

# Organizational Design

## Mechanisms, Parts, and Systems

Michele Piazzai

Universidad Carlos III de Madrid

Depto. Economía de la Empresa

*michele.piazzai@uc3m.es*

*piazzai.github.io*

Weeks 5–6

# Some reminders

- Organizations have conflicting requirements
  - Division of labor into tasks
  - Coordination of tasks
- Division of labor leads to distinct activities
  - Interdependence leads to complexity
  - Complexity raises coordination costs
- Coordination is achieved by five mechanisms
  - Mutual adjustment
  - Direct supervision
  - Standardization of processes
  - Standardization of outputs
  - Standardization of skills

# The pottery studio example



# Interdependence

- *Pooled* if workers only share resources
- *Sequential* if they take previous outputs as inputs
- *Reciprocal* if they iterate and give feedback

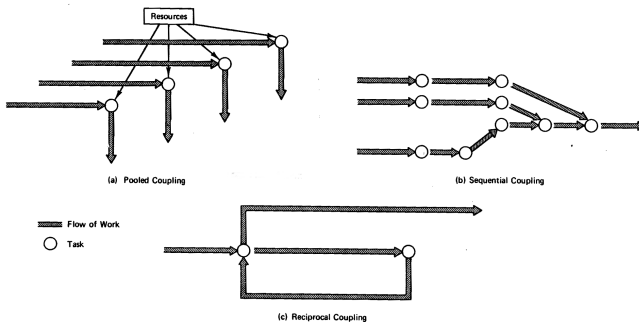
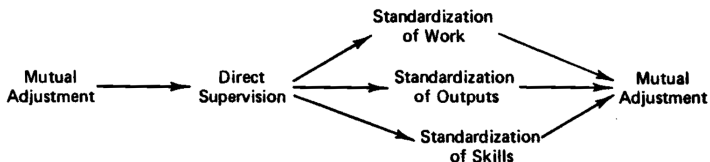


Figure 2-2. Pooled, Sequential, and Reciprocal Coupling of Work

# Task complexity

Most organizations rely on all five mechanisms, although some can be more prominent

They are usually implemented in sequential order as a function of task complexity, and therefore interdependence



**Figure 1-2.** *The Coordinating Mechanisms: A Rough Continuum of Complexity*

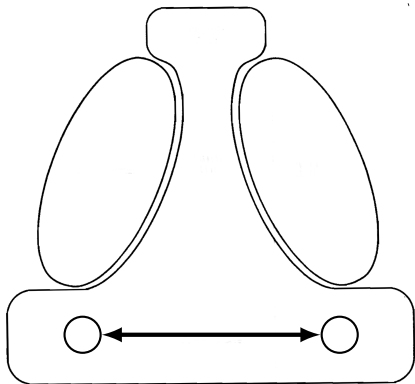
# Mutual adjustment

Coordination achieved by informal communication between operators

Simplest mechanism, but the only one that works for very complex tasks

Examples:

- Canoeing teams
- Coauthors of books
- Apollo mission crews



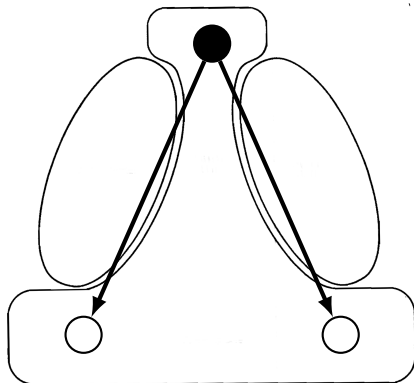
# Direct supervision

Coordination achieved by one individual with formal responsibility

Necessary when the number of operators grows too large

Examples:

- Football teams
- Construction crews
- Military outfits



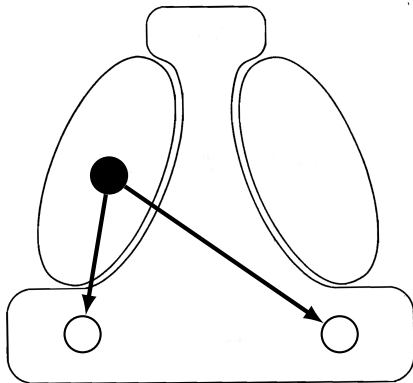
# Standardization of processes

Coordination achieved by  
programming the work

Analysts' instructions  
reduce the need for  
communication or  
supervision

Examples:

- Assembly lines
- Telegraph operators





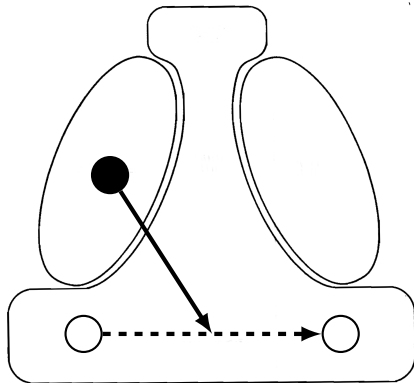
# Standardization of outputs

Coordination achieved by specifying work results

Ensures downstream workers and customers receive what they expect without communication or supervision

Examples:

- Call center salesmen
- Taxi drivers



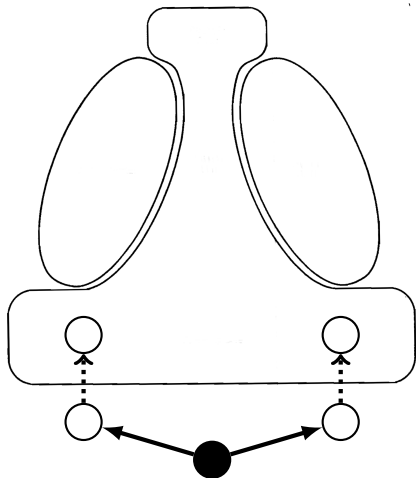
# Standardization of skills

Coordination achieved by specifying workers' training or qualifications

Most sophisticated mechanism, usually at play even before workers are hired

Examples:

- University professors
- Diplomatic officials



# Vertical division of labor

- More complexity induces direct supervision
  - Appointment of managers
  - Introduction of formal authority
- Even more complexity induces standardization
  - Saves time for workers and managers
  - Partly internal, partly outsourced
  - Loss of control over work
- A new kind of task specialization emerges
  - Those who **perform** the work
  - Those who **supervise** the work
  - Those who **standardize** the work

# Basic units or parts

- Those who perform
  - Operating core
- Those who supervise
  - Strategic apex
  - Middle line
- Those who standardize
  - Technostructure

Technostructure and support staff stay largely out of the scalar chain

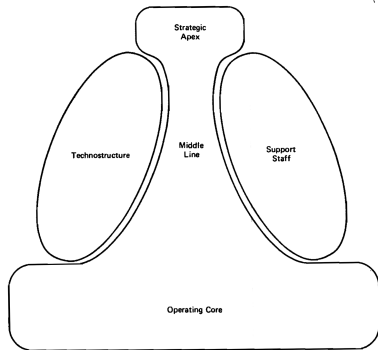


Figure 2-1. The Five Basic Parts of Organizations

# Operating core

- Work directly related to product/service
  - Welders in car manufacturing
  - Lawyers in a corporate law firm

But not in a corporation!
- Procurement, production, marketing
  - Purchasing agents secure inputs
  - Assembly line workers turn inputs into outputs
  - Salespersons distribute the outputs
  - Helped by warehouse, repairmen, shippers
- Must be sealed off from the environment
  - Uncertainty threatens core operations
  - Usually subject to greatest standardization

# Strategic apex

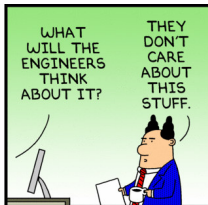
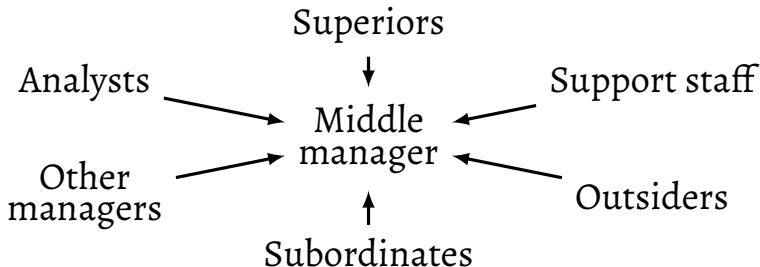
- Overall responsibility for the organization
  - Most general/abstract activities
  - High discretion, low repetition and standardization
- Different and demanding duties
  - Formulating high-level strategy
  - Defining organizational goals
  - Ensuring progress toward the goals
  - Interfacing with the environment
    - Relating to government and unions
    - Negotiating with buyers and suppliers
    - Performing ceremonial functions

# Middle line (I)

“Thou shalt provide... able men... to be rulers of thousands, and rulers of hundreds, rulers of fifties, and rulers of ten... every great matter they shall bring unto thee, but every small matter they shall judge, so shall it be easier for thyself, and they shall bear the burden with thee.” (Exodus 18:21–22)

- All the managerial roles but faster, less abstract
- Helps ensure the flow of information
  - Downward, when decisions must reach the core
  - Upward, when performance must be reported
  - Sideways, with other managers and staffers

# Middle line (II)





# Technostructure

- Helps the organization by regulating behavior
  - Design work, plan it, change it, train people to do it
- Main vehicle of standardization
  - Engineering workflows to increase productivity
  - Ensuring that activities stay within budget
  - Specifying production and sales goals
  - Training middle managers and core personnel
- Analytic work at all levels of hierarchy
  - Strategic planning and financial control (high)
  - Operations and departmental advising (middle)
  - Production schedules and accounting (low)

# Support staff

- Fringe work at all levels of hierarchy
  - Public relations and legal counsel (high)
  - Industrial relations and R&D (middle)
  - Mailroom, reception, payroll, cafeteria (low)
- Different from the technostructure
  - Not concerned with standardization
  - Main purpose is not advising
- Resembles a set of mini-organizations
  - Own managers, analysts, and core
  - Coupled with other parts only in a pooled way
  - Internalized to reduce uncertainty

Remember transaction cost theory!

# Differences between line and staff



## Authority

In the line it is mostly formal, because superiors issue and enforce orders; in the staff it is mostly informal, because it comes from control of resources



## Loyalty

The line has a direct relation with organizational goals, so workers and managers are mainly loyal to the organization; staffers only have an indirect relation and are mainly loyal to their professions

# Basic parts and mechanisms

Coordination occurs  
within and across parts

- Mutual adjustment
  - Planners and controllers
  - Operations and R&D
- Direct supervision
  - Regional and district sales
  - Foremen and operators
- Standardization
  - Planners and schedulers
  - Trainers and salespersons

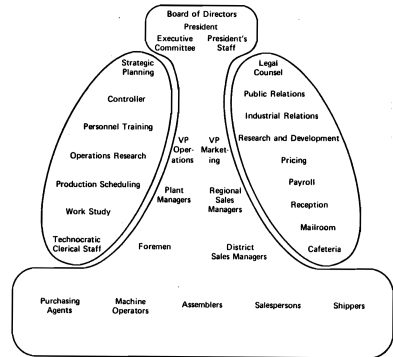


Figure 2-5. Some Members and Units of the Parts of the Manufacturing Firm

# How the parts work together

- Purely formal or informal systems
  - System of formal authority (see Fayol)
  - System of regulated flows (see Taylor, Weber)
  - System of informal communication (see Mayo)
- Partly formal and informal systems
  - System of work constellations
  - System of ad-hoc decision processes

All systems are coupled

Flows of authority, resources, information connect the parts and superimpose, making organizations effective but complex

# System of formal authority

- Showcased by *organigram*
  - Shows jobs and units
  - Shows direct supervision
  - Hides informal relations
- Shapes these relations
  - Orders the direction
  - Determines kind of defenses
  - Requires overt conformity
- Main display of structure

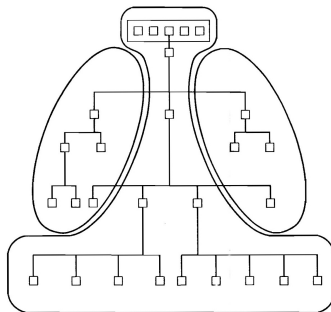
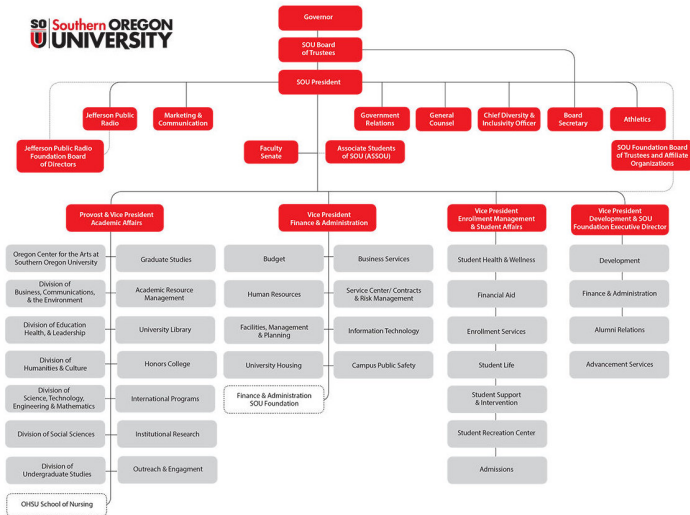


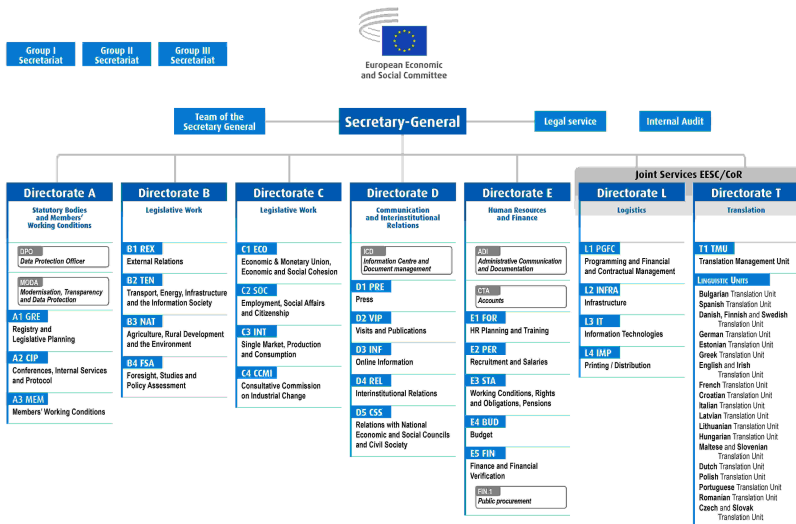
Figure 3-1. The Flow of Formal Authority

“Inevitably the first thing handed to anyone asking about structure.”

# Organigrams (I)

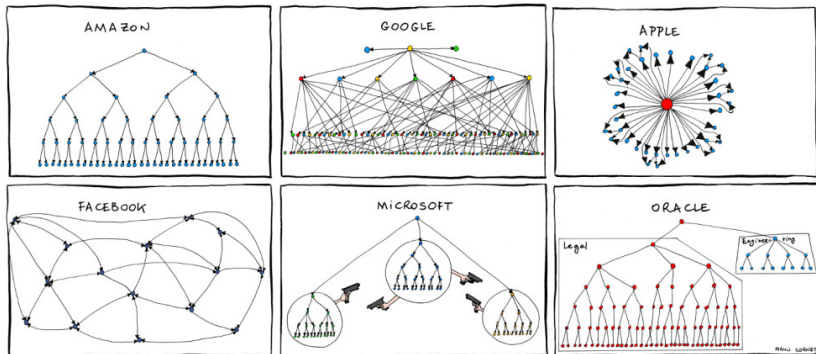


# Organigrams (II)





# Variation in formal authority



The Microsoft vignette shows a bit of informal structure, but it says a lot about the organization!

# System of regulated flows

- Three distinct flows
  - Operating work
    - Materials (e.g., components)
    - Documents (e.g., time sheets)
    - Customers (e.g., patients)
  - Control information
    - Plans, budgets, performance
    - Exceptions/interruptions
  - Staff information
    - Advice for the line
    - External intelligence
- Systematic and explicit
  - Shows standardization

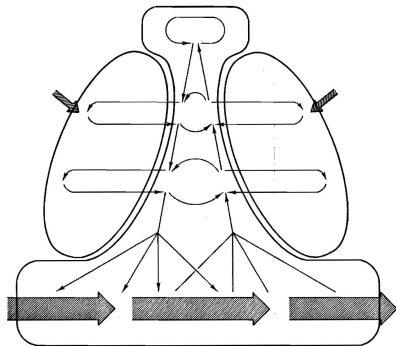


Figure 3-2. The Flow of Regulated Activity

# Operating work and information

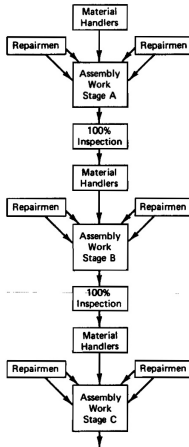


Figure 3-4. A Highly Regulated Work Flow (from Chapple and Sayles, 1961, p. 30)

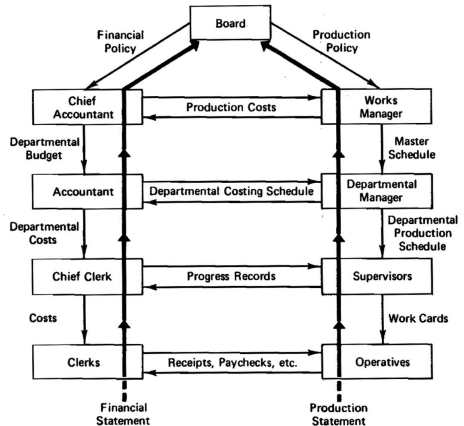


Figure 3-6. An Illustration of the Regulated Control Flows (from Paterson, 1969, p. 49)

# An interdependent workflow

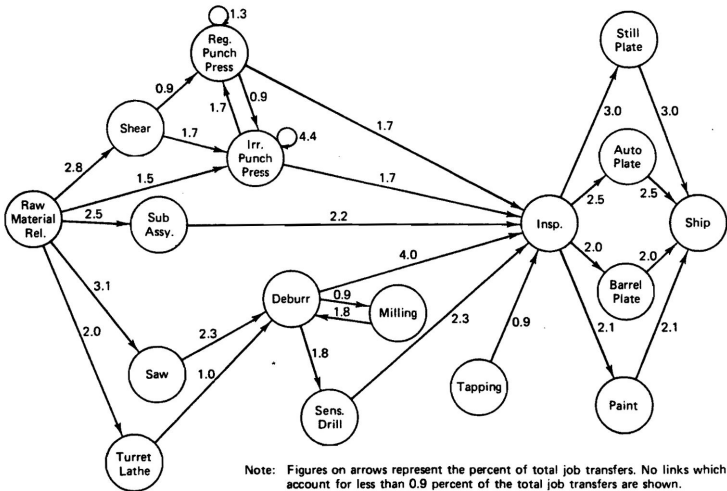


Figure 3-5. Work Flow in a Job Shop (from Holstein and Berry, 1970, B 328)

# Bypassing authority

- a. Operators on different projects talk to each other
- b. Operators directly communicate with staffers
- c. Operators skip middle line and go straight to top

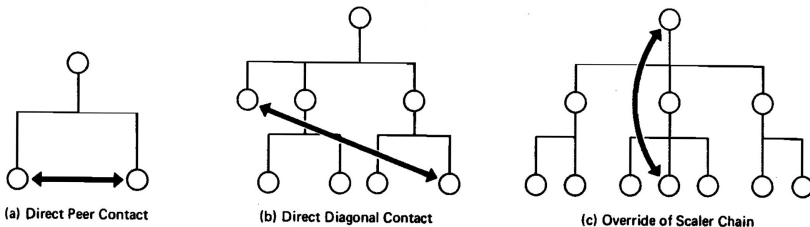


Figure 3-9. Some Bypass Channels of Communication

# System of informal communication

- As shown at Hawthorne
  - Supplementary info
  - Spontaneous and flexible
  - Ties outside the line
  - Showcased by *sociogram*
- De facto power centers
  - Top managers (also de jure)
  - Disconnected middle line
  - Low-level staffers
- Too fluid to standardize
  - Mutual adjustment

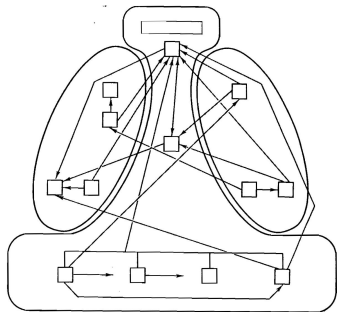


Figure 3-8. The Flow of Informal Communication (adapted from Pliffner and Sherwood, 1960, p. 291)

# Trist and Bamforth's study

- Conditions before mechanization
  - Crews responsible for entire activity
  - Verbal communication → Mutual adjustment
- Conditions after mechanization
  - Horizontal and vertical division of labor
  - Introduction of shifts, loss of control
- Supervision and standardization ineffective
  - Low productivity, grievances, absenteeism
  - Scapegoating between shifts
- Introduction of a hybrid system
  - Small, informal, self-managed groups
  - Measurable performance → Standardization

# Why informal structure?

## **Verbal is better**

Faces, gestures, tone increase volume and speed of info; personal sources are perceived more important

## **Organizations are social**

Workers need friendship and chances to vent, or they can leak and/or hide sensitive information

## **Trading favors is efficient**

Appealing to superiors makes workers uneasy and rules take too long to be enforced



# System of work constellations

- Organizations have *cliques*
  - Proximity (as in relay room)
  - Common goals and interests
- Unlike regulated flows
  - Diverse information
  - Mostly horizontal
  - Differential coupling
    - Tight within cliques
    - Loose between cliques
- Mix formal and informal
  - Functional specialization
  - Verbal communication

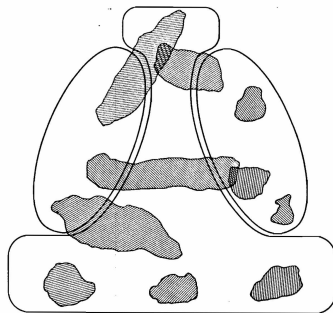


Figure 3-11. The Set of Work Constellations

# Variation across parts

Constellations in the core often map to functional units

In technosttructure, middle line, and apex they are usually cross-functional

In support staff, some map to units and some do not

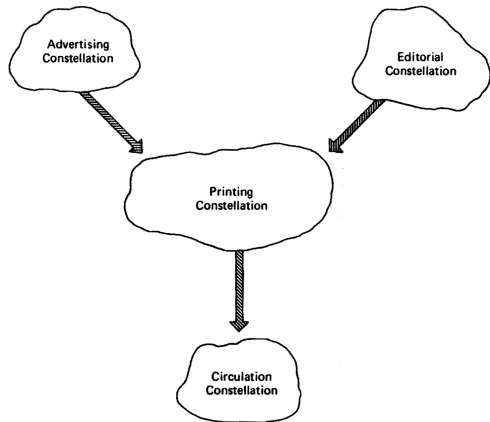


Figure 3-10. Four Work Constellations in the Operating Core of a Newspaper

# System of ad-hoc decision processes

- Suited to unusual work

- Irregular interactions
- Unforeseen problems

Example: a complaint

- What is a decision?

- Resource commitment
- Signal of intention

- Multiple stages

- Identification phase
- Development phase
- Selection phase

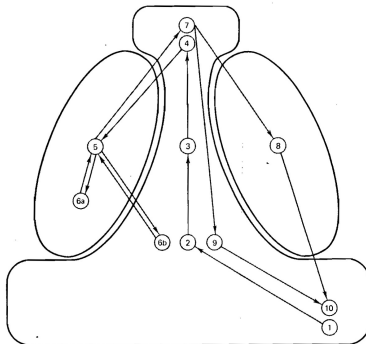


Figure 3-12. The Flow of an Ad Hoc Decision Process

# Stages and routines

## Identification

**Recognition** Acknowledging a problem

**Diagnosis** Understanding decision constraints

## Development

**Search** Looking for already existing solutions

**Design** Developing custom solutions

## Selection

**Screening** Deciding which solutions to consider

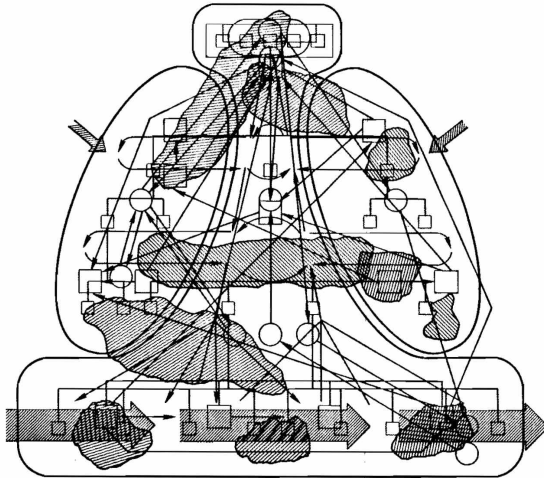
**Evaluation-choice** Weighing options and choosing

**Authorization** Getting approval

# Decision categories

- Operating decisions
  - Highly routinized and programmed
  - Generally included in regulated flow system
- Administrative decisions
  - Guide operating decisions (*coordinative*)
    - Routinized and partly programmed
    - Also included in regulated flow system
  - Handle special cases of low importance (*exceptional*)
    - Non-routinized and partly programmed
- Strategic decisions
  - Handle special cases of high importance
  - Neither routinized nor programmed

# A complete picture



**Figure 3-13.** A Combined Overlay: The Functioning of the Organization

# Readings

Mintzberg 1979, ch. 1–3