funded seller, formal/ informal restrictions
    o Selling a non-exclusive license
    o Seller is object of a legal proceedings, as patent suit
    o Seller is bankrupt

  ➤ Both parties must agree on the value
  ▪ Both parties should understand intellectual property
Example: Adobe events

1976 Xerox Parc uses Press language to drive its new Dover laserprinter

1978 John Warnock joins Parc

1982

1984/1985

Peter Deutsch Alladin OpenSource PostScript reader

Nick Corfield founds Frame Tech. for WYSIWYG

Paul Brainard (Stanford) develops PageMaker, founds

Acquisitions:

Mac

PC

Unix

Aldus

Frame

Mac&PC

PhotoStyler

Photoshop

OCRsystems

TypeAlign

Mac

PC

 MacOS

Acrobat

Mac

PC

Internal products:

Illustrator

CS207

ImageReady

InDesign

Jonathan Gay → Flash, Dreamweaver

Free reader

PPT

Jonathan Gay

1993

Jonathan Gay → Flash, Dreamweaver

Aldus

Mac

PC

Acquisitions:

Mac

PC

Unix

NexT

Acquisitions:

Mac

PC

Unix

NexT

IRC adopts free Reader
Generalize success

A. Broaden

- Adobe: After WYSIWIG printing
  1. Pagemaker for Page composition
  2. Dreamweaver for Web composition
  3. Photoshop for Image editing

B. Deepen

- Salesforce.com
  - Customer Relationship service on-line
- Force.com
  - Operating system for on-line business applications

IP shared:
1. Customers
2. Marketing
3. Distribution

IP shared:
1. Concept
2. Technology
3. HW Support
4. Analytic SW
Hewlett-Packard Co. said on Tuesday that it's the victim of a multi-billion dollar fraud at the hands of a British company it bought last year that lied about its finances.

HP said Autonomy Corporation PLC, a British company it bought for $10 billion last year, lied about its finances, resulting in a massive write-down of the value of the business. HP's net loss for the fiscal fourth quarter, which ended Oct. 31, amounted to $6.85 billion, or $3.49 per share.

HP CEO Meg Whitman said executives at Autonomy Corporation PLC "willfully" boosted the company's figures through various accounting tricks, which convinced HP to pay $9.7 billion for the company in October 2011. Autonomy's former CEO said HP's allegations are false. HP is now taking an $8.8 billion charge to align Autonomy's purchase price with what HP now says is its real value. More than $5 billion of that charge is due to false accounting, HP said. The revelation is another blow for HP, which is struggling to reinvent itself as PC and printer sales shrink. The company's stock hit a 10-year low in morning trading. Among other things, Autonomy makes search engines that help companies find vital information stored across computer networks. Acquiring it was part of an attempt by HP to strengthen its portfolio of high-value products and services for corporations and government agencies. The deal was approved by Whitman's predecessor, Leo Apotheker, but closed three weeks into Whitman's tenure as chief executive. Whitman was a member of HP's board of directors when Apotheker initiated the Autonomy purchase. Among the tricks used at Autonomy, Whitman said: The company had been booking the sale of computers as software revenue and claiming the cost of making the machines as a marketing expense. Revenue from long-term contracts was booked up front, instead of over time. The allegations are serious, according to accounting experts. "According to GAAP (generally accepted accounting principles), the overstatement of revenue under any tax code is illegal," said Mark Williams, a finance professor at Boston University and a former bank examiner for the Federal Reserve. As a result of its alleged accounting practices, Autonomy appeared to be more profitable than it was and seemed to be growing its core software business faster than was actually the case. The moves were apparently designed to groom the company for an acquisition, Whitman said. Once HP bought the company, Autonomy's reported revenue growth and profit margin quickly declined. Autonomy CEO Mike Lynch continued to run the company as part of HP, but Whitman forced him out on May 23 because it was not living up to expectations.
Money

• Income, represented by Money, is the objective
• What is money
• It is an owned asset that can be exchanged for other, real goods and the happiness they bring
• What gives money its value
• the money we use is debt-instrument backed by a trustworthy asset
• In the US the faith we have in the US government
Originally most countries were on the gold standard – mixed with silver in the US (bimetallic coinage)

- a ten-dollar coin was tiny, but real gold
  - Spanish doubloons

- common were silver dollars
  - Joachimsthaler – a silver mine in Bohemia

- Other assets are feasible – they should not be easy to falsify and in limited supply
  - Shells
  - Corn
  - Oil
  - pork bellies
  - aluminum lire
  - milk chits (Italy, 1950)
Paper money

• “Real money” is hard to handle ↓
• “Real money” is hard to manipulate ↑ & ↓

A government can keep gold and silver (specie) in its treasury and issue gold or silver certificates

• “dollar bills”
  ▪ One on display with the IBM cards on 2nd floor
  ➢ You could take them to federal bank and get gold
  ➢ Gold miners would take their gold to the SF mint and could get gold certificates.
Fiat money

• Being on the gold standard has a problem
  ➢ When more money is needed as in times of war, the government can print more gold certificates
  ➢ But with the same backing the value deflates

• The U.S. went off the gold standard (more than once)
  ➢ 5 April 1933 US citizen could no longer hold monetary gold/silver
  ➢ 15 Aug. 1971 when it no longer allowed foreign countries to exchange US debt

• Now backed by “The Full Faith and Credit” [Article IV, Section 1 of the USC]

• But now not based on a tangible asset, but by the ability of government to levy taxes
Who can create *fiat money*?

- Anyone who has assets and is trusted
  1. The Federal Reserve Bank $ ← taxes & trust
  2. A bank can make loans ← assets held & trust for excess
  3. A government reserve bank (UK BoE, ...) £, ¥, ₹ ← taxes
  4. The European Central Bank € ← trust not taxes directly
  5. Any financial institution with some assets & trust

Since ~1955 City-of-London banks & their offshore branches create **Eurodollars** ← offshore income based on IP & trust

$2,600,000M in 1988 “the largest source of capital in the world” [Kynaston:02, p.696]

Investors don’t care about the color of the money.
The End

I hope that you have learned in this course a bit about a topic which is currently ignored in the CS and Engineering curricula.

Much success in your futures

Gio Wiederhold

Business models and finance topics can be discovered when experienced entrepreneurs present their history. A good resource is of the Stanford Entrepreneurship Corner, with viseos at <A HREF="http://ecorner.stanford.edu">http://ecorner.stanford.edu</A>. I recommend searching for authors as Hawkins, Ries, Kaplan, Siebel, Estrin. Some of their views differ greatly, illustrating the complexity of translating IP to success. You can also search by topics.