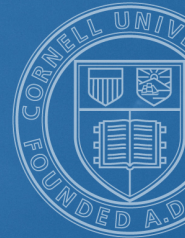


# ENGINEERING

CORNELL ENGINEERING

## College of Engineering Update ECC Meeting

**October 30, 2009**  
**Christopher Ober**  
**Interim Dean**



## Overview

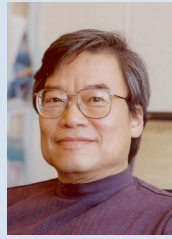
- The College in a Period of Transition
- State of the College
  - New leaders
  - Admission Trends
  - Research statistics
- New Economic Reality
  - Hiring of faculty
  - Staffing
  - Budget planning and overview

# New Directors and Terms Finishing

## New Chairs



**Shane Henderson**  
Interim Director  
ORIE



**Phil Liu**  
Director  
CEE



**Bill Olbricht**  
Interim Chair  
BME

## Transitions



**Paulette Clancy**  
Director  
CBE

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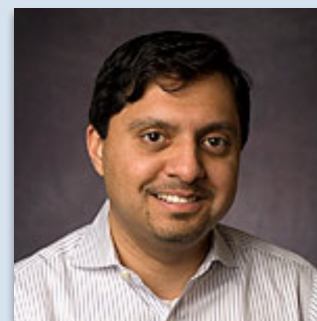
# Interim Associate Dean for Research and Graduate Studies—Rajit Manohar

## DEGREES:

B.S. Caltech

M.S. Caltech

Ph.D. (1998) Caltech



## APPOINTMENTS:

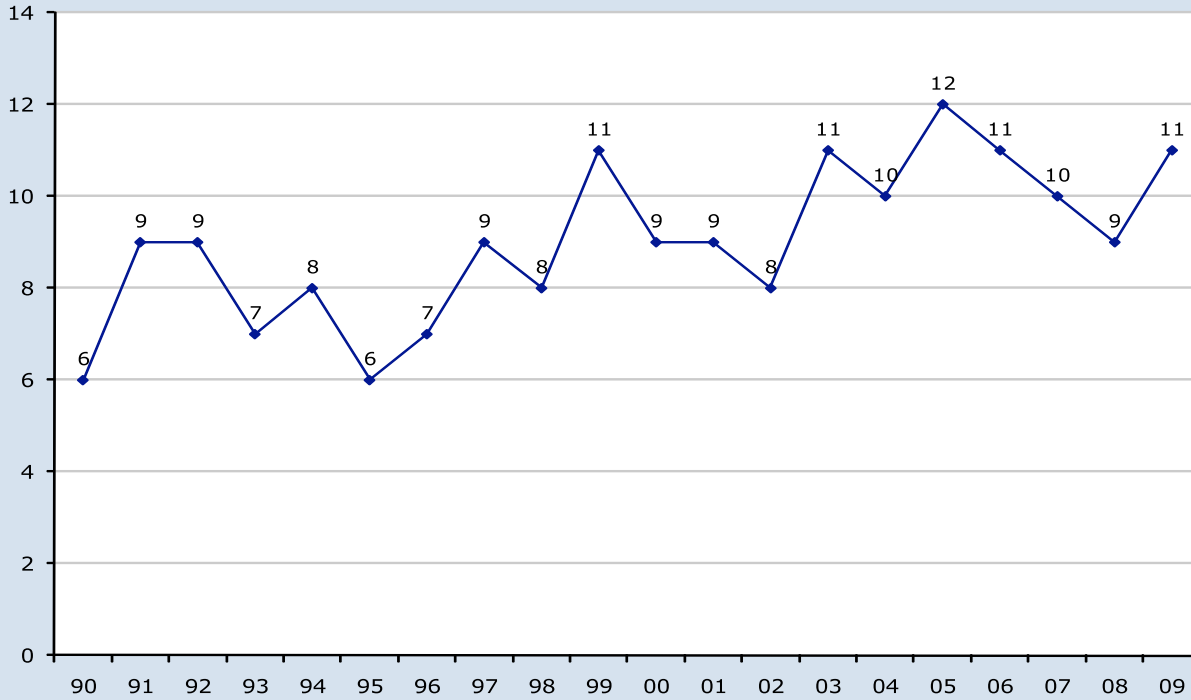
- Professor, Electrical and Computer Engineering, Cornell
- Co-founder - Computer Systems Laboratory, Cornell
- Founder - Achronix Semiconductor Corporation

## AREAS OF RESEARCH FOCUS:

asynchronous VLSI design and architecture: concurrency, formal methods, programming language semantics, information theory, and cognitive systems.

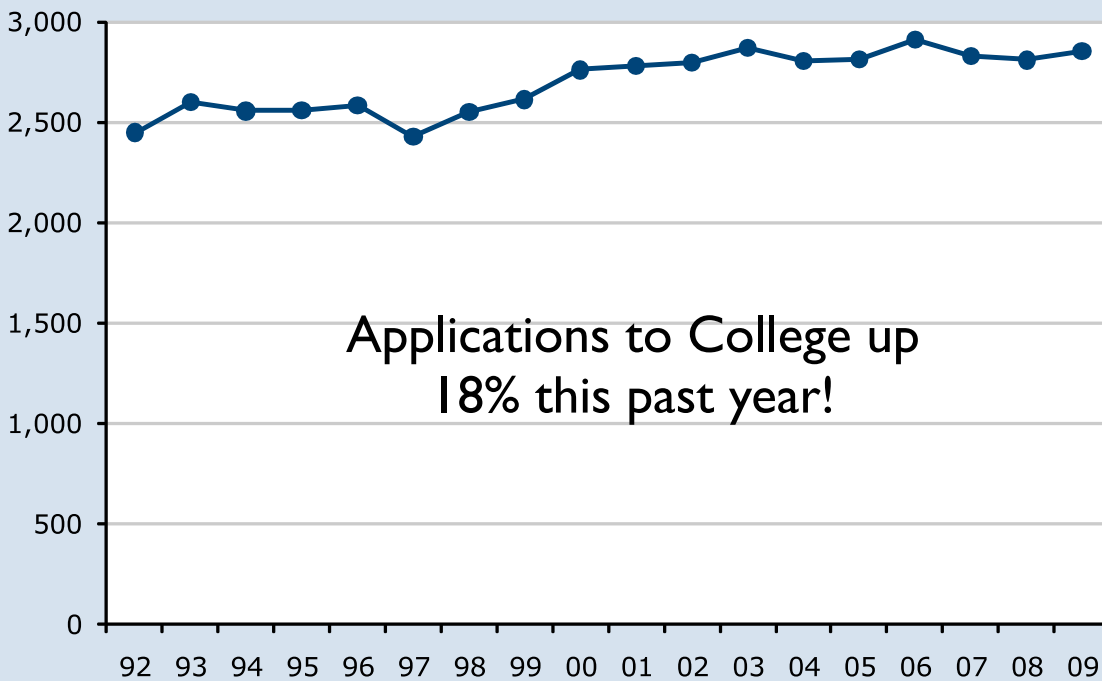
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# Cornell Engineering Graduate Rank in U.S. News 1990-2009



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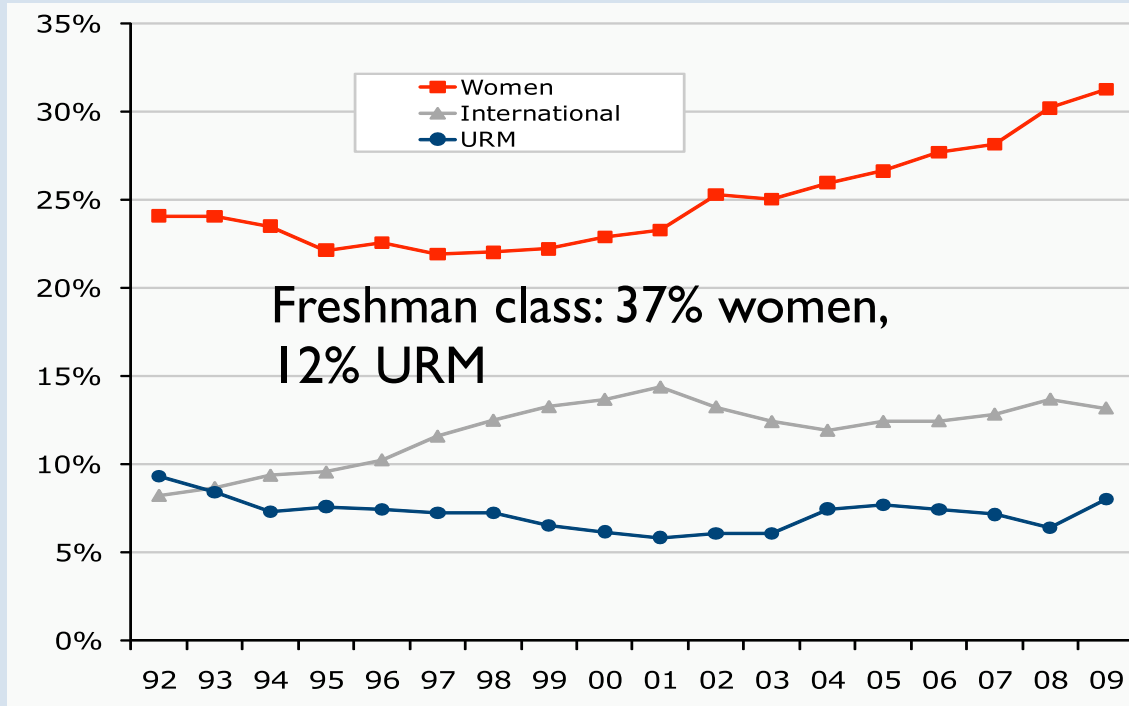
# Engineering Undergraduate Enrollment



Applications to College up  
18% this past year!

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# Undergraduate Women, Minorities and International Students



## Student Successes

- Solar Decathlon - 7th place overall - first in our hearts
- CU Autonomous Underwater Vehicle



- Short list on X-prize car
- SWE earns Gold Level Award for Outstanding Collegiate Section
- College ranked 4th for Hispanic grad students by HispanTelligence

# Dragon Day 2009



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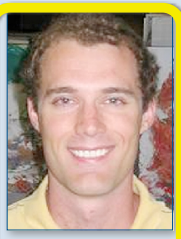
# New Faculty Starting in First Half '09 and Just Hired



Salman Avestimehr-  
ECE



Christopher  
Batten-ECE



Peter Frazier-  
ORIE



Delphine Gourdon-  
MSE



Hadas Kress-  
Gazit-MAE



Chris Hernandez-  
MAE



Brandon  
Hency-MAE



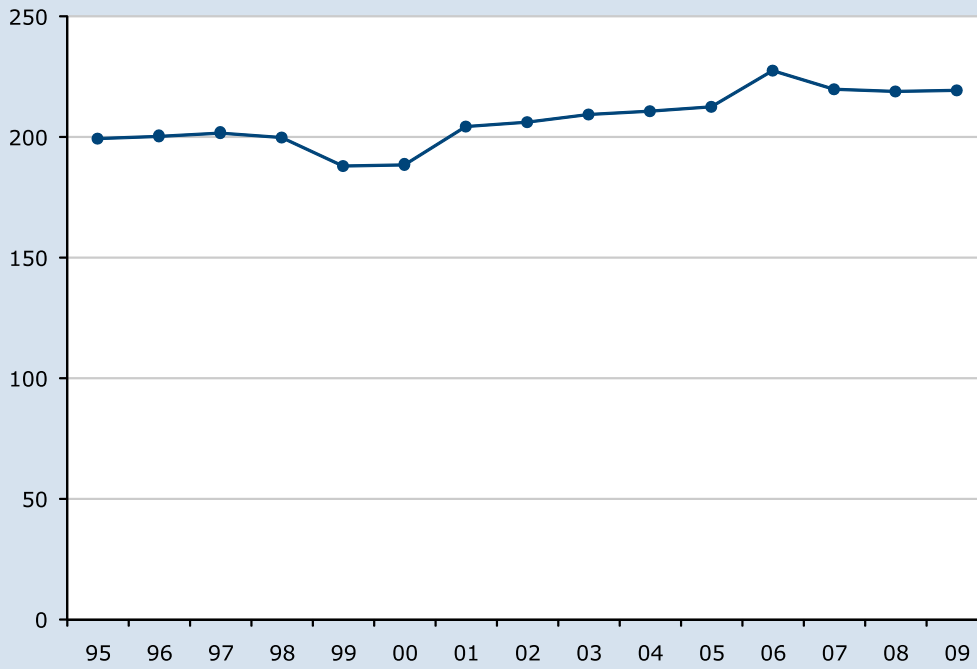
Xiling Shen-ECE



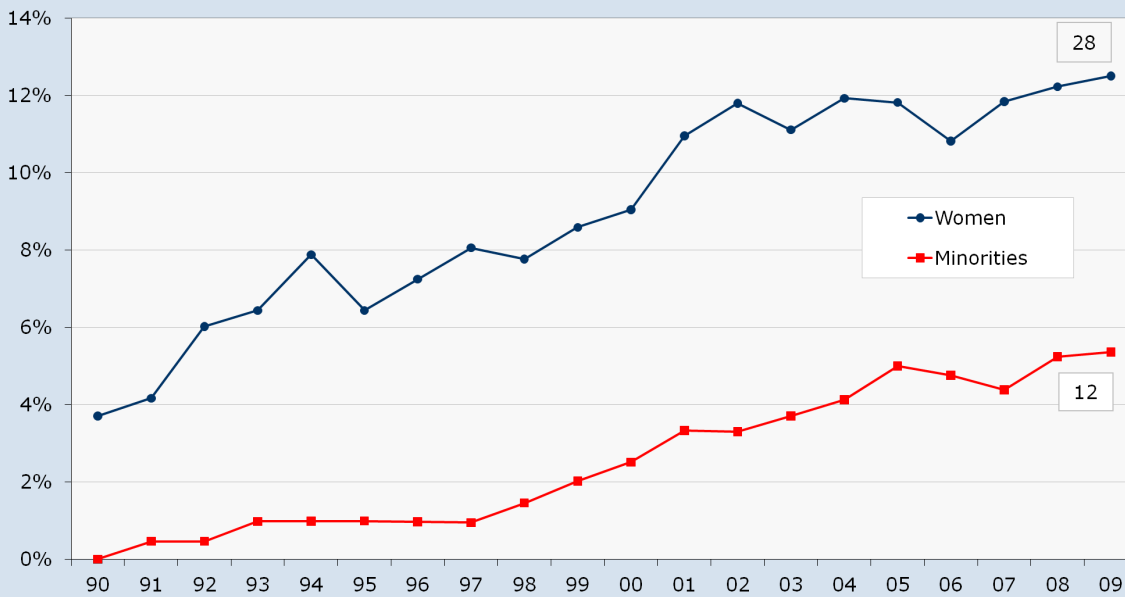
Jefferson Tester  
( '66, MS '67)-CBE

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# Faculty FTE



# Faculty Diversity (URM)

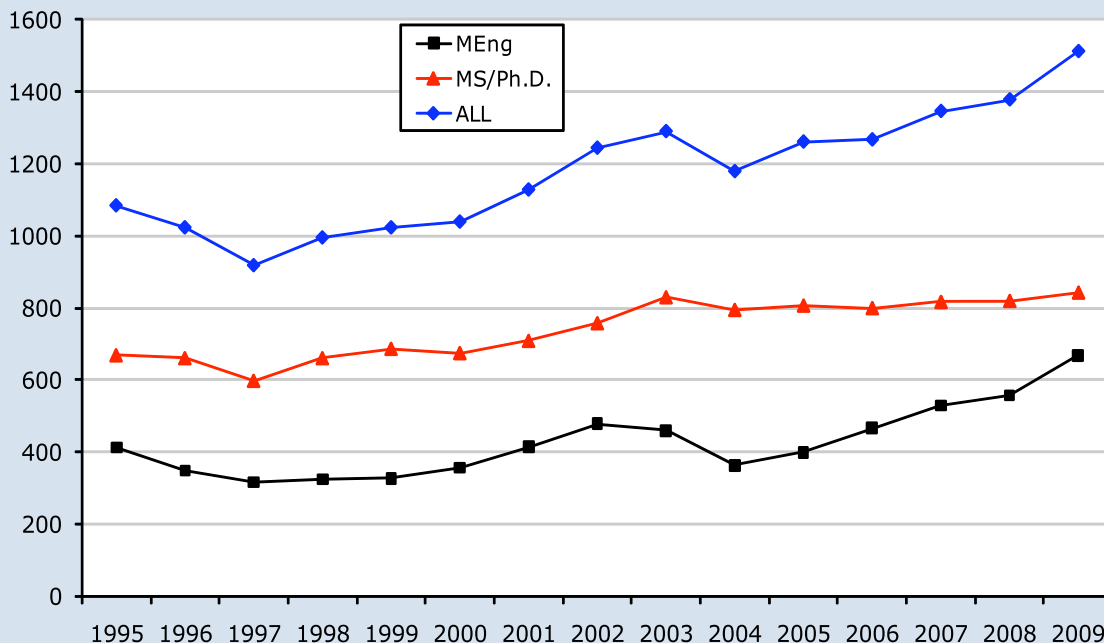


# Faculty prizes and honors

- **Joe Burns** (MAE/TAM) named an Honorary Fellow of the Royal Astronomical Society in recognition of his contributions to the field of astronomy.
- **John Hopcroft** (CS) is one of 72 new members of the National Academy of Sciences
- **Stephen Pope** (MAE/TAM) receives the 2009 Fluid Dynamics Prize from the American Physical Society.
- Two faculty members honored with PECASE awards: **Jiwoong Park** (CCB), and **Derek Warner** (CEE)
- **Paul Kintner** (ECE) named a Jefferson fellow of the U.S. Department of State Jefferson Science Fellow.

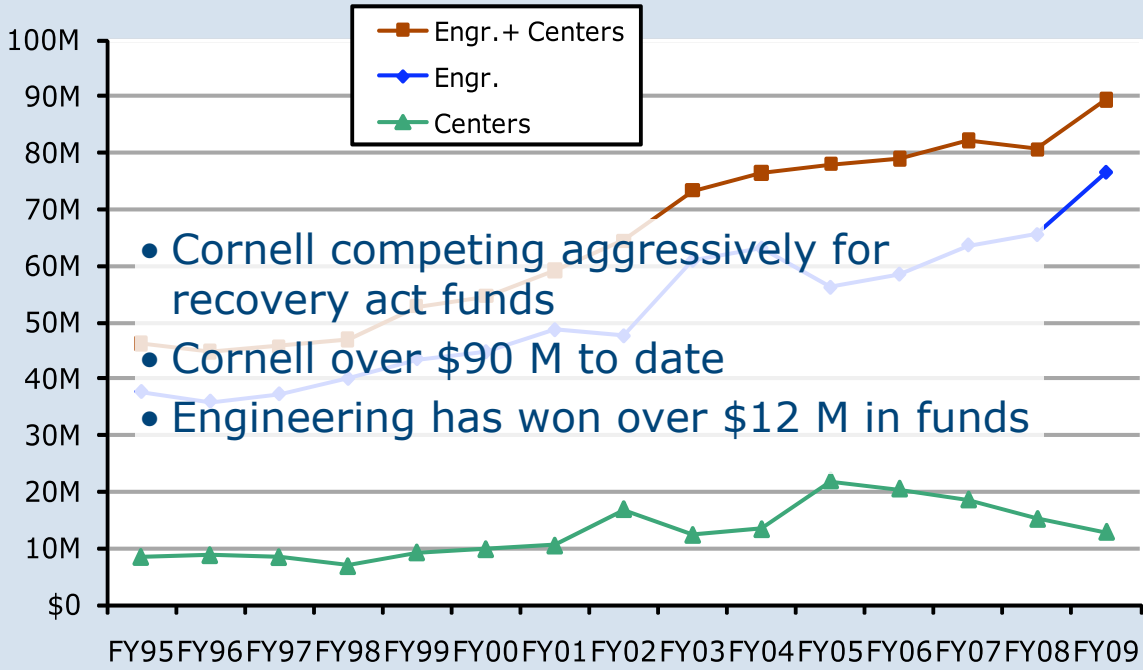
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# Graduate Student Enrollment

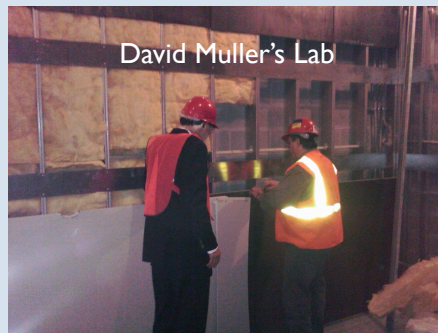
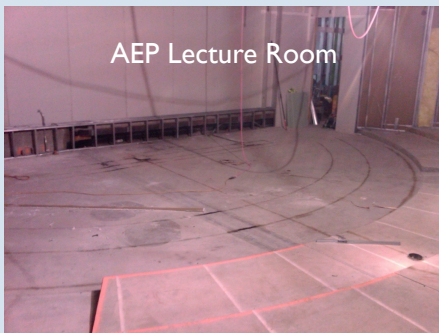


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# Research Expenditures



# Facilities - Physical Sciences Building





# Budget reductions and expected impact

- Faculty hiring
- Facilities
- Staff reductions
- Still a distance to go to meet budget goals

# University situation

- Initial problem: \$215 million
  - \$80 million: Payout
  - \$35 million: Financial Aid
  - \$50 million: Debt Service
  - \$50 million: Structural deficit
- Remaining problem: \$135 million (approx.)
- Correction plan:
  - \$35 million from endowment (financial aid)
  - \$100 million base budget reductions (\$50M to date)
  - \$80 million payout reduction (\$35M to date)
  - expect that up to \$90M will come from operational improvements

# COE situation

## ➤ FY10:

- \$7.2 million ongoing reductions
- Positions lost
  - Staff: 14.7 (Central college 10.2; Academic depts. 4.5)
  - Academic non-faculty: 6.25
  - Faculty lines: 2

# Budget Process since ECC Meeting

- University process
  - Task Forces (reports handed in October 1)
  - Bain process (final report mid-October)
  - FY11 planning assumptions released in November or later
  - Strategic plan released Spring 2010
- Task Forces
  - Budget Model Task Force
  - College/School Task Forces
  - Library Task Force
  - Life Sciences Task Force
  - Management Sciences Task Force
  - Social Sciences Task Force
  - Student and Academic Services Task Force
  - Student Enrollment Task Force

# COE Planning Process

- Retreat participation (Dept. Chairs, BATF, College Deans)
- Retreat Preparation for Strategic Budget Process
  - Rethinking Engineering for the 21<sup>st</sup> Century
  - Faculty productivity
  - Faculty retention
  - Faculty hiring
  - Curriculum
  - Revenue opportunities
- Key Concepts from Retreat
  - Curriculum/teaching efficiencies including new technology
  - Strategic hiring
  - Post-tenure review
  - Proactive retention
  - Broadened research funding base
  - Redefinition of COE

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## FY11

Initial model for FY11	\$000s
Base reduction	3,000
Payout reduction (inc. FY12 assumptions)	2,200
Unrestricted gifts	1,000
PBIF	250
MEng/MS (additional 20)	(600)
Total	\$5,850

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# Academic Planning

- Overview – report on our process to date
- Curriculum
- Faculty hiring – approaches and observations
- Faculty productivity and retention
- Revenue from industry
- Mega-departments/“clusters”

## Curriculum

- As retirements occur, certain departments and certain parts of majors will face challenges.
- Departments have agreed to co-teach needed courses with possible loan of faculty
- A mechanism to encourage co-teaching is being looked at including TA lines and joint hiring
- If the situation is dire, elective courses and graduate courses will be sacrificed to save undergrad major

# Faculty Hiring

- May have to reduce by as many as 15 - 20 faculty positions
- Average loss of faculty per year was 10
  - As discussed at retreat, plan is to reduce faculty number by 30 positions over 3 years and simultaneously hire 10 during that period
- However, no departures for foreseeable future - process may take a long time (5+ years)
- Will hire in limited numbers in strategic areas of energy/sustainability and biotechnology

# Post-Tenure Review

- All faculty will have to contribute their fullest
- Top performers should be recognized
  - Small number of top performers will receive raises or bonuses
- Faculty may also become less productive and with tenure this becomes difficult to address
  - Department chairs often find it difficult to approach less productive faculty
  - College is making the process clear
  - Chairs can reduce salary, work with faculty to reduce appointment, and there are mechanisms for phased retirement

# Revenue from Industry

- Cornell has less industrial funding than its non-Ivy League peers
- After ECC meeting major recommendation was pilot program to test new ideas
  - Ideas included pilot project with startup, but no startup wanted ECC looking over shoulder
  - Working with Xerox as pilot to improve university/industry connections - have provided input to Skorton Task Force
  - Other ideas for Skorton?
- Launching task group with OVPR to examine barriers to university/industry interactions

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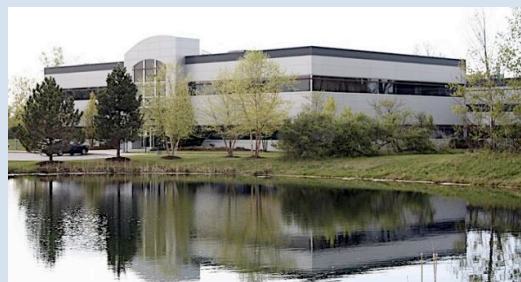
# Kionix - Tech Transfer Success

- Kionix Inc., a leading Tompkins County high-tech firm formed from Cornell University research, has been purchased by Japanese semiconductor firm based in Kyoto.



Good for Cornell

- Substantial patent revenue
- Increases Cornell reputation as technology innovator

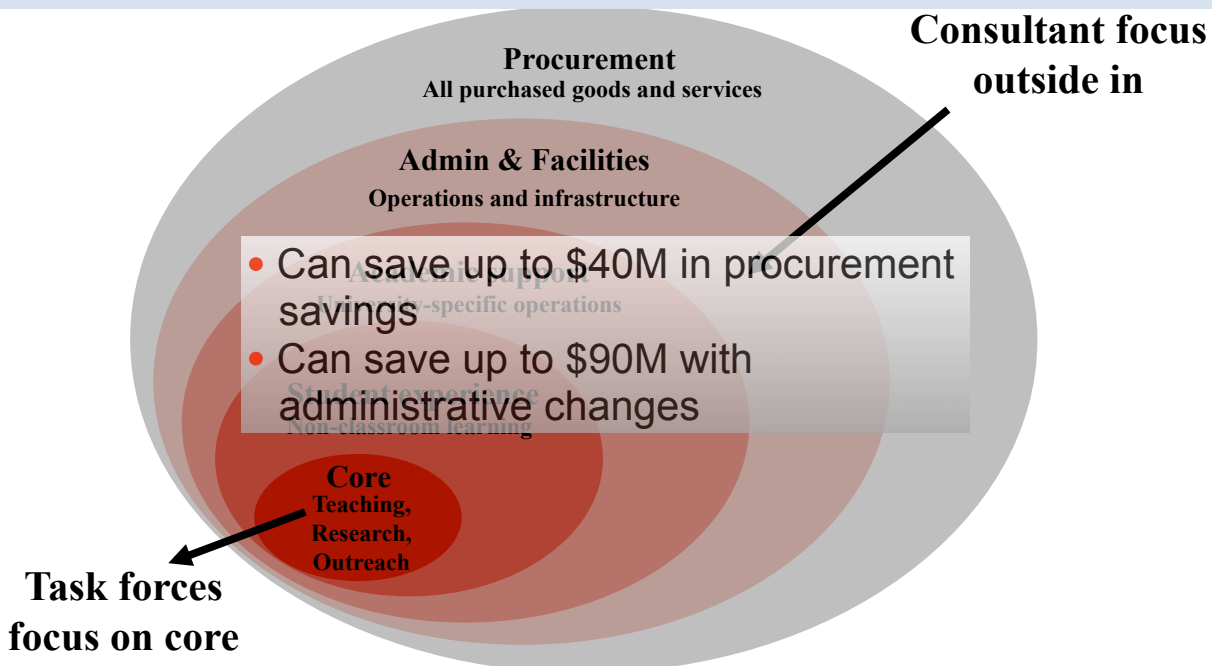


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# Mega-departments / Clusters

- No mega-departments or academic clusters at this time
- No simple strategy for academic clustering identified since most departments have many small overlaps
- Still possible benefits to both concepts and we should re-examine in future
- Departments will cooperate on the academic challenges to face us through direct agreements between departments
- Focus will therefore be on administrative efficiency

# Bain Consulting



# Administrative Planning

- Program reviews
  - Broad impact
  - Tend to be administered centrally
- Administrative processes
  - Processes that are common or span several organizations
  - Goals:
    - Restructure or eliminate work to allow us to most effectively deal with budget reductions
    - Invest in areas that are mission critical or high risk

# Administrative Planning

- Facilities
- IT
- Human resources
- Research administration
- Administration
- Financial transactions
  
- Waiting for Bain Report and Provost's guidance to next stage



# Discussion

