

# Intellectual Property and the Creative Process

Chris Newfield

Center for Nanotechnology in Society  
University of California, Santa Barbara



# Nano and its Lateral Antecedent

## The Internet

IPR as protection of emerging firms from entrenched players.

University IPR inspires invention packaging for commercial level

## AND:

academic computing as primary source of a "culture of sharing"

the sociability of technology creation, use, recreation

user group development

peer production

new sense of the transformative value of open communities

an experiential and widely distributed sense of mass, collaborative, iterative, accumulative invention - the sociability of creativity

# Does the Current Industry-University Framework Support This?

Yes on first counts. AND:

Bayh-Dole issues (pre-CNS research):

## 1. Transferring rights vs research communities and knowledge relationships

IPR does not aggregate information (Scotchmer)

Patenting effects depend on prior institutional capacity (Owen-Smith 2005)

U and inventor incentives do not in themselves promote industry "uptake"

## 2. Patent value weak index of social value, future contribution

## 3. BD talk of contracts, royalties, obligations, hurts the creative atmosphere?

costly haggling over financial position, control

divides university's constituencies

falsely polarizes open innovation and product development

## Nano Predicaments: CNS First Pass

Is US nanotechnology R&D slated for a sociability deficit?

If so, how so? (research orgs, capital, users??)

# CNS Innovation Group

Goal of optimal “sustainable innovation” and its policy framework

App focus on solid state electronics and displays, energy uses

focus on group effects:

(1) funding and building research communities; IP and TT impacts

(2) dynamics in research groups: the good, the bad, the breakthrough

meso-level analysis - integrating individual, group, organization, policy, economy

Interdisciplinary (policy & culture; comm; econ; licensing & copyright)

(1) Nanoscale network practices; starting with policy analysis, measures development & TT reputation-led participant interviews (PI, LP, grads, industry);

(2) mixed methods lab field study (archival, ethnographic observation, depth interviews with individuals and groups, interaction coding, contingency-evaluations surveys, self-report survey data)

# Nano Predicaments: Our First Pass

1. "Convergence" requires new institutional networks, off standard centralized - decentralized spectrum (neither industrial policy, nor peer production, nor regional networks alone, etc. )
2. No one can "see" non-local networks yet
3. US legal and investment culture lacks cooperative advantage?
4. New global geography: no US / EU controlling lead
5. Innovator's Dilemma: little VC funding for distant breakthroughs
6. IPR: proprietary-versus-open controls discussion - misleading?  
production equipment & architectures vs. designs for production . . .

## A Messy Terrain

Can a focus on the creative process help?

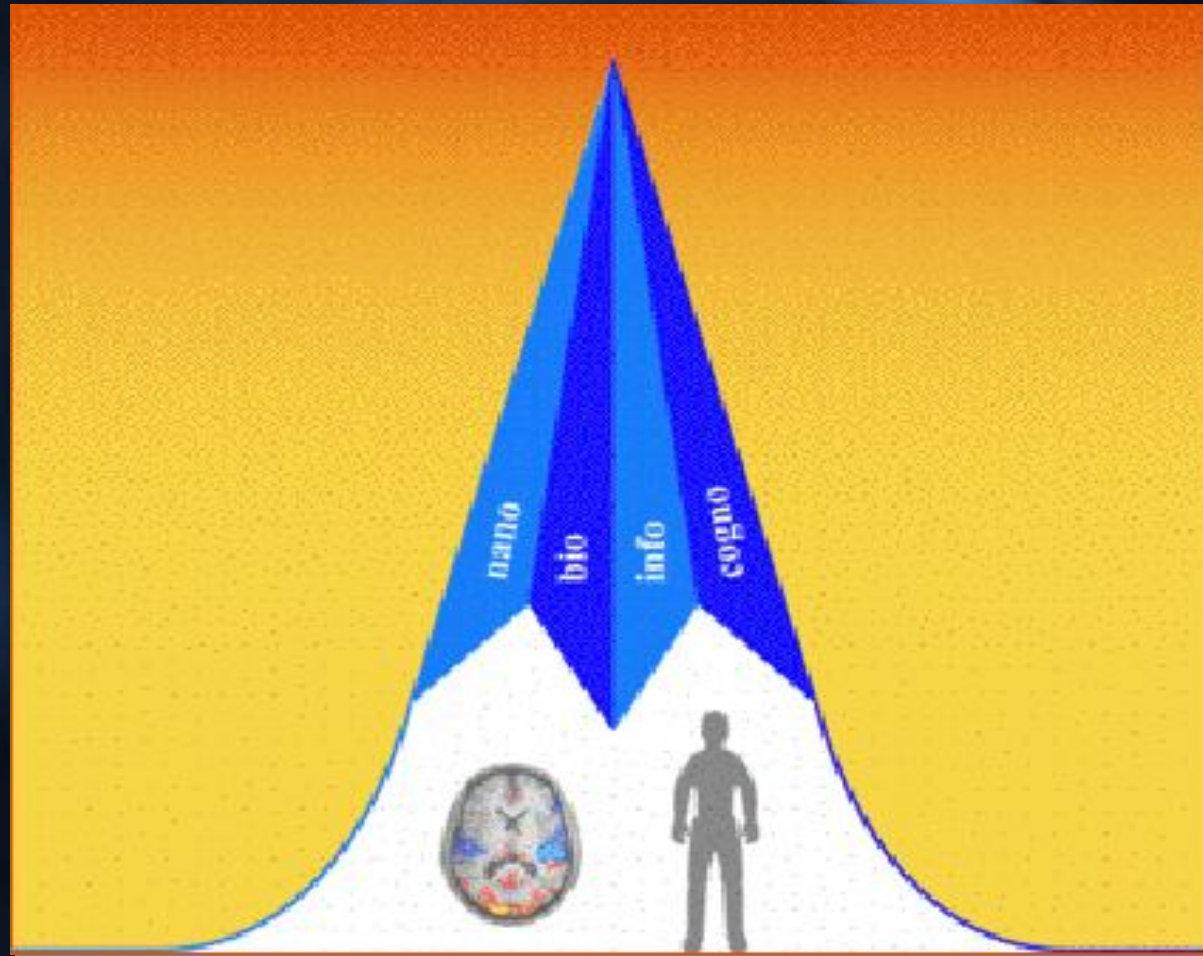
# Established Findings: Creativity Research

1. Yes, knowledge exists in “networks of relationships” (Powell and Doerr-Smith 1994), but collaboration is more likely to involve information-sharing than knowledge-creation (Rhotgen 2003)
2. Knowledge-creation requires bringing together previously disparate elements from ostensibly disparate domains, generating variation (Eysenck 1998; Simonton 1999).
3. The moment of “insight” is “blind” - discontinuous with prior individual state and collaborative environment (Hadamard 1945; Pelz and Andrews 1976; Csikszenthiyalyi 1996; Boden 2004).
4. Creative behavior depends on networks AND on a capacity for discontinuity and unrestricted trial-and-error (Mach 1896; Amabile 1985; Amabile et al. 2002; Newfield 2003).
5. Collaborative networks require both “hubs” and “bridges” (Rhotgen 2003).

## Early Findings: Creativity Research

- F1: very complex causality: lit review shows 60 variables tied to group creativity; 30 in R&D contexts.
- F2: anonymous pilot interviews with non-PIs confirm F1's implication that IPR is a remote, mediated, or non-existent issue
- F3: in contrast, network life is an immediate and continuous issue: (a) lab status; (b) lab structure and hierarchy, esp place of PI. C) lab culture and affect
- F4: collaboration among lab strata is variable and uncertain
- F5: cross-lab collaboration is not routine, and is generally tied to a specific need (equipment, fabrication technique . . .)
- F6: Transactions are more common than collaboration ("trading"?)
  
- H1: sources of "variation" and hence collaborative knowledge-creation are unengineered and unclear. Suboptimal? Insufficiently sociable? Not enough support for "bridges"?

# Imminent Takeoff?



## Hunches about Takeoff

Tie IPR to building research communities, sustaining both

a. long-term basic research w/o commercial goals

b. Uptake for commercialization and/or public use

Use the “law of the lesser powers”

the social and cultural powers expressed in the spirit of popular enthusiasm for the technology that serves relationships, affective states, experiences of deep and positive change.

## Contact Info

Chris Newfield

[cnewf@cns.ucsb.edu](mailto:cnewf@cns.ucsb.edu)

Thanks to Gerald Barnett  
Director, Intellectual Property and Copyright,  
University of California, Santa Cruz