

*In the name of the most high*

# ORGANIZATION AS BRAINS

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## Learning & Self-Organization

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# Key Words:

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- self-organization
  - Learning Organization
  - Holographic Organization
  - Learning Loops
  - cybernetics
  - Information Systems
  - I.T.
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# We are going to discuss:

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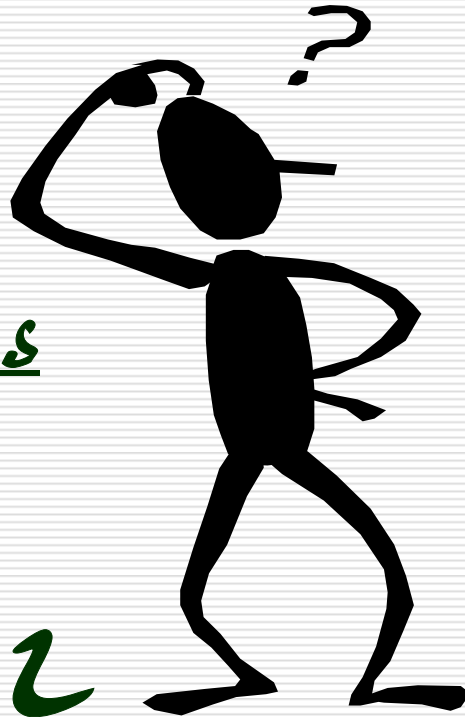
- *Introduction*
  - *Organization as Learning Brains*
  - *Create Learning Organizations*
  - *Cybernetics, Learn to Learn*
  - *Organizations as Holographic Brains*
  - *Strength & Limitations*
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# Introduction

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What if we  
Think about  
Organizations  
As

**BRAIN?**



An excellent  
phenomenon

# Images Of The Brain

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Brain As **Holographic** System:

*A hologram's part can work  
as whole*

Neurologist Karl Pribram:

(( the memory is distributed throughout the brain))

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# Images Of The Brain

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- *The* **PARADOX**  
*of being holographic  
and specialized*
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# Images Of The Brain

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- *Specialization & distributed functions?*
- *Coordinated intelligence has no explicit design?*
- *Redundancy provides efficiency?*

**Genghis (a mobile robot "mobot" with no brain)**

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# Images Of The Brain

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View Organizations By 3 Interconnected Ways:

- As *Information Processing* brain
  - As complex *learning system*
  - As **holographic system**
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# Organization As

# Information Processing Brain

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Organizations : Decision Making Systems, Information Systems

- J.T. (virtual organizations)
  - J.J.T.
  - E-Commerce
  - Internet
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# Creating Learning Organizations

Cybernetics, Learning and Learning To Learn

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- How can one design systems capable of learning in a brain-like way?
- Cybernetics (kubernetes): An interdisciplinary science focusing on the study of information, communication, control

**Negative feedback produces *self-regulation***

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# Creating Learning Organizations

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Early Cybernetics Theory

4 Capabilities

Life Cycle

Modern Cybernetics Theory

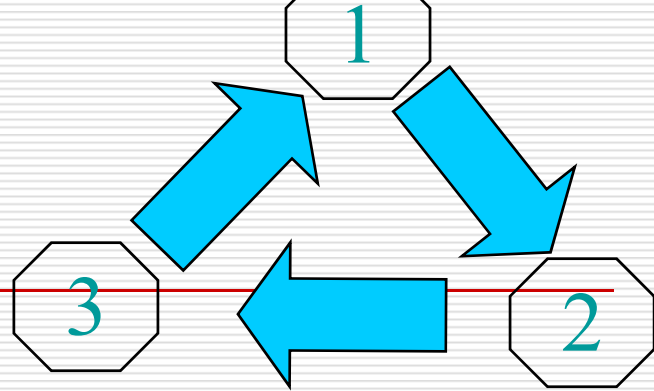
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-sensing, scanning and monitoring the environment

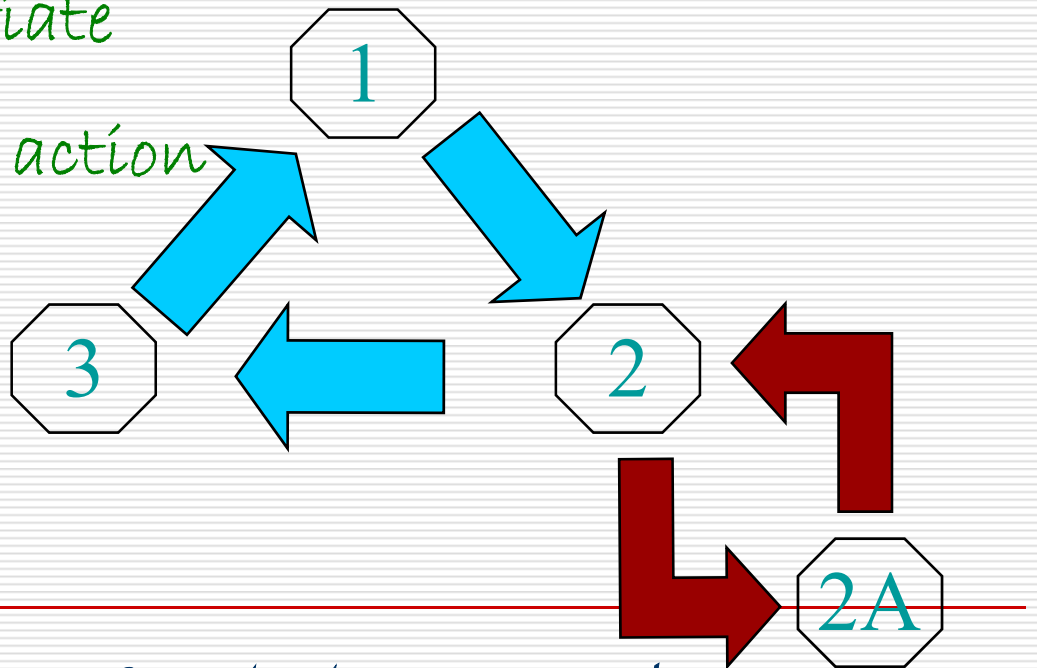
-comparing this information against operating norms

-questioning whether operating norms are appropriate

-initiating appropriate action



Single-loop Learning



Double-loop Learning

# Creating Learning Organizations

Can Organizations Learn To Learn

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Important Questions for Modern Organization :

- Are they able to learn in an ongoing way?
  - Is this single loop learning or double loop?
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# Creating Learning Organizations

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Pioneers: C. Argyris and D. Schon

In U.S.: "Learning Organization" P. Senge

In Europe: "action learning" R. Revan

Modern cybernetics

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# Creating Learning Organizations

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## **Barriers to double-loop learning**

1-Budgets and other management controls

2-Bureaucratization

3-Process of bureaucratic accountability  
and other systems for rewarding or  
punishing employees

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# Creating Learning Organizations

Guide lines for creating "learning organizations"

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*1- Scanning and  
anticipating  
environmental change*

*(Apple computers, CNN, Canon)*

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# Creating Learning Organizations

Guide lines for creating "learning organizations"

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2-Questioning, challenging

(Double-loop learning

guides us ):

Understand norms by questions

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# Creating Learning Organizations

Guide lines for creating "learning organizations"

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## 3-Encouraging "emergent" organization:

Case : An interview with Japanese Bank by W. Ouchi  
a Japanese manager and his American vice presidents

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# Creating Learning Organizations

Guide lines for creating "learning organizations"

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- 4- Fostering an ability to challenge norms
  - 5- The importance of limits
  - 6- Evolving design for double loop learning
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# Promoting self-organization through principles of holographic design:

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1- Build the "whole" into the "part"

2- The importance of redundancy

3- Requisite variety

4- Minimum specs

5- Learn to learn

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## Principle 5: Learn to Learn

- Scan and anticipate environmental change
- Double loop learning
- Emergent Design

## Principle 1: Build the Whole into the Parts

- vision, values, and culture as corporate DNA

- Network Intelligence

- Structures that produce themselves

- Holistic teams; diversified roles

# Holographic Organization

## Principle 2: The Importance of Redundancy

- In information processing
- In skills and the design of work

## Principle 4: Minimum Specs

- Define no more that is absolutely necessary

## Principle 3: Requisite variety

- Internal complexity must match that of the environment

# Organizations as Holographic Brains

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Promoting self-organization through principles of holographic design:

1- Build the "whole" into the "part":

- Corporate DNA
  - Networked Intelligence
  - Structures that reproduce themselves
  - Holistic teams, Diversified roles
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# Organizations as Holographic Brains

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Promoting self-organization through principles of  
holographic design:

## *2-The Importance Of Redundancy:*

- In information processing*
  - In skills and design of work*
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# Organizations as Holographic Brains

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Promoting self-organization through principles of holographic design:

## *3-Requisite Variety:*

- *Internal complexity must match that of the environment*

## *4-"Minimum Specs":*

- *Define no more than is absolutely necessary*
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# Organizations as Holographic Brains

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Promoting self-organization through principles of holographic design:

*J-Learn To Learn:*

- *scan and anticipate environmental changes*
  - *Double-loop learning*
  - *Emergent design*
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# Organizations as Holographic Brains

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Promoting self-organization through principles of holographic design:

1- Build the "whole" into the "part"

2- The importance of redundancy

3- Requisite variety

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# *Strength* & Limitations

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of the

**ORGANIZATION AS  
BRAINS**

Learning & Self-Organization

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# *Strength:*

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*1- The metaphor gives clear guidelines for creating learning organizations*

*2- We learn how I. T. can support intelligence evolution*

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# *Strength:*

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*3-We gain a new theory of management based on principles of self-organization*

*4-We recognize the importance of dealing with paradox*

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# Limitations:

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1- There may be conflict between the requirements of organizational learning and realities of power and control

Z-learning for the sake of learning can become just another ideology

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