

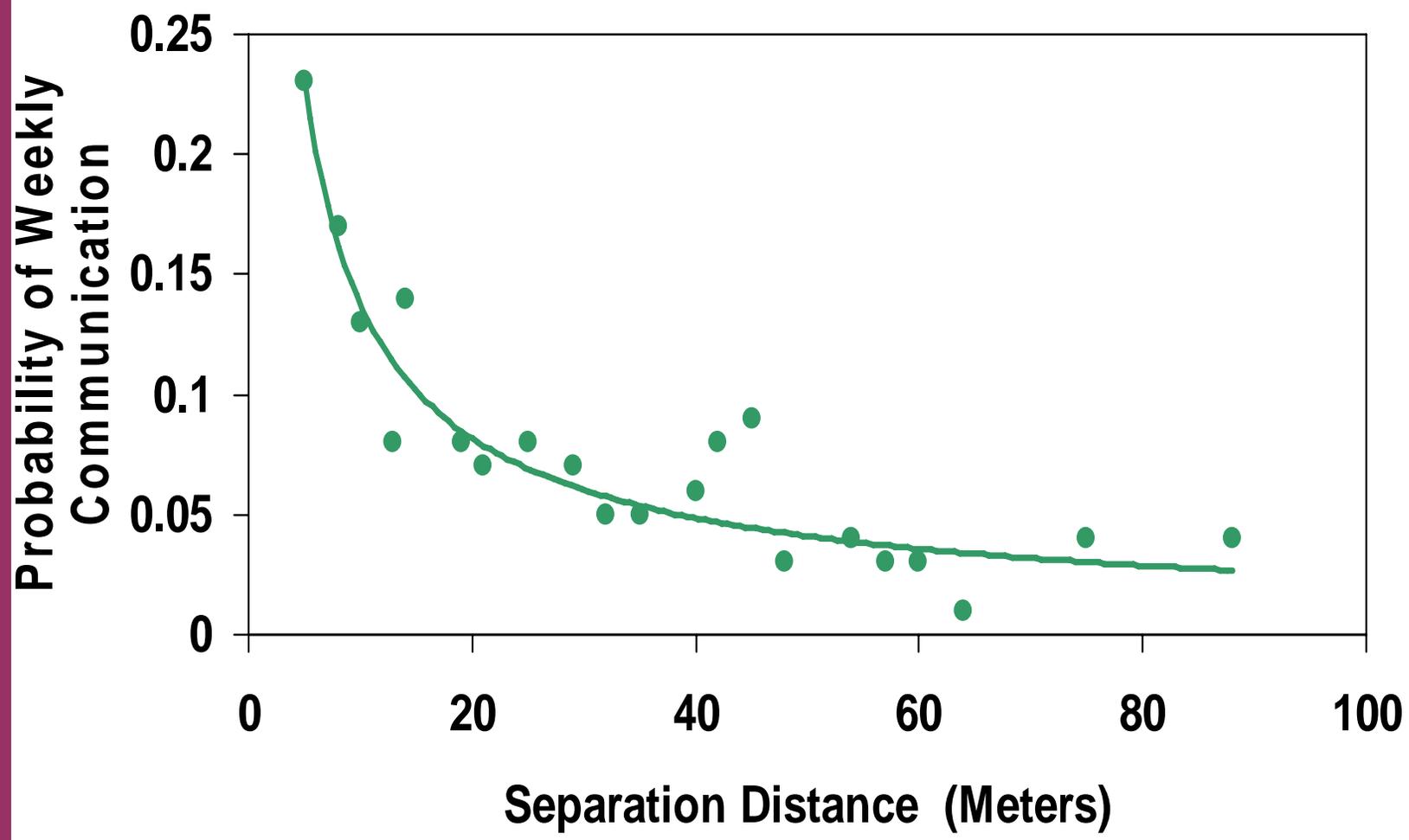


The Effects of Physical Location on Communication Patterns (Continued)

May 5, 2007



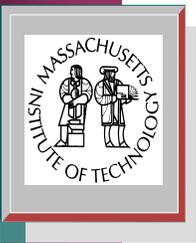
Probability of Technical Communication as a Function of Distance Between Work Stations



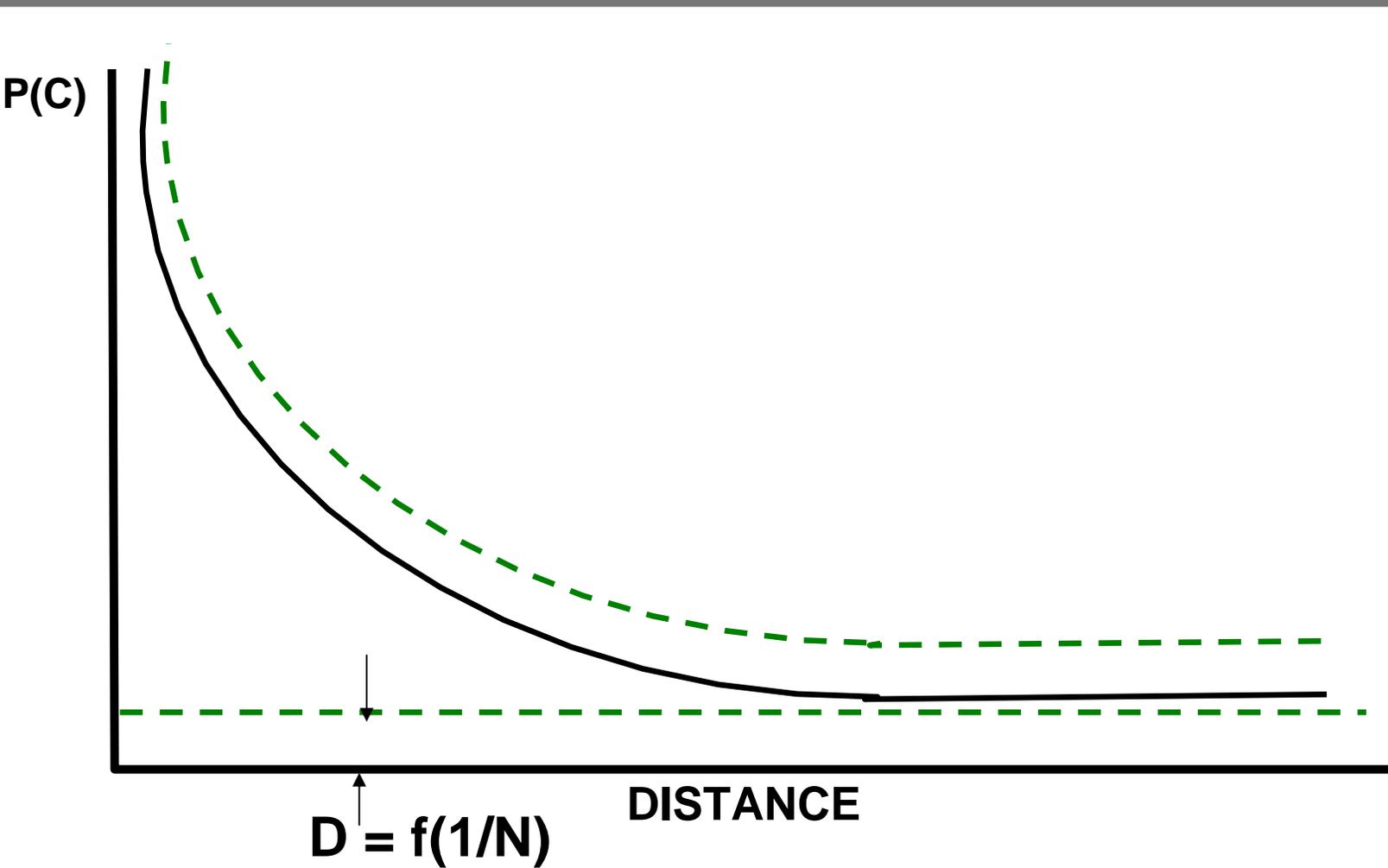


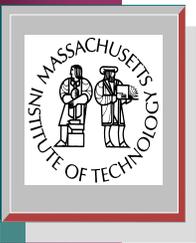
An Artifact of Organization?

- But isn't this just a result of the way in which we organize and locate organizational units?
- Then let us control for organizational affiliation and re-calculate.

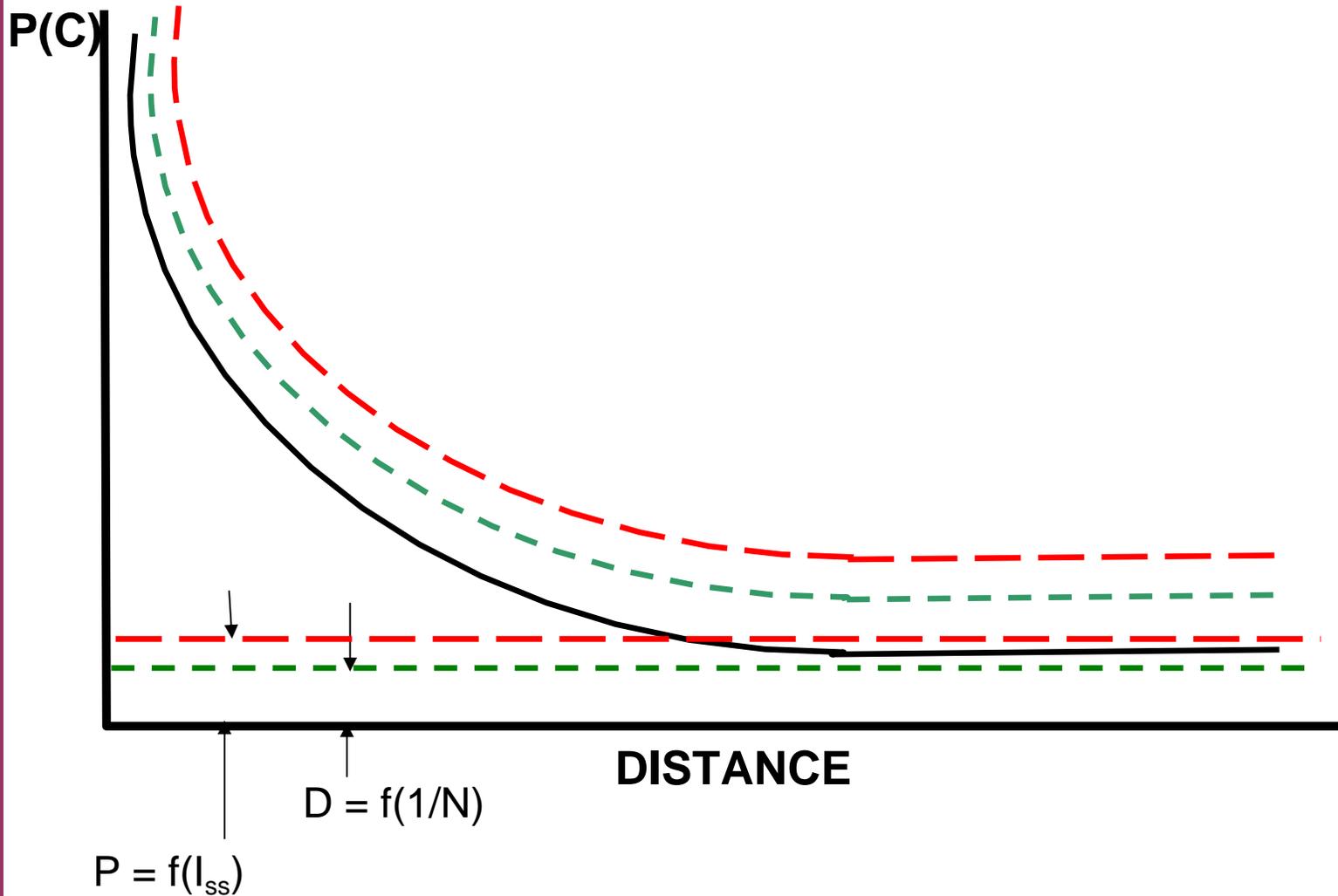


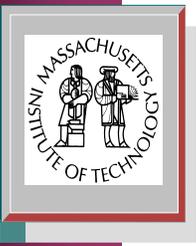
The Effect of Organization I



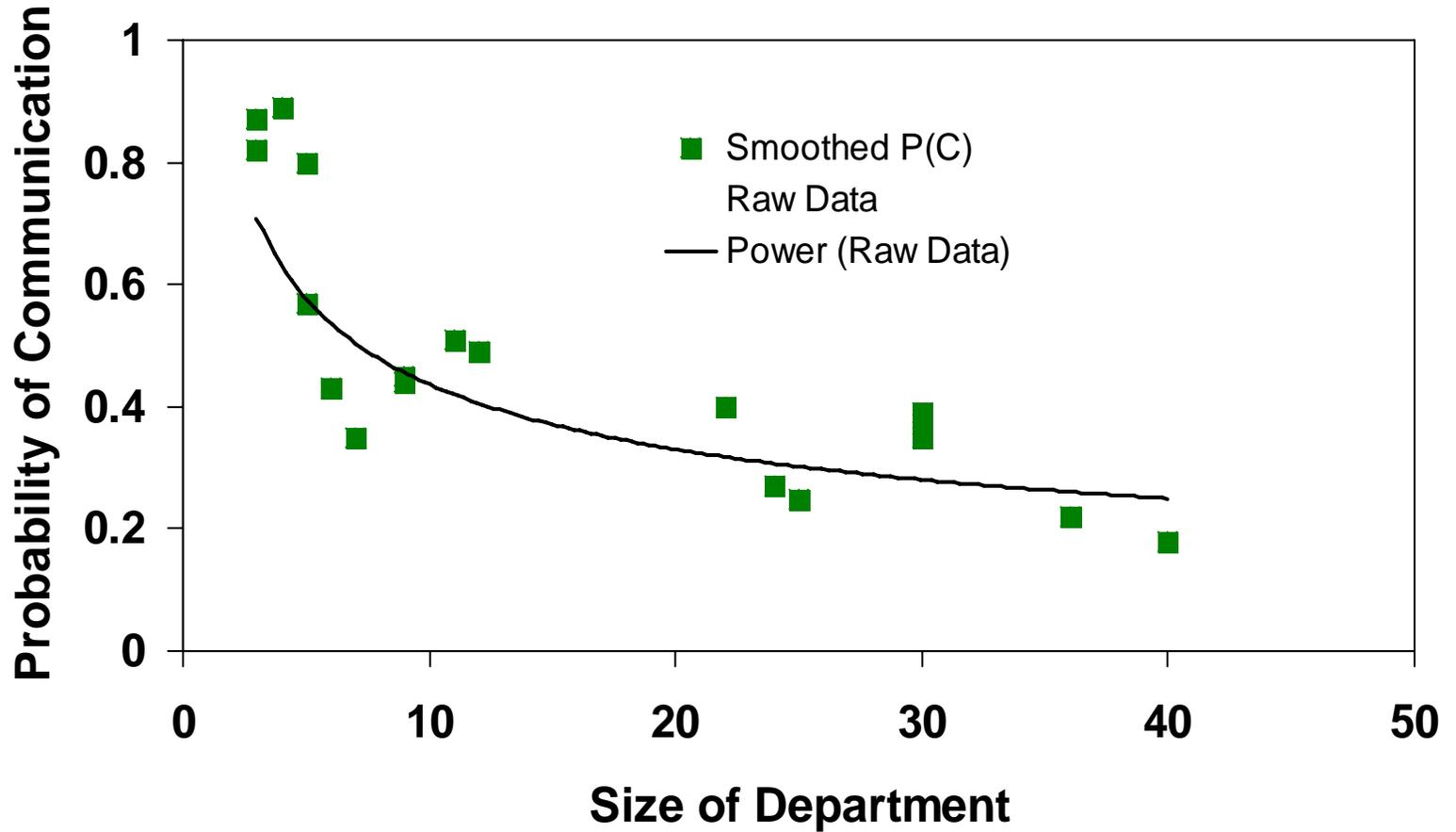


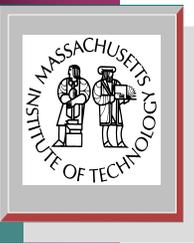
The Effect of Organization II



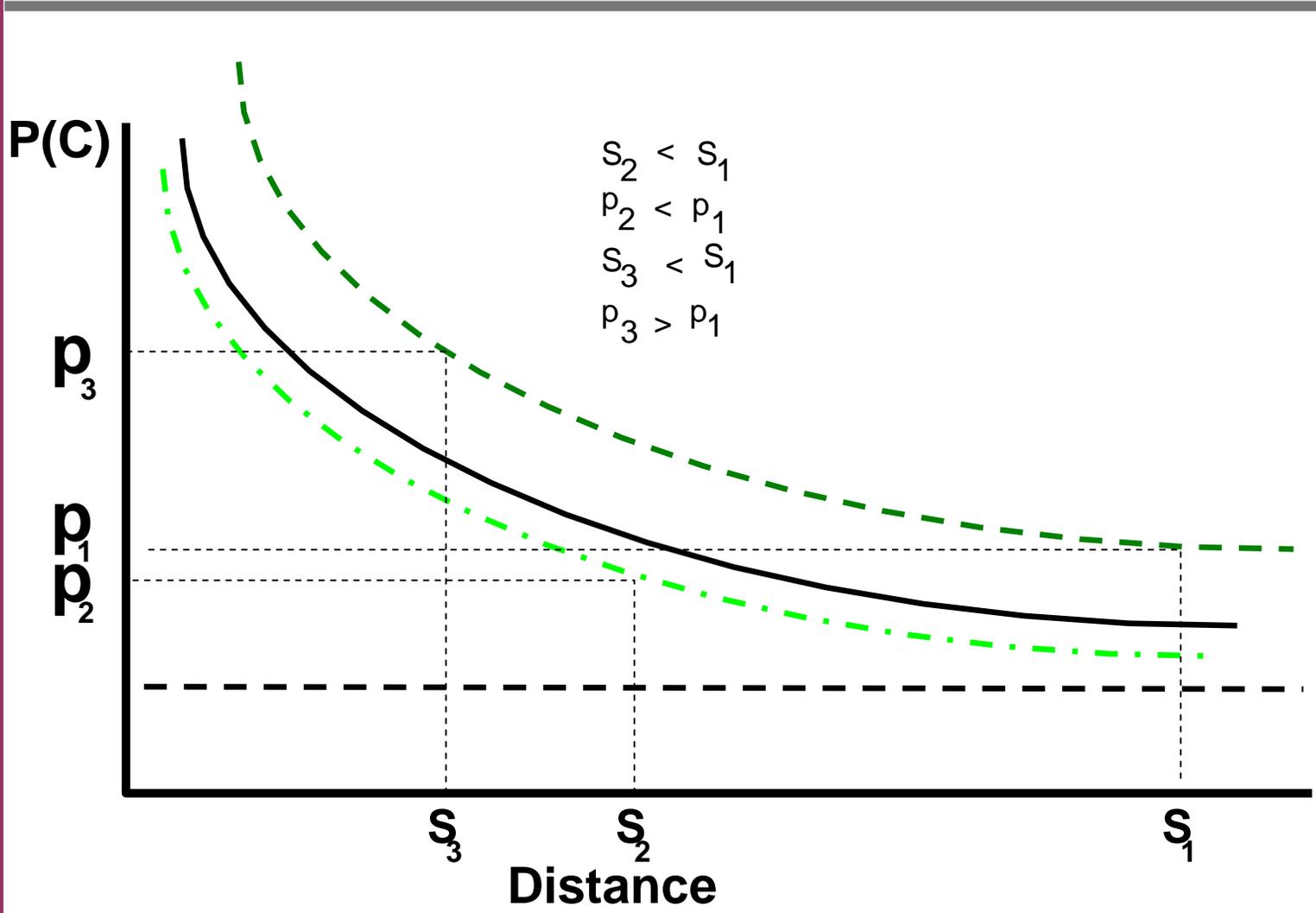


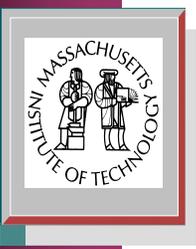
Departmental Size





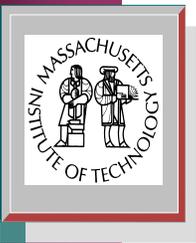
Some Obvious Points



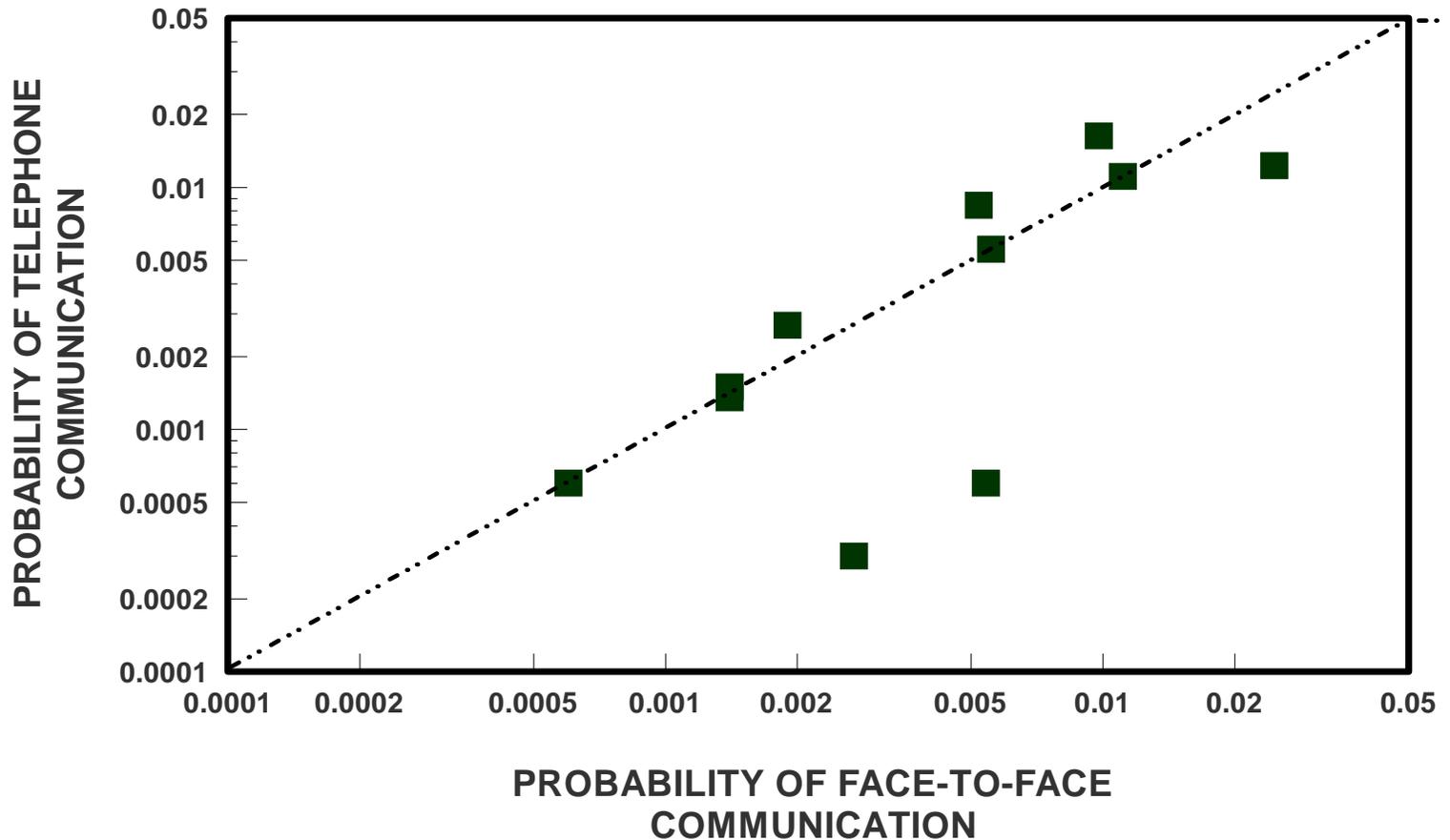


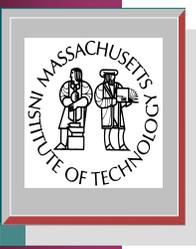
Telecommunications?

- But this is face-to-face. What about the modern media?
 - E-mail?
 - Telephone?
 - Video conference?
- The use of all of these is strongly correlated with face-to-face contact.



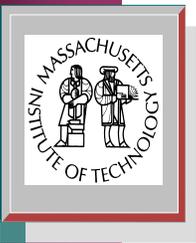
Face-to-Face and Telephone Communication





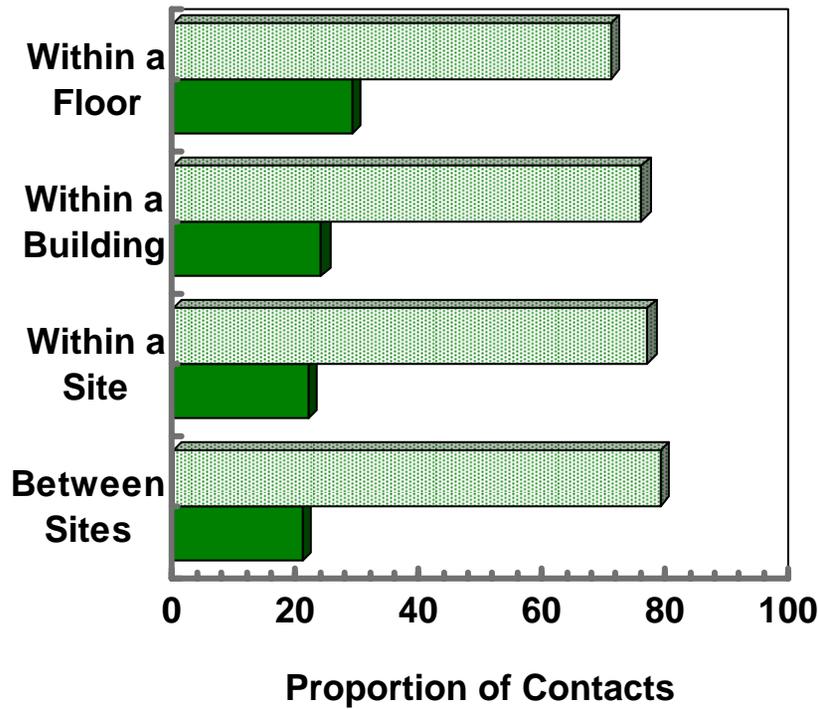
'Bandwidth' Limitation

- More important, still, is the fact that all of these media are 'bandwidth limited', in more than the physical sense.
 - It is very difficult to discuss a complex problem or an idea by e-mail or telephone.
 - We phone or e-mail to make the appointment and then visit face-to-face.



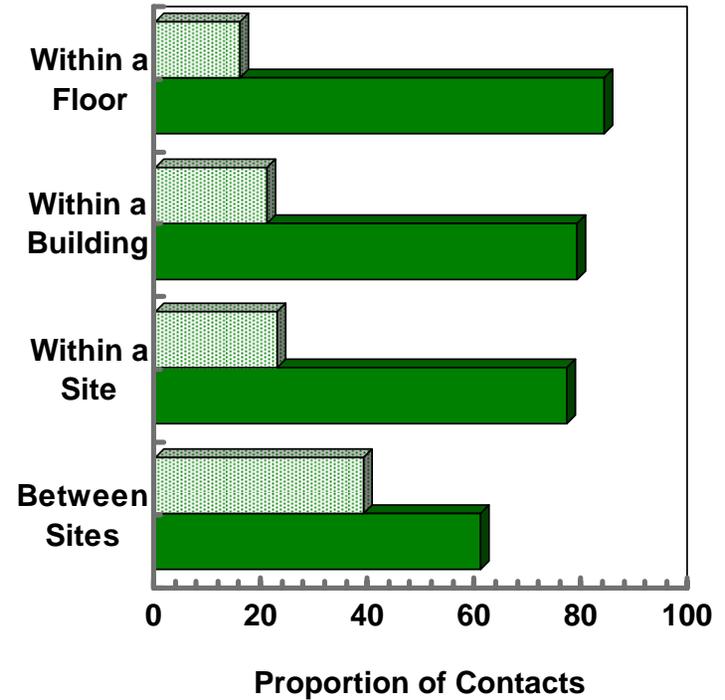
'Bandwidth' Limitation

Low Complexity Information

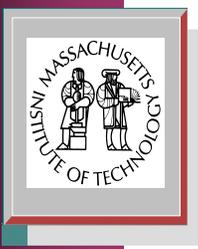


■ Face-to-Face ■ Telephone

High Complexity Information



■ Face-to-Face ■ Telephone



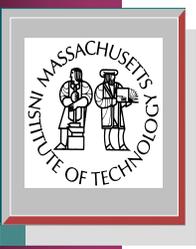
Communication Between Floors

- Vertical separation is disastrous for communication.
 - We are captured psychologically by the floor that we are on. That floor becomes for us ‘the building’.
 - Visual contact can offset this effect.
 - Atriums



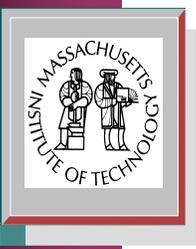
Probability of Weekly Communication Between People Located on Different Floors in a Building

Organization/Situation	P(C)
Agricultural Research Institute (Maximum Building 3 Floors)	0.04
Computer Company (Maximum Building Height 6 Floors)	0.01
Decker Building, Corning Glass Works (Building Height 3 Floors with atrium)	0.14



A Building Example

- A physical structure for the product development matrix
 - Patterns physical space on the needs of the product development matrix.
 - Enables visual contact between floors.



Main Conclusion

- We must combine both organizational structure and physical structure (organizational location and physical location) to create the desired communication and support for innovative new product development.
 - We must use both in a systemic manner, sometimes using one to offset the shortcomings of the other.
 - Neglecting either will lead to difficulties and detract from the optimal functioning of the innovation process.

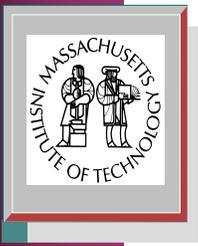


Determining Adjacencies

		Work Interdependence	Potential for Creativity
Engineer 'A'			
	Engineer 'B'	High	High
	Engineer 'C'	Low	High
	Engineer 'B'	Low	Low
	Engineer 'D'	High	Low
	etc.		
Engineer 'B'			
	Engineer 'C'	High	Low
	Engineer 'D'	Low	High
	etc.		

If these people aren't near they won't communicate and potential for creativity will be lost.

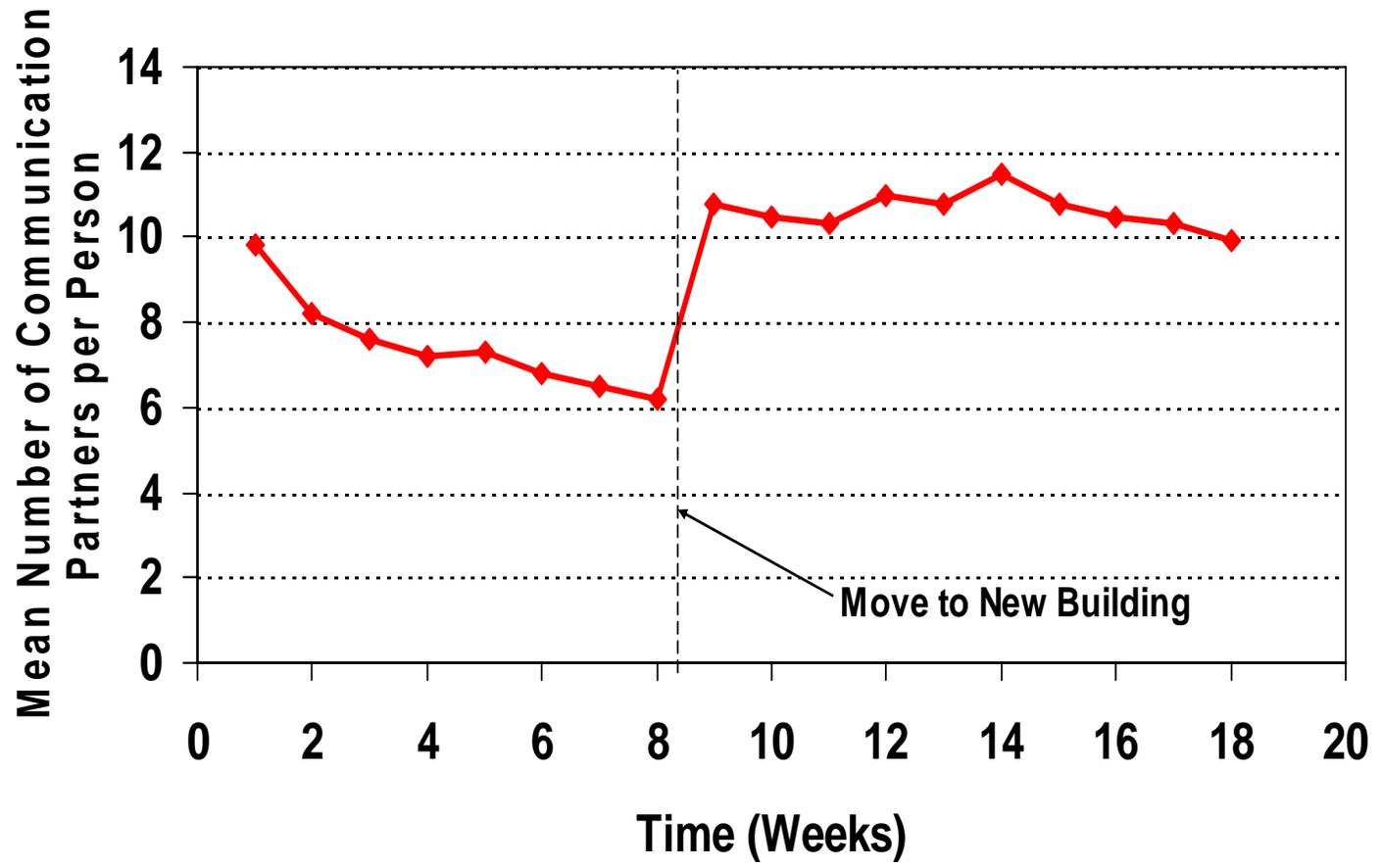


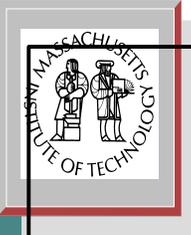


Awareness

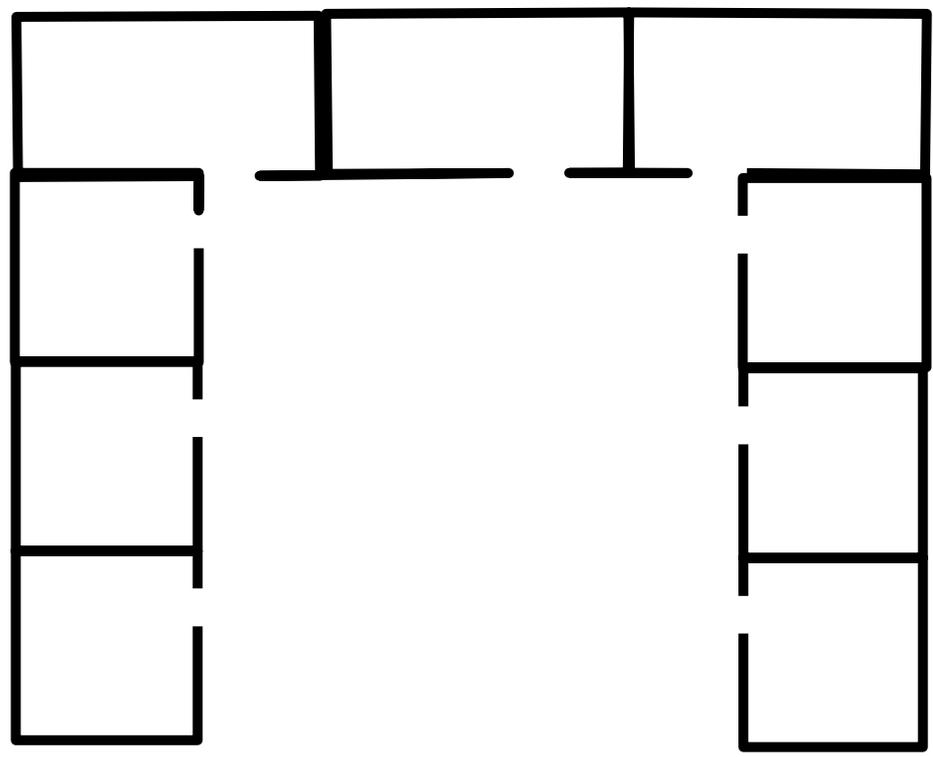


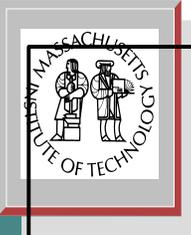
Effect of New Steelcase Building on Breadth of Communication



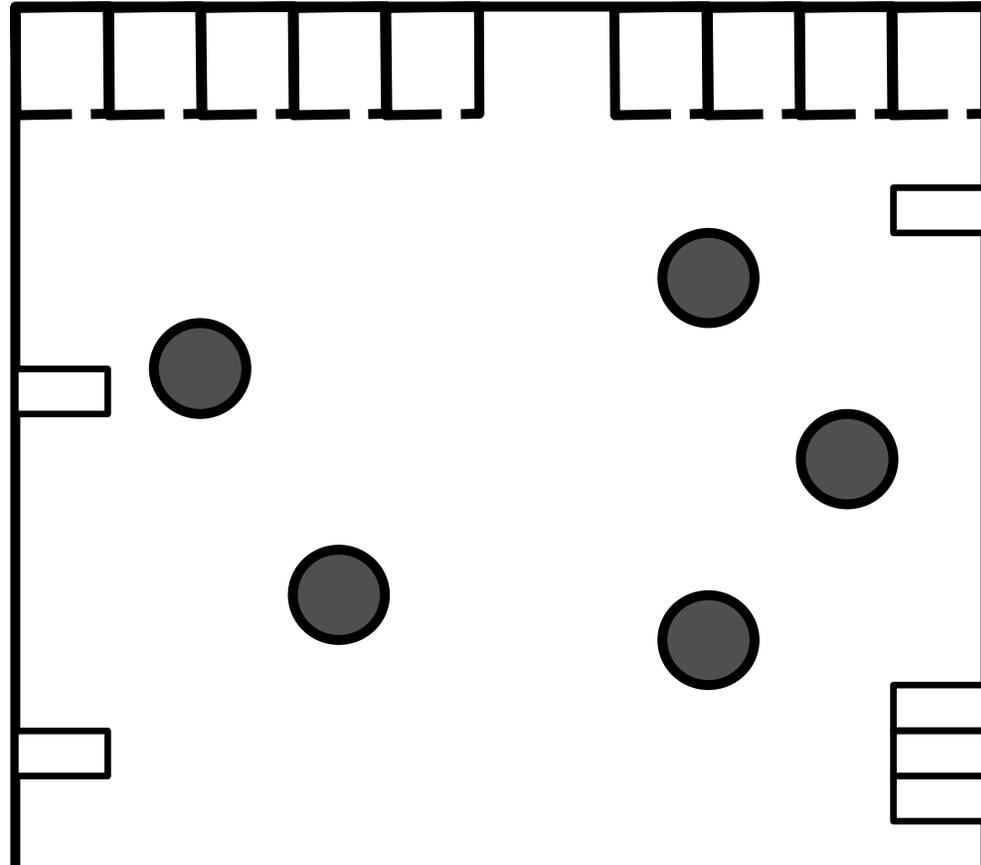


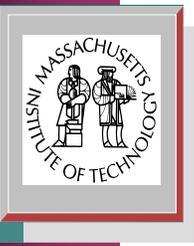
A Typical Grouping of Offices Around a Secretarial Area.





Same Area Converted to the 'Cave and Commons' Concept.





Office Configuration to Vary Privacy and Accessibility.

