Organization as Brains

Learning & Self-Organization

Sharif University of Technology
School of Management and Economics

S. Alireza Feyzbakhsh, Ph.D.
Key Words:

- Self-Organization
- Learning Organization
- Holographic Organization
- Learning Loops
- Cybernetics
- Information Systems
- I.T.
We are going to discuss:

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

What if we
Think about
Organizations
As
An excellent
phenomenon!

An excellent
phenomenon!
Images Of The Brain

Brain As Holographic System:

A hologram’s part can work as whole

Neurologist Karl Pribram: ((the memory is distributed throughout the brain))
Images Of The Brain

• The PARADOX of being holographic and specialized
Images Of The Brain

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

Genghis (a mobile robot "mobot" with no brain)
Images Of The Brain

View Organizations By 3 Interconnected Ways:

• As Information Processing brain
• As complex learning system
• As holographic system
Organization As Information Processing Brain

Organizations: Decision Making Systems, Information Systems

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

Cybernetics, Learning and Learning To Learn

• 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
Creating Learning Organizations

Early Cybernetics Theory

4 Capabilities

Life Cycle

Modern Cybernetics Theory
1-sensing, scanning and monitoring the environment

2-comparing this information against operating norms

2A-questioning whether operating norms are appropriate

3-initiating appropriate action

Single-loop Learning

Double-loop Learning
Creating Learning Organizations

Can Organizations Learn To Learn

Important Questions for Modern Organization:

• Are they able to learn in an ongoing way?

• Is this single loop learning or double loop?
Creating Learning Organizations

Pioneers: C. Argyris and D. Schon

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

In Europe: "action learning" R. Revan

Modern cybernetics
Creating Learning Organizations

Barriers to double-loop learning

1. Budgets and other management controls

2. Bureaucratization

3. Processes of bureaucratic accountability and other systems for rewarding or punishing employees
Creating Learning Organizations

Guidelines for creating “learning organizations”

1-Scanning and anticipating environmental change

(Apple computers, CNN, Canon)
Creating Learning Organizations

Guidelines for creating “learning organizations”

2-Questioning, challenging (Double-loop learning guides us):

Understand norms by questions
Creating Learning Organizations

Guidelines for creating “learning organizations”

3-Encouraging “emergent” organization:

Case: An interview with Japanese Bank by W. Ouchi

A Japanese manager and his American vice presidents
Creating Learning Organizations

Guidelines for creating “learning organizations”

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

1. Build the "whole" into the "part"

2. The importance of redundancy

3. Requisite variety

4. Minimum specs

5. Learn to learn
build the whole into the parts

- vision, values, and culture as corporate DNA
- network intelligence
- structures that produce themselves
- holistic teams; diversified roles

principle 4: minimum specs
- define no more that is absolutely necessary

principle 3: requisite variety
- internal complexity must match that of the environment

principle 2: the importance of the redundancy
- in information processing
- in skills and the design of work

principle 1: learn to learn
- scan and anticipate environmental change
- double loop learning
- emergent design

holographic organization

principle 5: learn to learn

minimum specs

requisite variety
Organizations as Holographic Brains

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
Organizations as Holographic Brains

Promoting self-organization through principles of holographic design:

2. The Importance Of Redundancy:

• In information processing

• In skills and design of work
Organizations as Holographic Brains

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
Organizations as Holographic Brains

Promoting self-organization through principles of holographic design:

5-Learn To Learn:

• scan and anticipate environmental changes

• Double-loop learning

• Emergent design
Organizations as Holographic Brains

Promoting self-organization through principles of holographic design:

1. Build the “whole” into the “part”
2. The importance of redundancy
3. Requisite variety
4. Minimum specs
5. Learn to learn
Strength & Limitations of the Organization as Brains

Learning & Self-Organization
Strength:

1- The metaphor gives clear guidelines for creating learning organizations

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

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

4.- We recognize the importance of dealing with paradox
Limitations:

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

2- Learning for the sake of learning can become just another ideology.