

Organizational Decision-Making:

Biodiesel at MIT

Lecture 12

Last Time: Hexion

- If Darren = Hexion, his decision to use CHP would reflect his preferences: $U(\text{expected profit, safety, risk, ...})$
- But Darren needs a committee's approval, and, judging by their questions, their preferences/views of what's best for the firm are not all the same:
 - Different views about risks related to downtime
 - Concerns for own bonuses as well as firm's profits
- Hard to know what the committee would decide: its preferences are "problematic"; decisions will depend on attendance, arguments, preparation, agenda (e.g., voting paradox), other issues,...
- Cohen, March, & Olsen talk about "problematic preferences" as a feature of "organized anarchy," but this is a pretty general feature of group decision-making – even in structured businesses
- Will see some other features in Biodiesel, which involves a much more complicated (and anarchic...?) organization

Biodiesel@MIT

- Student-led group
- Goal: process used vegetable oil from Campus Dining into biodiesel to be used in Tech Shuttles, other equipment

Biodiesel Video:

<http://youtu.be/oSgOAJsiy2E>

<http://video.mit.edu/watch/biodieselmit-4161/>

Courtesy of Biodiesel@MIT. Used with permission.

History:

- Idea from a 2006 IAP seminar
- Talked with “administration” (who??) in 2006 before design finalized, told to go look for \$\$ and space...
- Won GE Ecomagination grant (\$25,000) in Spring 2007
- Fall 2007 – Spring 2008: Sought affordable space for processor, cost estimates grew...
- 5/08: Declared defeat, planned to disband
- 9/08: **AFFORDABLE SPACE IS NOW AVAILABLE!!**
- Processor installed in January 2009
- Began producing fuel in Summer 2009, using it in 2010

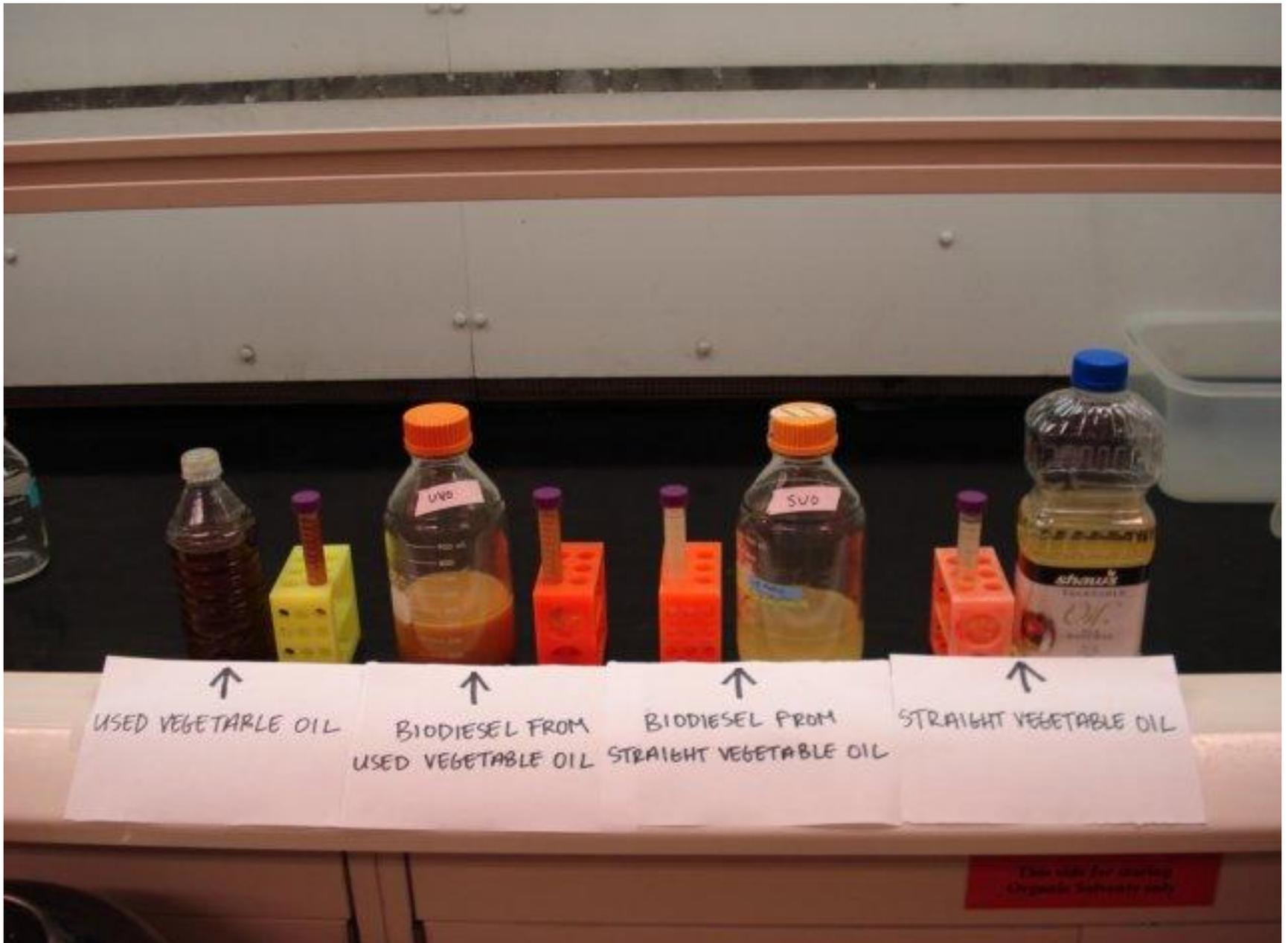
MIT Biodiesel Processor (in NW14)



Courtesy of Biodiesel@MIT. Used with permission.

Research/Education

- Life Cycle Analysis
- ASTM Fuel quality testing
- Campus biodiesel system design & logistics
- Making the system actually work!



Why did such a good thing take so long?

Conventional explanation: Leadership lacking

Why was biodiesel different than women in science?

Man makes history explanation.

Alternative explanation: Organizational complexity, coordination, networked responsibilities

What do we need to know that is not in the story thus far?

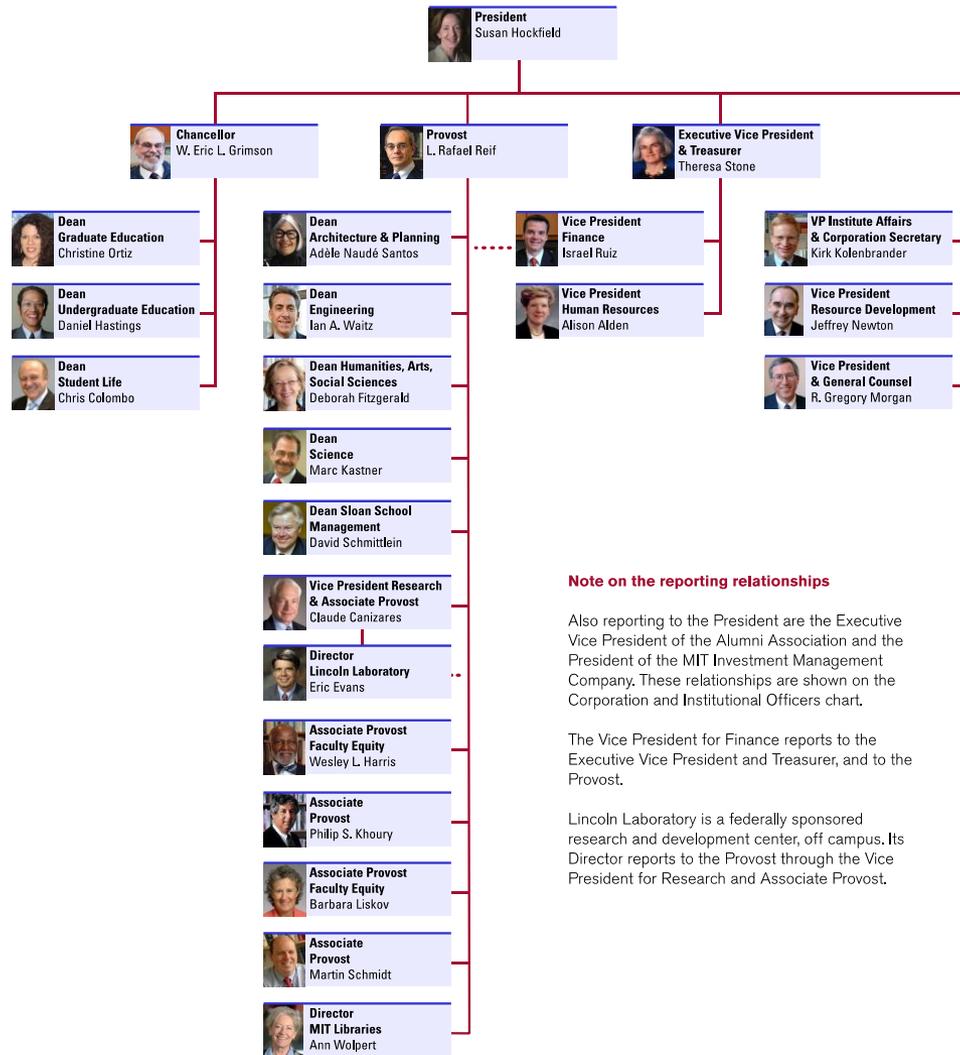
History makes the man, contextual explanation.

In the video, Sara talks about “the administration” as if it were a black box – the way people talk about BP or Goldman Sachs...

But it is in fact a set of people with a formal hierarchy, diverse & specialized responsibilities, and formal rules/procedures – a bureaucracy, good at continuity, not so good at change...

There are also a set of informal, personal relationships, & the rules do not specify everything

Senior Leadership



Self-description:

What does Biodiesel@MIT do?

- Works with Campus Dining, MIT Facilities, Environmental Health and Safety Office, MBP Bioenergy, and MIT Energy Initiative
- Provide EHS training & lab specific training for group members
- Make biodiesel!

Which of the parts of the administration with which it works seem to have been most problematic?

Facilities and EHS report to the EVP & Treasurer:
Primary Responsibilities?

CRSP is a more complicated story

Reporting List

This page identifies the units reporting to the Institute senior officers listed below. Use the [+] and [-] buttons to expand and contract the list.

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[+] Office of the President

[-] PROVOST

[+] Units Reporting to the Provost

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[+] **Dean, School of Engineering**

[+] **Dean, School of Humanities, Arts, and Social Sciences**

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[+] **Dean, Sloan School of Management**

[+] **Vice President for Research and Associate Provost**

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Associate Provost

Associate Provost for Faculty Equity

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Director, Lincoln Laboratory

[+] **Director, MIT Libraries**

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[-] EXECUTIVE VICE PRESIDENT AND TREASURER

[-] Units Reporting to the Executive Vice President and Treasurer

Audit Division [directory]

Environmental Programs Office and Environmental Health and Safety Office [directory]

Facilities Department [directory]

Information Services & Technology Department [directory]

MIT Medical [directory]

MIT Police [directory]

Office of Major Agreements

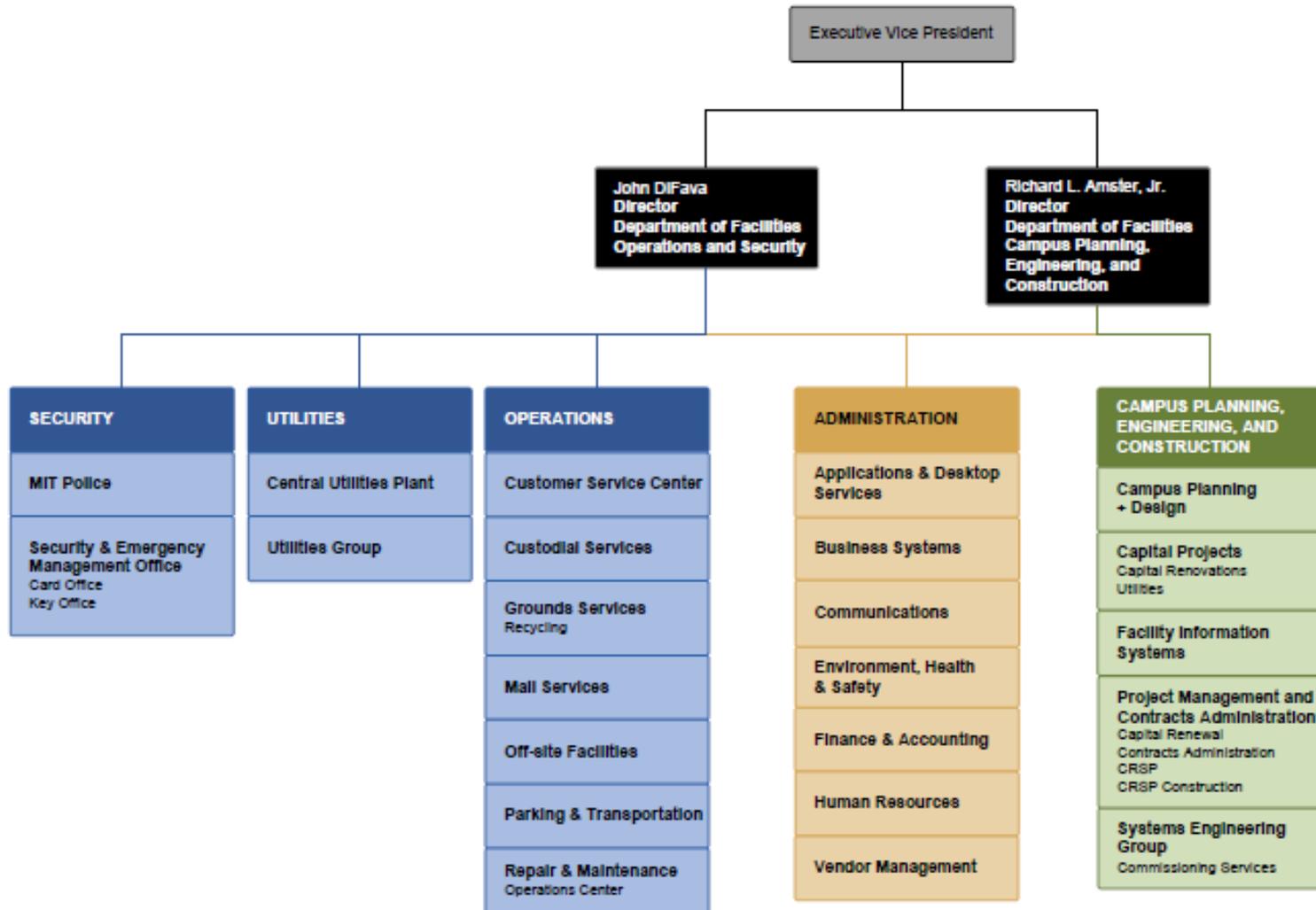
[+] **Vice President for Finance**

[+] **Vice President for Human Resources and Equal Opportunity Officer**

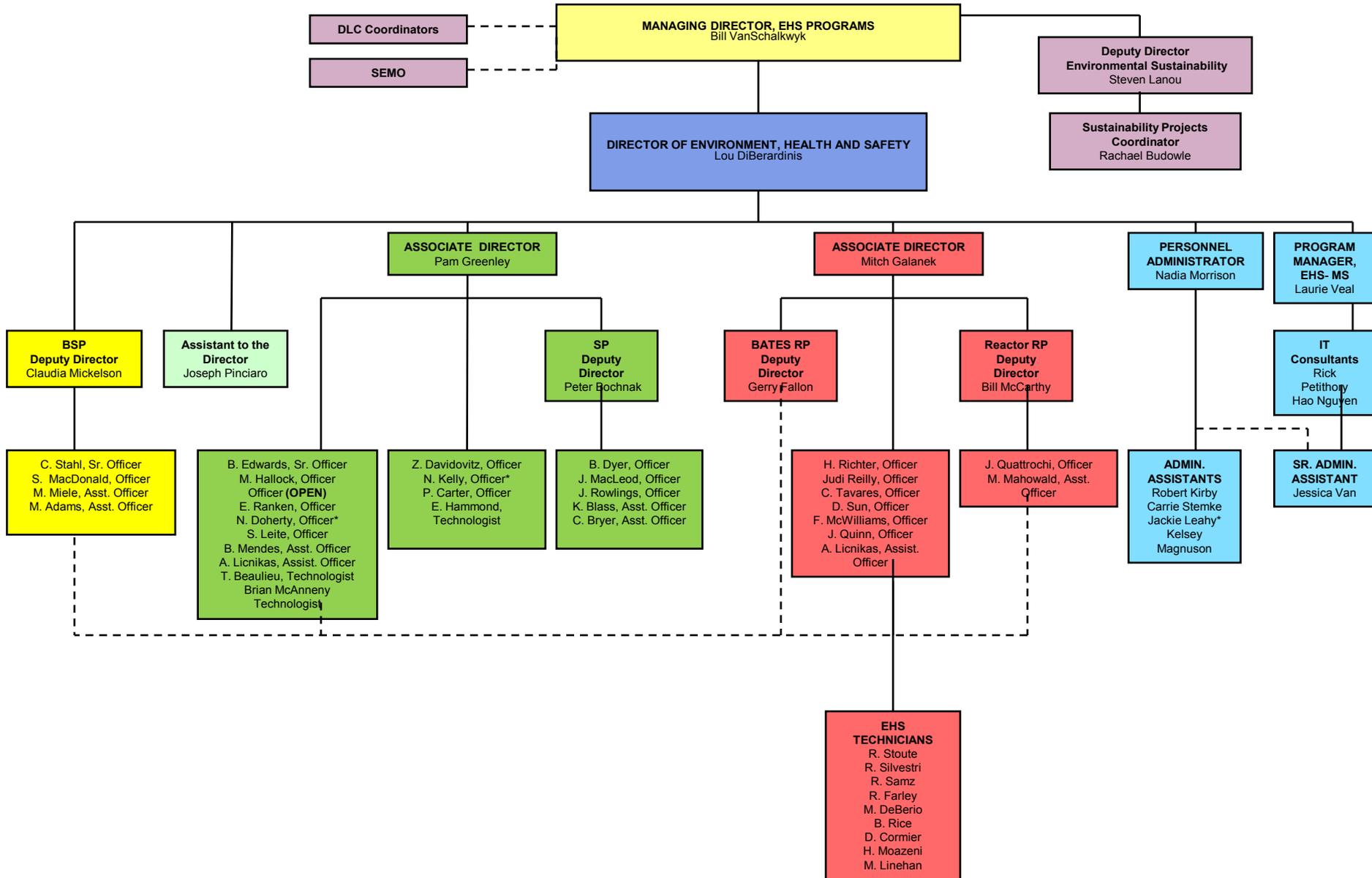
[+] **Vice President for Institute Affairs and Secretary of the Corporation**

Vice President for Resource Development

Vice President and General Counsel



EHS Organizational Chart – January 23, 2012



CRSP & The Garbage Can Model:

- Acts on solutions (proposals), not problems; generally, solutions are often waiting for problems (Congress)
- “Fluid Participation” – membership, attendance, preparation, interest in particular issues varies; almost all have significant other responsibilities
- “Problematic Preferences” – hard to predict outcomes based on history (which the case illustrates!)
- “Unclear technology” – decision-making processes, esp. on BIG decisions (performing arts, E62) not clear even up close; CRSP is only advisory

To dismiss this sort of process as “politics,” as Daniel does in the video, or “irrational” does not aid understanding – or strategy!!

Committees for the Review of Space Planning

The Committee for the Review of Space Planning (CRSP), an advisory group to the Provost and Building Committee, is the Institute’s primary functioning body for making decisions and recommendations about all projects and assignments related to space, planning, and capital projects. The CRSP committee, whose membership represents the academic, research, and operations of the Institute, meets monthly and is responsible for strategic planning. All requests, regardless of urgency, cost, or funding source must be submitted to CRSP.

In addition to CRSP, there is a sub-committee, CRSP Renovations Subcommittee (R-CRSP), which meets biweekly. The CRSP Renovations Subcommittee reviews and approves all requests for space, space changes, and leases. In addition, R-CRSP is also responsible for approving, tracking, and communicating all project funding.

Full CRSP Membership (meets monthly)

Professor Martin A. Schmidt, Chair and Associate Provost
Professor Phillip S. Khoury, Associate Provost
Professor L. Rafael Reif, Provost
Professor W. Eric L. Grimson, Chancellor
Professor Claude Canizares, Vice President for Research & Associate Provost
Mr. Israel Ruiz, Executive Vice President
Mr. John P. Dunbar, Assistant to the Provost for Space Planning
Mr. Greg Raposa, MIT Space Administrator
Mr. Richard Amster, Director, Department of Facilities Campus Planning, Engineering and Construction
Ms. Pamela Delphenich, Director of Campus Planning & Design
Mr. Michael Kearns, Director of Project Management and Contracts Administration
Mr. William Colehower, Staff Liaison, Department of Facilities
Mr. Michael Lieberman, Staff Liaison, Department of Facilities
Ms. Eileen Francis DesRosiers, Assistant Director, Office of Finance
TBD, Vice President for Finance

Renovations Subcommittee Membership (meets biweekly)

Professor Martin A. Schmidt, Chair and Associate Provost
Mr. John P. Dunbar, Assistant to the Provost for Space Planning
Mr. Greg Raposa, MIT Space Administrator
Mr. Richard Amster, Director, Department of Facilities Campus Planning, Engineering and Construction
Ms. Pamela Delphenich, Director of Campus Planning & Design
Mr. Michael Kearns, Director of Project Management and Contracts Administration
Mr. William Colehower, Staff Liaison, Department of Facilities
Mr. Michael M. Lieberman, Staff Liaison, Department of Facilities

So, Why Did it Take So Long?

- Was the project inconsistent with MIT values?
- Did it have faculty support? MITEI support?
- Why was faculty + MITEI support + values not sufficient?
- How was Biodiesel positioned within recognized MIT categories: labs, departments, admin units, living groups, ...?
- Within the administration, who (people or units) had the power to block the project?
- What were the incentives of the key players?
- Why do you think the position of “the administration” changed in the summer of 2008?
- How might the team have been more effective?

Why is Change Generally Hard in Organizations?

- To be effective at doing something organizations develop hierarchy, division of labor, formal rules/procedures – which resist change
- Tendency to mimic exemplary organizations (or, at MIT, resist...)
- People have career concerns, professional norms; don't slavishly serve the organization, especially if organization's goals fuzzy (common)
 - Middle management: budget authority & competing for promotion!
- Lots of good ideas but limited resources; pats on the back are cheap!
- Division of labor leads to silos – Green Lights at MIT
- MIT: space is unpriced but a status symbol, so fights particularly tough
- MIT: students important to faculty, but little power over Facilities
- So how does change ever take place? MIT did get Biodiesel (& Energy Minor), & optional readings have interesting examples

Sharma:

Voluntary Environmental Compliance

- 99 Canadian Oil & Gas Firms: strategies vary from do no more than necessary to voluntary action
- Questionnaires to CEOs, other top managers – leadership model
- More likely to go beyond requirements if
 - View environmental protection as part of corporate identity/mission (Handy)
 - View environment as an opportunity (for leadership) rather than a threat (to profits) – key issue in Biodiesel@MIT
 - Have more ability to allocate resources to environmental protection (“managerial slack”)
 - The firm is larger
- The last two are not unrelated; wish he had looked at profitability...

Kagan, et al:

Environmental Performance of Pulp & Paper Mills

- *Normal economic (Friedman) assumption*: firms take costly measures to reduce emissions **only** when required & they believe non-compliance likely to be detected and penalized
- But among 14 pulp & paper mills, differences in regulation did not explain differences in performance; most over-complied; big differences within regulatory regimes.
- **Social pressure** from communities, sometimes customers mattered (no quantification, though)
- Being larger & more profitable earlier helped (investment), & affected enviro management style:

Table comparing management style against environmental performance removed due to copyright restrictions.
Source: Kagan, R., N. Gunningham, and D. Thornton. "Explaining Corporate Environmental Performance: How Does Regulation Matter?" *Law & Society Review* 37, no. 1 (2003): pp. 51-90.

Lounsbury: College/University Recycling Programs

- Two different sorts of recycling program structures adopted, Great Lakes, late 80s through 1995:
 - Status creation: new, full-time recycling director
 - Role accretion: add to custodial responsibilities
- Didn't measure performance, but would expect the first to be more effective
- Looked at a number of variables, found different predictors of adoption of these structures:
 - Status creation: large, selective, SEAC – activist students
 - Role accretion: small, public, influence by peers, SEAC<0
- **Student groups, pulp/paper communities may not have FORMAL power but clearly can affect decisions!**

Thoughts on driving change

- Strategy should be sensitive to organizational structure (formal & informal), motivations of actors, management style
- Framing critical: how to make it an opportunity, not a threat?
- Point to adoption by exemplary organizations (mimicry)
- Organize stakeholders (student groups on campuses, consumers for businesses, communities)
- Social movements can be very effective – more later
- More??

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15.031J / 14.43J / 21A.341J / 11.161J Energy Decisions, Markets, and Policies
Spring 2012

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