Managing the Innovation Process

Technical Communication
Overview

• Take-Away

• Required Readings

• Supplemental Readings

• Caveats
Take-Away

• Innovation can be fostered in R&D labs

• Innovation is driven by scientists and engineers

• Innovation requires organizational boundary roles

• Innovation benefits from technical communication
(Allen, 1977)

- "Managing the flow of technology – Chapter 3: The communication system in technology: An overview"

- **Scientists vs Engineers**
  (learning for learning’s sake vs professional preparation)

- **Science vs Technology**
  (literature-based knowledge vs firm-based knowledge)

- **Gap-Filling Science**
  (reduce delay of technical communication between science and technology)
(Tushman, 1977)

- “Special boundary roles in the innovation process”

- **Boundary Roles**
  (link internal network to external sources of information)

- **Internal Communication Stars**
  (consulted most frequently on technical matters)

- **Two-Step Process**
  (technical staff communicate with internal stars, who in turn communicate outside of the organization)
(Ebadi & Utterback, 1984)

- “The effects of communication on technological innovation”
- Technological Innovation (projects funded by National Sea Grant Office)
- Researcher Communication (higher individual frequency of communication across projects associated with greater project success)
- Project Centrality (higher project centrality scores associated with greater project success)
(Pelz & Andrews, 1966)

• “Scientists in organizations: Productive climates for research and development – Chapter 3: Communication”

• R&D Labs
  (services/equipment or interacting scientists?)

• Effective Scientists
  (sought and received more contact with colleagues)

• Controlling for...
  (experience, supervisory status, PhD, and lab type)
(Sosa, Eppinger, et al. (2002)

- “Factors that influence technical communication in distributed product development”

- **Communication Drivers**
  (interdependence, organizational bond)

- **Communication Barriers**
  (physical distance, *overlapping* time, *cultural* differences)

- **Communication Media**
  (preferences shift depending on physical distance)
Caveats

• How are scientists and engineers similar?

• When are boundary roles counter-productive?

• What if nobody wants to communicate with you?

• Does the content of communication differ by media?