

## IT & Public Policy

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## An experiment

- New course
- New instructor collaboration
- New sites (UCB and UCSD) joining two previous sites (UW and Microsoft)
- Double the number of sites
- Evolving technology

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## Course web

- <http://www.cs.washington.edu/education/courses/csep590tu/04au/>
  - Announcements
  - Readings/schedule
  - Lecture archive
    - Backup for technology glitches
  - Project information
    - More on this shortly

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## Threaded email archive

- Join through the course web
- Do it today!
- Currently ~34 UW, ~14 UCB, ~19 UCSD, ~9?

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## Course expectations

- Do the reading prior to class
- Participate in class to the extent possible given the technology
- Produce a small-group term paper
  - A "balanced policy brief" on some topic within the IT & Public Policy sphere
  - We will wait a couple of weeks for course enrollment to stabilize
  - We will use a Wiki to exchange ideas, form groups, and write papers

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## Tonight

- Catch the debate at 11



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# Procuring Knowledge

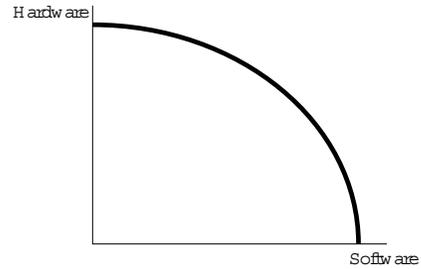
An Introduction to  
IP Law and Economics

Stephen M. Liebowitz  
Goldman School of Public Policy

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# Introduction

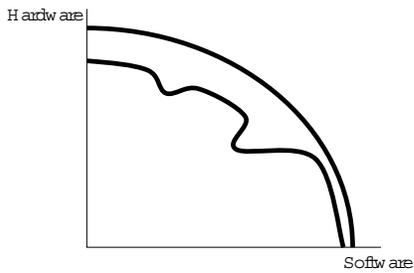
## Two Frontiers



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# Introduction

## Two Frontiers



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# Introduction

## Two Frontiers

### Work Both Sides of the Problem

- Open Source
- Data Warehousing
- Computer Security

### Incentives are Powerful!

- Regulatory Solutions & Laws

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# Introduction

## Two Sets of Tools

### Legal Tradition

- Local (Nuts-and-Bolts) Optimization
- Is-Ism

### Economics Tradition

- Global (Big Picture) Optimization
- Precision

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# Introduction

## Two Themes

## Marginal Cost = Zero

The Second Copy is Cheap!

Jargon: "Non-Rival"

## Network Externalities

It's What You Buy.

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# Tonight

M P = 0

Intellectual Property ("IP")  
 Other R & D Institutions  
 Applications ...  
 Database Policy  
 (Private-Public Partnerships)  
 (Academic Entrepreneurs)

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# IP Legal

A Right To Exclude  
 Some History  
 Late Medieval Origins  
 Statute of Monopolies (1524)  
 Patent & Trademark Office  
 Fashions in IP Law

Many Types  
 Patents, Copyright, SCPA, etc.

Many Proposals  
 Databases

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# IP Legal

```

graph TD
    A[Subject Matter?] -- No --> B[Defendant Wins]
    A -- Yes --> C[Liability (Infringement)]
    C -- No --> D[Defendant Wins]
    C -- Yes --> E[Defenses & Exemptions]
    E -- No --> F[Defendant Wins]
    E -- Yes --> G[Relief]
    G -- No --> H[Defendant Wins]
    G -- Yes --> I[Plaintiff Wins]
  
```

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# IP Legal

Subject Matter

Patents:  
 \* Products, Compounds, Machines, Processes ...  
 \*\* Life, Business Methods, Software?  
 \* Novelty

Copyright:  
 \* Expression, Not Ideas  
 \* Writings, Plays, Movies, Digital Audio ...  
 \*\* Software?  
 \* Creativity

Other Statutes - The Public Domain

```

graph TD
    A[Subject Matter?] -- No --> B[Patents/Copyright]
    A -- Yes --> C[Patents/Copyright]
  
```

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# IP Legal

## Liability

Basic Concepts  
 Breadth  
 Duration

Patents  
 Doctrine of Equivalents  
 20 Years

Copyright  
 Non-Literal Similarity  
 Life + 70 Years

```

graph TD
    A[Liability (Infringement)] -- No --> B[Defendant Wins]
    A -- Yes --> C[Liability (Infringement)]
  
```

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# IP Legal

## Defenses & Exemptions

Patents  
 Reduction to Practice,  
 Misuse, First Sale Rule,  
 Research, Duty of Candor,  
 Estoppel & Laches.

Copyright  
 Independent Invention, First Sale,  
 Fair Use, Misuse (?), Estoppel & Laches

```

graph TD
    A[Defenses & Exemptions] -- No --> B[Patents/Copyright]
    A -- Yes --> C[Patents/Copyright]
  
```

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**IP**  
Legal

Relief

Patents & Copyright

Damages  
Preliminary Injunctions  
Permanent Injunctions  
Exemplary & Statutory Damages

Relief

← No.

↓ Yes.

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**IP**  
Legal

Trade Secrets

A Different Philosophy ...

Subject Matter

Commercially Valuable Secrets

Liability

Secrecy, In proper Means, Duration

Relief

Damages, "Headstart" Injunctions

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**IP**  
Economics

A Choice of Methods

**NO** Dominant Solution!!!

What Are We Trying to Accomplish?

What Are the Benefits/Drawbacks?

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**IP**  
Economics

What Are We Trying to Accomplish?

1. "Nobody Can Be Made Better Off Without Making Someone Else Worse Off."
2. Maximize Net Social Value  
 $(v-c) > 0$
3. Old Economy Prescription:  
 $P = MC$

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**IP**  
Economics

What Are We Trying to Accomplish?

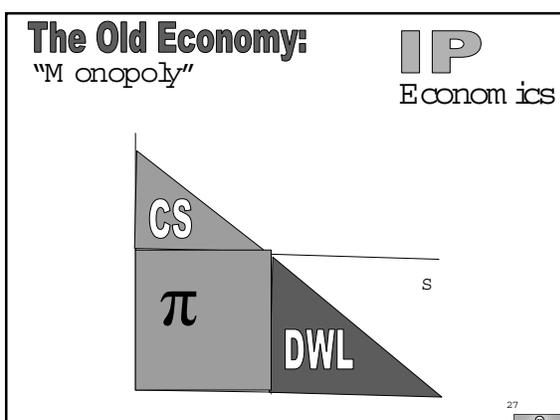
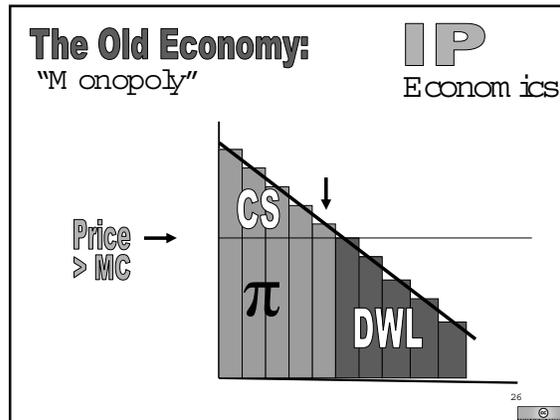
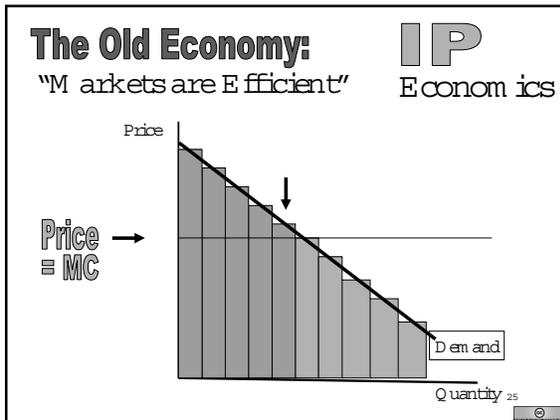
1. Ex Post Efficiency - "Deadweight Loss"
2. Ex Ante Efficiency - "Innovation"
3. Eliciting Privately Held Information
4. Agency Problems - Sponsors
5. Agency Problems - Researchers

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**IP**  
Economics

**1. Ex Post Inefficiency  
a.k.a. "Deadweight Loss"**

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**The New Economy:** IP Economics  
 "Intellectual Property"

Public Goods:  
 Non-Rival ( $MC = 0$ )  
 Excludable

Why  $P = MC$  won't work  
 What IP Does

The number 28 is in the bottom right corner.

**The New Economy:** IP Economics  
 "Intellectual Property"

Is IP a Monopoly?  
 $P > MC$   
 Doing Without  
 Ex Ante vs. Ex Post  
 Mitigating Deadweight Loss  
 Digital Rights Management

The number 29 is in the bottom right corner.

**The New Economy:** IP Economics  
 "Intellectual Property"

Limits of IP  
 Copyright History

Is IP Necessary?  
 Databases  
 Source Code  
 Music

Too Much IP?  
 Databases, DMCA, Software Patents...

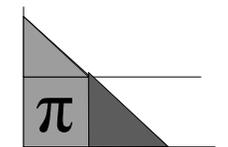
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**IP**  
Economics

**2. Ex Ante Inefficiency  
a.k.a. Innovation**

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**IP**  
Economics



$(v - c) = ?$

Incentive =  $\Pi \cdot v$

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**IP**  
Economics

What Incentive is Optimal?

Innovation vs. D.W.L.

- Intergenerational Issues
- Races
- Duplication
- Waste
- High Risk Research

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**IP**  
Economics

Cumulative Innovation

- Do We Need A Strong Commons?
- The Licensing Argument
- Software Patents

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**IP**  
Economics

**3. Eliciting Privately  
Held Information**

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**IP**  
Economics

Information About  $(v-c)$   
is Dispersed.

Two Types of Information

- Technical Feasibility - Java
- Value to Consumers - The Internet

Limits on Information Sharing

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**IP**  
Economics

**4. Agency Problems -  
Researchers**

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**IP**  
Economics

What If Researchers ...

- \* Lie About (V - C)?
- \* Go to the Beach?

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**IP**  
Economics

**5. Agency Problems -  
Sponsors**

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**IP**  
Economics

What If The Sponsor Doesn't Pay?

- \* Patent Litigation?

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**IP**  
Evidence

Are Patents Important?

Pathologies

- Patent Thickets
- The Anticommons
- Trolls

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**Other  
Choices**

History

Examples

- Prizes
- Contract Research
- Grants
- Buy-Outs

Hybrids

- CRADAs
- Bayh-Dole

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## Other Choices Prizes

1. Ex Post Efficiency  
No Deadweight Loss!!
2. Ex Ante Efficiency - "Innovation"  
You Must Know "v"!!
3. Eliciting Privately Held Information  
Directed Prizes (DARPA, X-Prize)  
Blue Sky Prizes (Google)

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## Other Choices Prizes

4. Agency Problems - Sponsors  
Types of Prizes  
Commitment Strategies
5. Agency Problems - Researchers

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## Other Choices Contracts

1. Ex Post Efficiency  
No Deadweight Loss!!
2. Ex Ante Efficiency - "Innovation"  
You Must Know "(v-c)"!!  
Packet Switching  
Competitive bidding & second-price auctions.
3. Eliciting Privately Held Information

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## Other Choices Contracts

4. Agency Problems - Sponsors
5. Agency Problems - Researchers

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## Other Choices Grants

1. Ex Post Efficiency  
No Deadweight Loss!!
2. Ex Ante Efficiency - "Innovation"  
You Know "c" Before, "v" Afterward!!
3. Eliciting Privately Held Information

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## Other Choices Grants

4. Agency Problems - Sponsors
5. Agency Problems - Researchers  
An Imperfect Solution ...

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# Application: Databases

## History

U.S.  
Feist & Congress  
Europe (1996)

## U.S. Politics

IP as a Hidden Tax  
Users vs. Sellers

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# Application: Databases

## Policy

The Paradox: Why Do We Have a Database Industry at All?

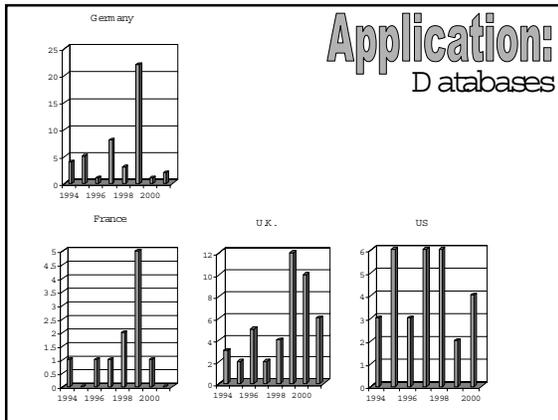
The Issue: DWL vs. More Innovation

The Evidence:

Who's Been Injured?  
What New Databases Would We Get?  
The European Experiment

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# Application: Databases



# Application: Databases

Advice to Congress

Options

Property Rules

Liability Rules

Misappropriation

The INS Case

Current Law

Prove It!

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