Communication Network in a Small Laboratory

Figure by MIT OCW.
High Communicators Compared with Colleagues in Readership of Refereed Journals

Laboratory 'A' p < 0.001
Laboratory 'G' p < 0.02
Laboratory 'E' p < 0.01
Laboratory 'L' p < 0.05
Laboratory 'M' p < 0.05
Laboratory 'H' p < 0.01
Laboratory 'S' p < 0.01
Laboratory 'T' p < 0.01
Laboratory 'U' p < 0.01
Laboratory 'V' NS
High Communicators Compared with Colleagues in Terms of Regular Informal Contact Outside of the Organization

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Mean Number of Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>'A'</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>'G'</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
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</tr>
<tr>
<td>'F'</td>
<td>p &lt; 0.01</td>
</tr>
</tbody>
</table>

[Graph showing mean number of contacts with p-values for each laboratory]
Gatekeeper Characteristics

- **High Technical Performance**
  - Not 'just communicators'
  - Highest technical performers in the organization.
  - Cannot be created by management.

- **Low in the Organizational Hierarchy**
  - Concentrated at first level of technical supervision or below.
  - Seldom found at higher levels of management.
  - Seldom found on the technical ladder.

- **Visibility**
  - They are easy to identify.
  - Everyone knows who they are.

- **Approachability**
  - Must be at least receptive to people.
International Gatekeepers

- International Gatekeepers tend to be Engineers or Scientists, who have worked in other countries and returned home.
- Engineers and Scientists visiting from other countries had very high foreign contact, but insufficient domestic contact to be International Gatekeepers.
Lessons From the Study of International Gatekeepers

- Transplanting Staff from Home Laboratory into Subsidiary is Unlikely to Produce Gatekeepers
- Technical Bringing Technical Staff from the Foreign Subsidiary to the Home Laboratory and then Returning Them Can Create International Gatekeepers, Provided that the Appropriate People are Chosen.
Reward Systems

The ‘Dual Ladder’
The Technical Ladder
  – Where did it originate?
  – Does it work?
A Managerial Career

VP
AD
DM
DH
SH
GS
LE
The Dual Ladder

Managerial

LE
GS
SH
DM
DH
AD
VP

Technical

SS
SSS
SDSS

$ $$ $$$
$ $$ $$
$ $ $

Engineer A
Engineer B
Engineer C
Distribution of Positions in One Firm's Dual Ladder
The Inherent Problems

- Continued Power Imbalance
- Cultural Biases
Problems Created by Management

- Promotion Criteria
- Plateaued Managers
The Dual Ladder

Managerial

VP
AD
DM
DH
SH
GS
LE

Technical

Engineer A
Engineer B
Engineer C

 $$$
$$
$

SDSS
SSS
SS

$
Criteria for Technical Ladder Promotion

Managerial

VP
AD
DM
DH
SH
GS
LE

Technical

Engineer A
Engineer B
Engineer C

Criteria for Technical Ladder Promotion

Managerial

VP
AD
DM
DH
SH
GS
LE

Technical

Engineer A
Engineer B
Engineer C

Managerial Criteria

- VP
- AD
- DM
- DH
- SH
- GS
- LE

Managerial Levels:
- VP
- AD
- DM
- DH
- SH
- GS
- LE

Technical Criteria

- SDSS
- SSS
- $$$
- $$
- $
The Dual Ladder System’s Biggest Problems
Proportion of Engineers & Scientists in Ten Organizations
Choosing Each of Three Possible Career Paths

- MANAGEMENT 32%
- TECHNICAL LADDER 20%
- PROJECT ASSIGNMENT 48%
Career Preference as a Function of Age
(N = 1,402)
Career Preferences of Technical Ladder Staff as a Function of Age \( (N = 351) \)
Career Preferences of *Managers* as a Function of Age

(N = 374)
Effect of Promotion (Nine Year Period) on Perceived Autonomy

Type of Promotion

- None
- Managerial
- Tech Ladder

Change in Perceived Autonomy
The Gatekeeper as a Link to Outside Technology

Outside Experts

Gatekeeper

Literature