

# **Nanotechnology Transfer: Imagine the Possibilities!**

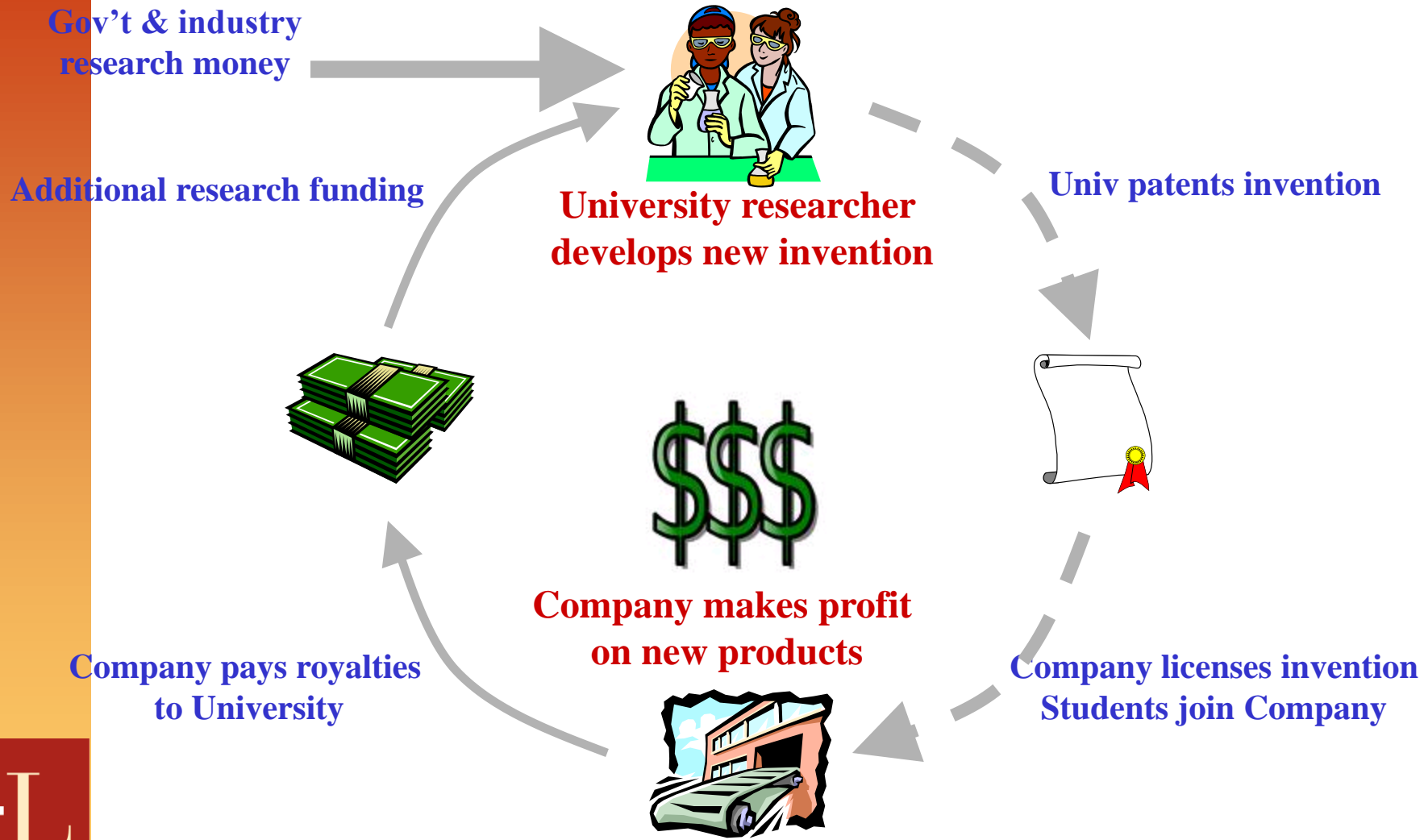
**IEEE Symposium  
13 November 2007**

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# OTL's Mission

**Transfer Stanford technology  
for society's use and benefit  
and to generate royalty income  
for research and education**

# Technology Transfer: Link between Research and Commercialization



# Imagine the Possibilities

**“A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.” Sir Winston Churchill**

- 1971- FM Sound Synthesis (\$22.9M)
  - Difficulty: Microprocessors were not widely available
- 1974 – Recombinant DNA (\$255M)
  - Difficulty: You cannot patent a biotech breakthrough
- 1990-1992 – DSL (\$28.7M)
  - Difficulty: Big Infrastructure investment, limited lifetime
- 1996 – Improved Hypertext Searching (Google) (\$336.5M)
  - Difficulty: Who needs another search engine?

# Possible Outcomes

**“Qui onques rien n'enprist riens n'achieva”**

**French Proverb c. 1300**

- **OTL has generated ~\$1.09B in cumulative gross royalties**
- **For example: HP, Sun, Yahoo, Google, SunPower**
  - **~ 195,000 employees**
  - **Revenues > \$105 Billion**
- **OTL has given \$39.4M to the Research Incentive Fund**

# **Beware: Possibility does not mean certainty**

**For example, at Stanford...**

- 3/6500 is a BIG WINNER (these three inventions generated 66% of the cumulative income)**
- 17 cases generated \$5M or more**
- 53 cases generated \$1M or more in cumulative royalties**

# **Technology Transfer is Difficult and Takes Risk and Time**

- **Evaluation, marketing, patenting**
- **4 years on average for US Patent**
- **Diagnostic products 3-5 years**
- **Therapeutic products 15-20  
years**
- **15 years for OTL to break even**

# The Long Tail View

**“Opportunity is missed by most people because it is dressed in overalls and looks like work.”**

**Thomas Edison**

- **Early stage inventions**
- **Royalties reflect early stage**
- **We are looking for broad patents**
  - **revolutionary v. evolutionary products**
- **5-10 years patience**



# Start-ups

**“There is such a thing as a natural-born entrepreneur...  
But the accidental entrepreneur like me has to fall into  
the opportunity or be pushed into it.” Gordon Moore**

- **Lots of interest by universities**
- **1996**
  - **One start-up IPO every five days**
  - **62 millionaires every 24 hours**
- **Universities want to share in the upside  
and help with economic development**
- **Conflict of interest issues are primary  
concern**

# Summary

**“Small opportunities are often the beginning of great enterprises.” Demosthenes**

- **Do what is best for the technology**
  - Products for making peoples lives better
  - Economic development
  - Start-up activity
- **Technology Transfer is a long-term proposition**
  - Patience
  - “Just try it” attitude

# Evaluation Checklist 1

<b>REVENUE POTENTIAL</b>	<b>OVERALL ASSESSMENT</b>
<b>Are commercial applications identified</b>	<b>First use</b> <b>Follow on opportunities</b> <b>Multiple fields of use</b> <b>Hot list discipline</b>
<b>What is the competition</b>	<b>Are the customers satisfied with current solutions</b> <b>Are alternative technologies progressing</b> <b>Number of related patents</b>
<b>Who will derive value</b>	<b>End customers</b> <b>OEMs</b>
<b>Potential Licensees</b>	<b>Research sponsors</b> <b>How many potential licensees</b> <b>Is the industry predisposed to licensing</b>
<b>Patent Claims</b>	<b>Claim strength</b> <b>Broad or narrow</b>

# Evaluation Checklist 2

<b>PROBILITY OF SUCCESS</b>	<b>OVERALL ASSESSMENT</b>
<b>Track record of inventor</b>	<b>Previous invention successes</b> <b>Industry ties</b>
<b>Who are the champions</b>	<b>Industry</b> <b>Inventors</b>
<b>In the invention on a Hot List</b>	<b>Government</b> <b>Venture Capital</b> <b>Industry</b>
<b>Does the invention build of previous successes</b>	<b>An extension of a related commercial success</b> <b>Do markets, channels, customers already exist</b> <b>Have manufacturing processes been proven</b>
<b>What stage of development</b>	<b>Idea</b> <b>Proof of concept/Analytical work</b> <b>Prototype</b>

# Evaluation Checklist 3

<b>COST</b>	<b>OVERALL ASSESSMENT</b>
<b>Administration</b>	<b>Time available to file</b> <b>Complexity/complications</b>
<b>Licensing</b>	<b>Industry receptiveness</b> <b>Number of licensees</b> <b>Nature of licenses</b> <b>Monitoring/maintenance req'd.</b>
<b>Patenting</b>	<b>Financial support from company</b> <b>Interrelationships with other patents</b> <b>Complexity of concept</b> <b>Patent Office Rules</b>
<b>Enforcement</b>	<b>Difficulty in determining infringement</b>