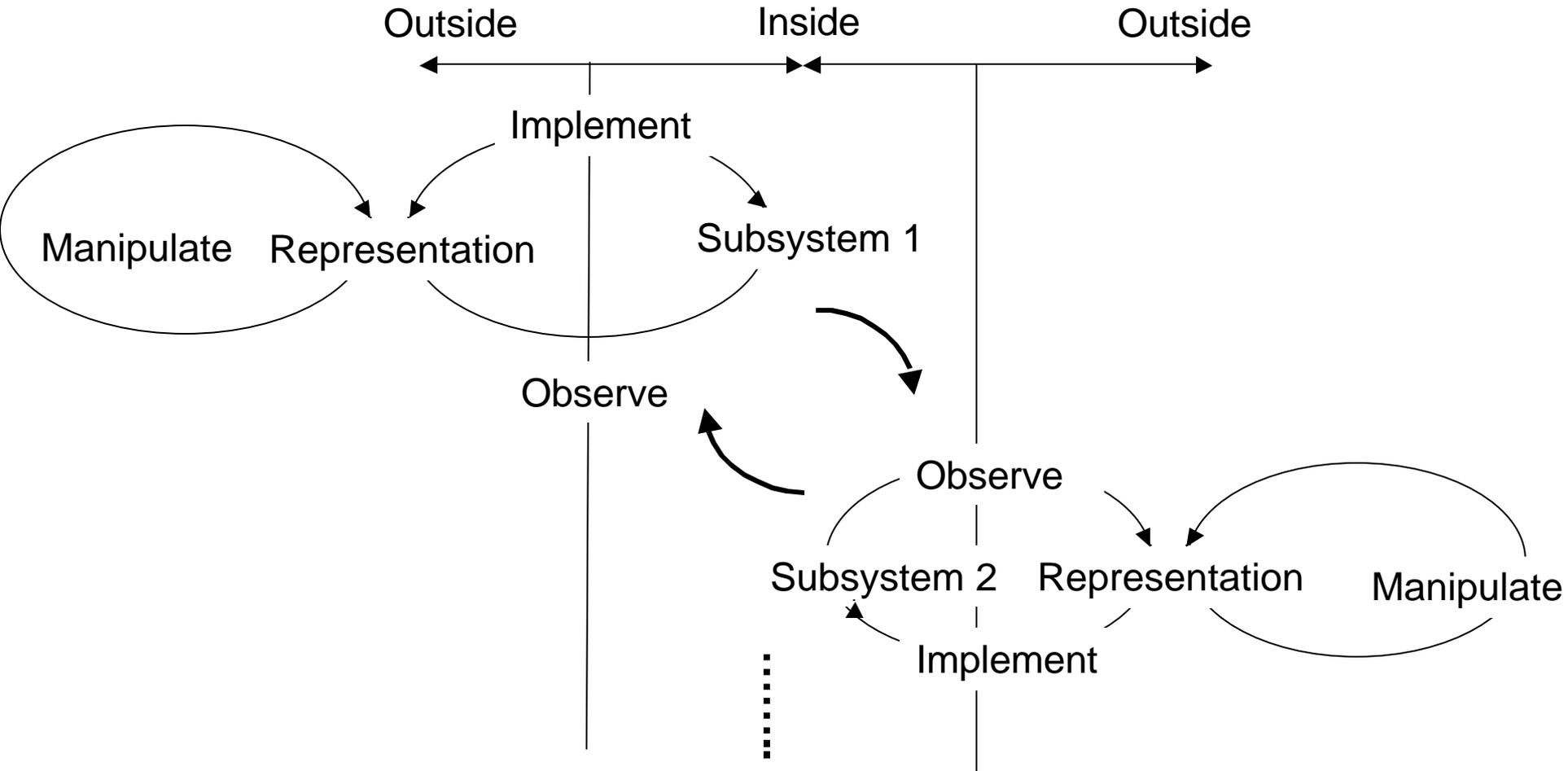# Systemic Analysis of A Team's Self-Organizing processes: some insights into the knowledge management

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1.Why Self-Organizing Teams

- Fast changing environment
  - Globalization, rapid change, and higher complexity
- Terrific pressures for flexibility, innovation, and adaptability
- Teamwork is the key to succeed
- Self-Organizing is a crucial strategy to cope with change

1.1.Traditional Team's Adaptive Behavior

Inside

Outside

1. Observe

System

Representation of System

2. Manipulate

3. Implement Change

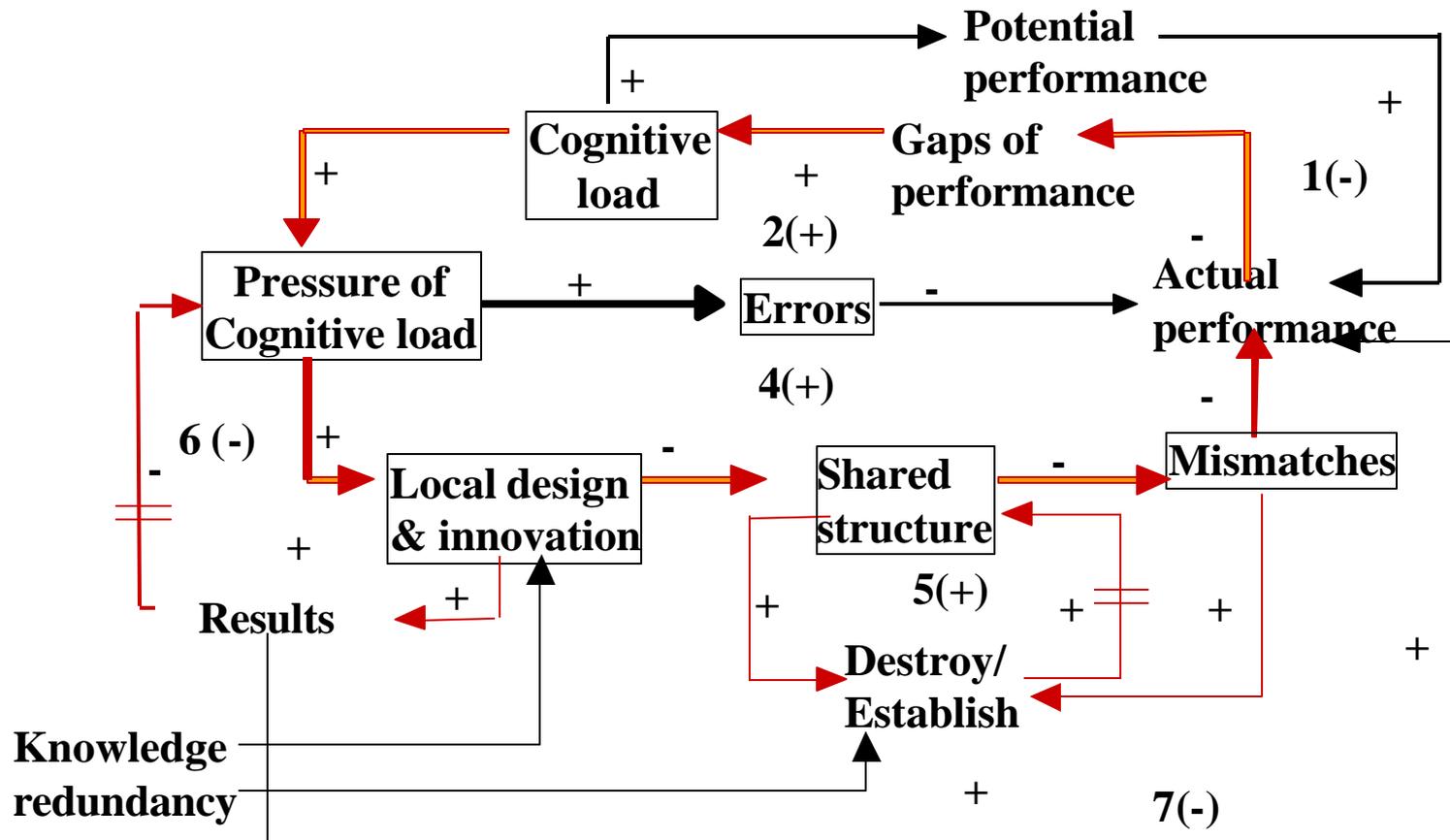# 1.2. Self-Organizing Team's Adaptive Behavior
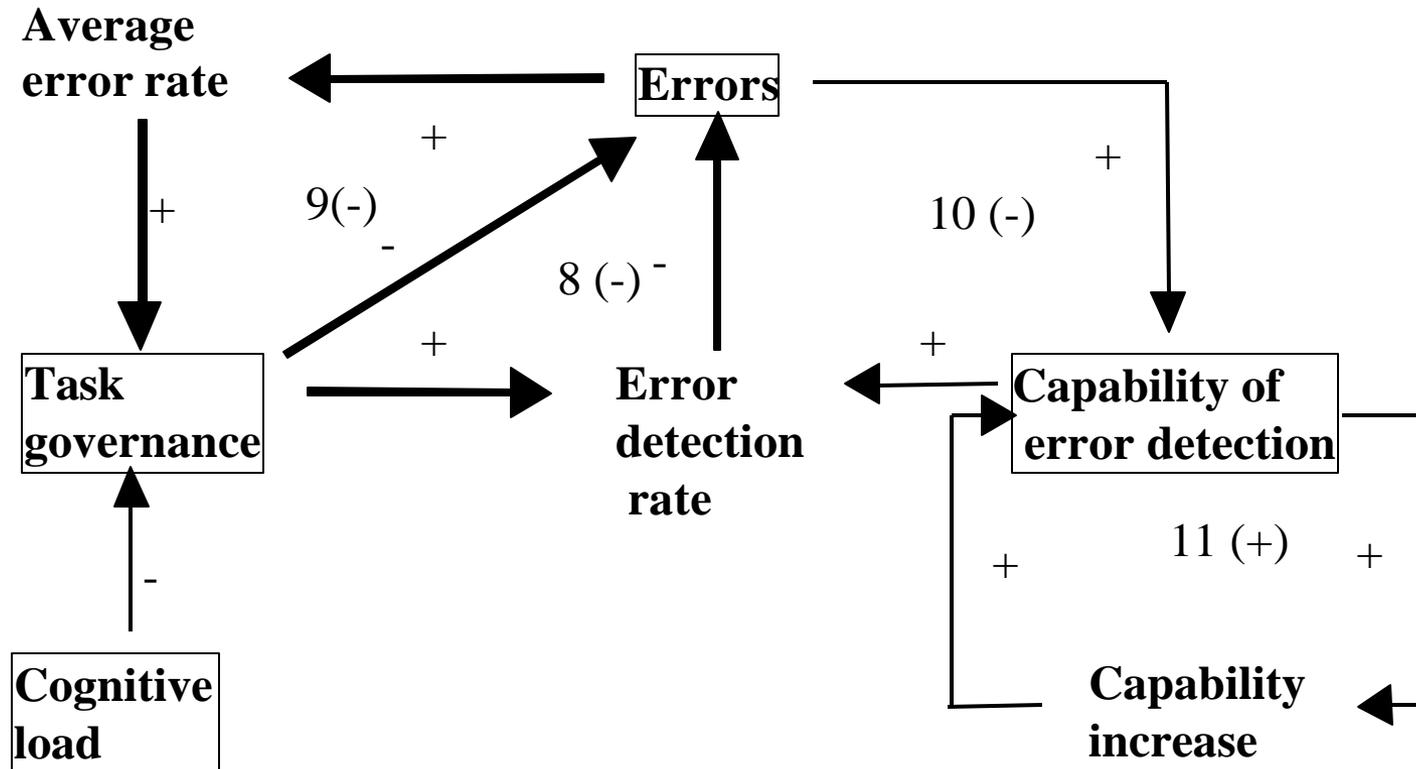
2. Definition of Self-Organizing Teams

- A team that can re-organize itself in an endogenous process to cope with changing environment successfully.

    - The re-organize process is not planned and designed by outside designer, but via local design.

    - "It provokes local adaptations by other parts of the system as all the parts seek to satisfy the new environment of constraints produced by the changes in the behaviors of others." (Hutchins, 1996)

    - "This process produce a change in the behavior of the system as a whole." (Hutchins, 1996)
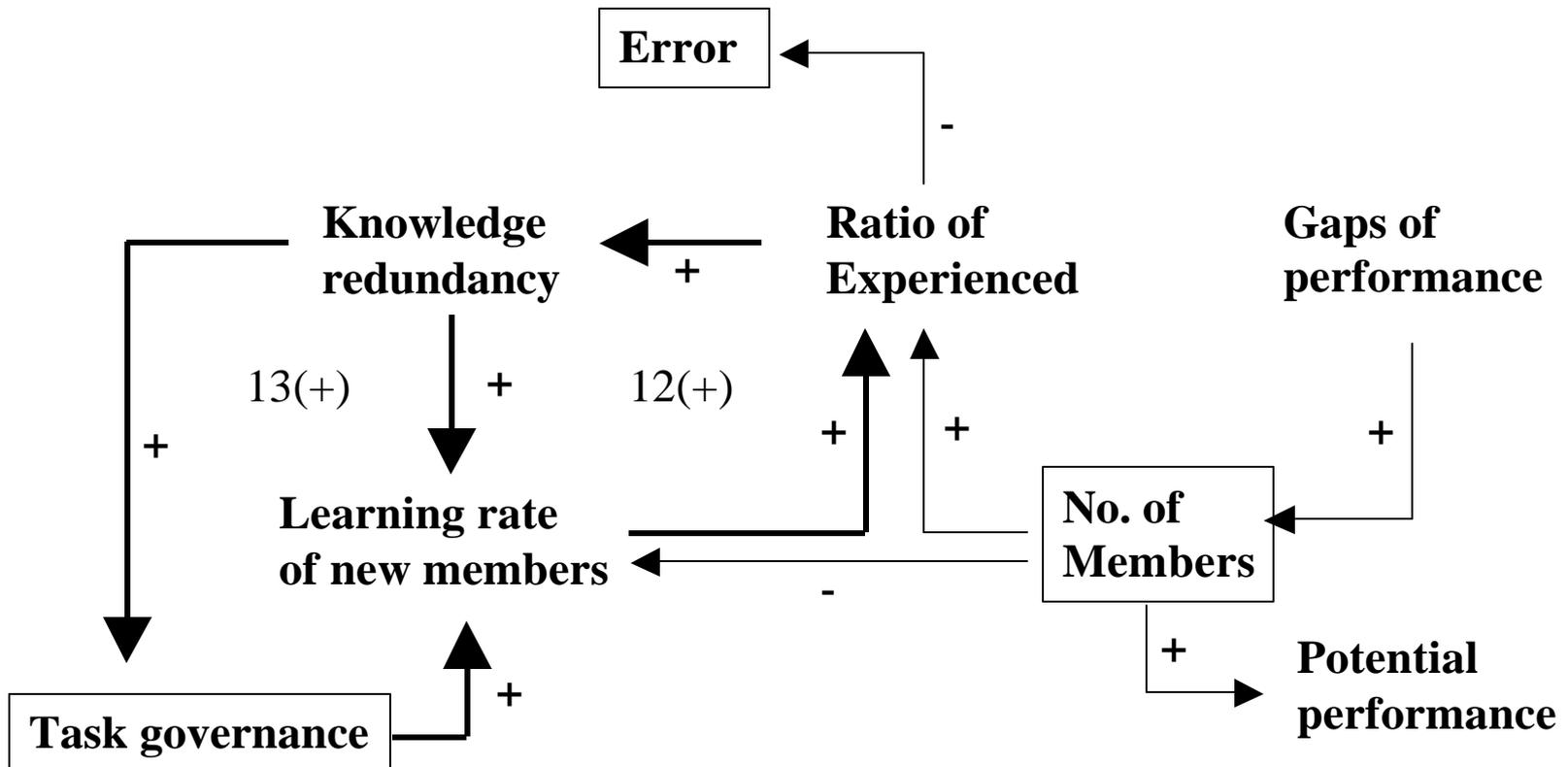
3. Core mechanisms of self-organizing teams

3.1. Evolutionary feedback loops

3.2 Core mechanisms of self-organizing teams(2)(quality control and learning from errors)

Average error rate

Errors

$+$

9(-)

$-$

$+$

8 (-) $-$

10 (-)

$+$

Task governance

Error detection rate

$+$

Capability of error detection

$+$

$-$

Cognitive load

11 (+)

$+$

$+$

Capability increase

3.3. Core mechanisms of self-organizing teams(3) (on-the job learning and hiring policy)

Error

-

Knowledge redundancy

+

Ratio of Experienced

Gaps of performance

13(+)   +   12(+)

+   +

+

+

Learning rate of new members

No. of Members

-

+

Task governance
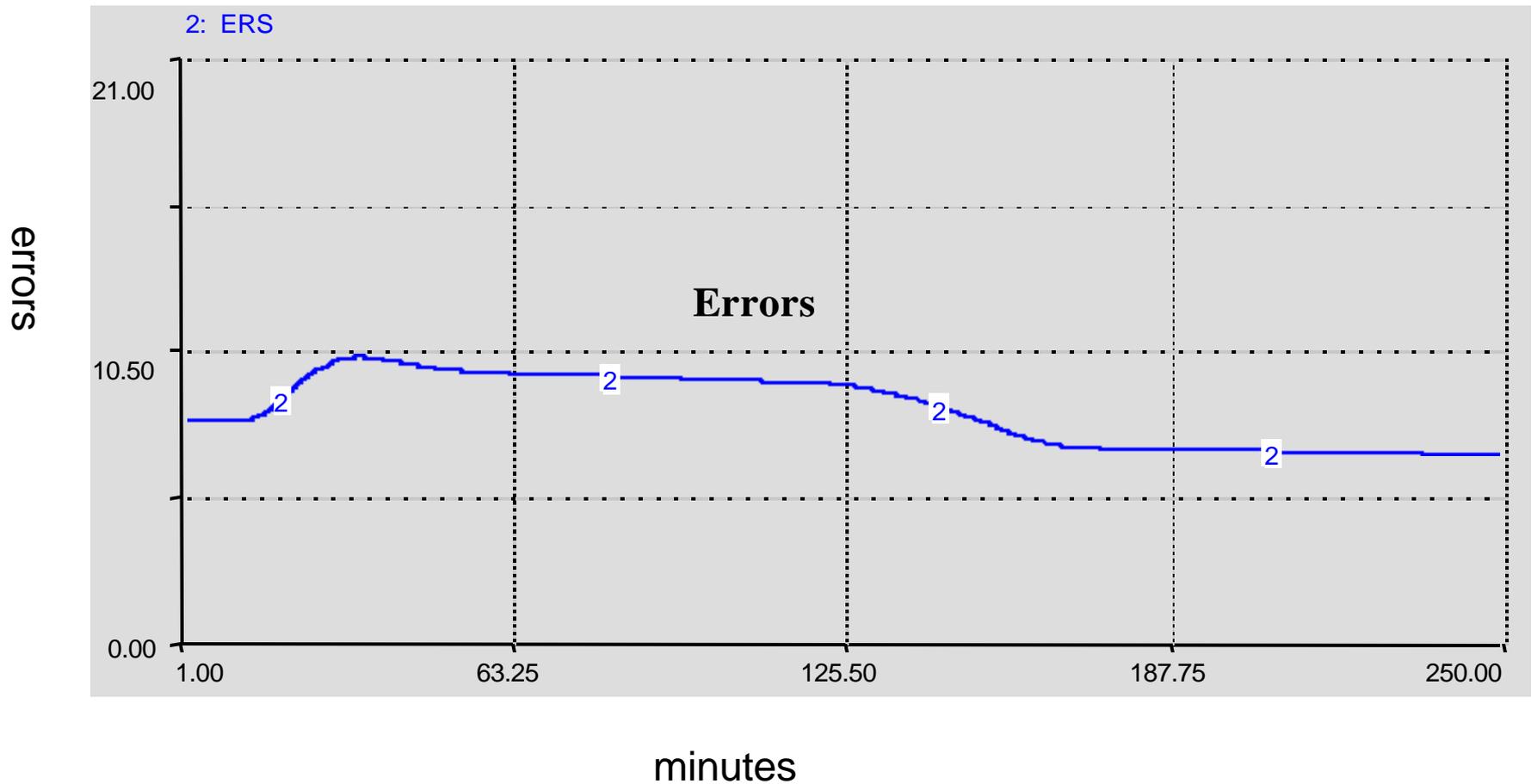
+

+   Potential performance

4. Important Behavioral Characteristics in Self-Organizing Teams
4.1.Performance behavior of the model

4.2. Local adaptation behaviors of the model
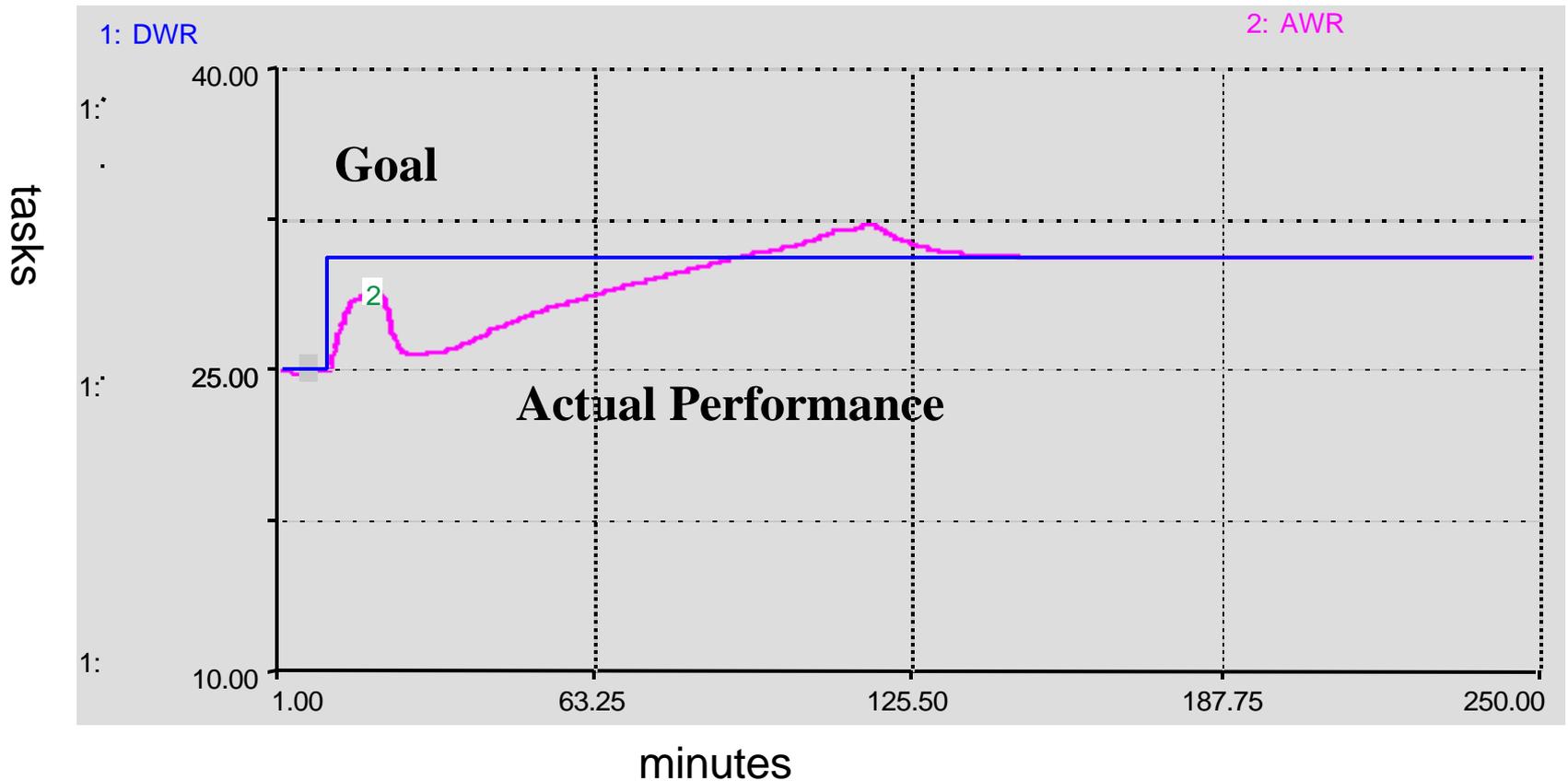
4.3 Accumulated errors behaviors of the model

5. How Knowledge Management Fertilize Self-Organizing Processes

- What are the conditions to form the structure?

- What kinds of knowledge are managed?

- How to facilitate the processes of self-organization?

5.1 Insights into the KM policy(1)

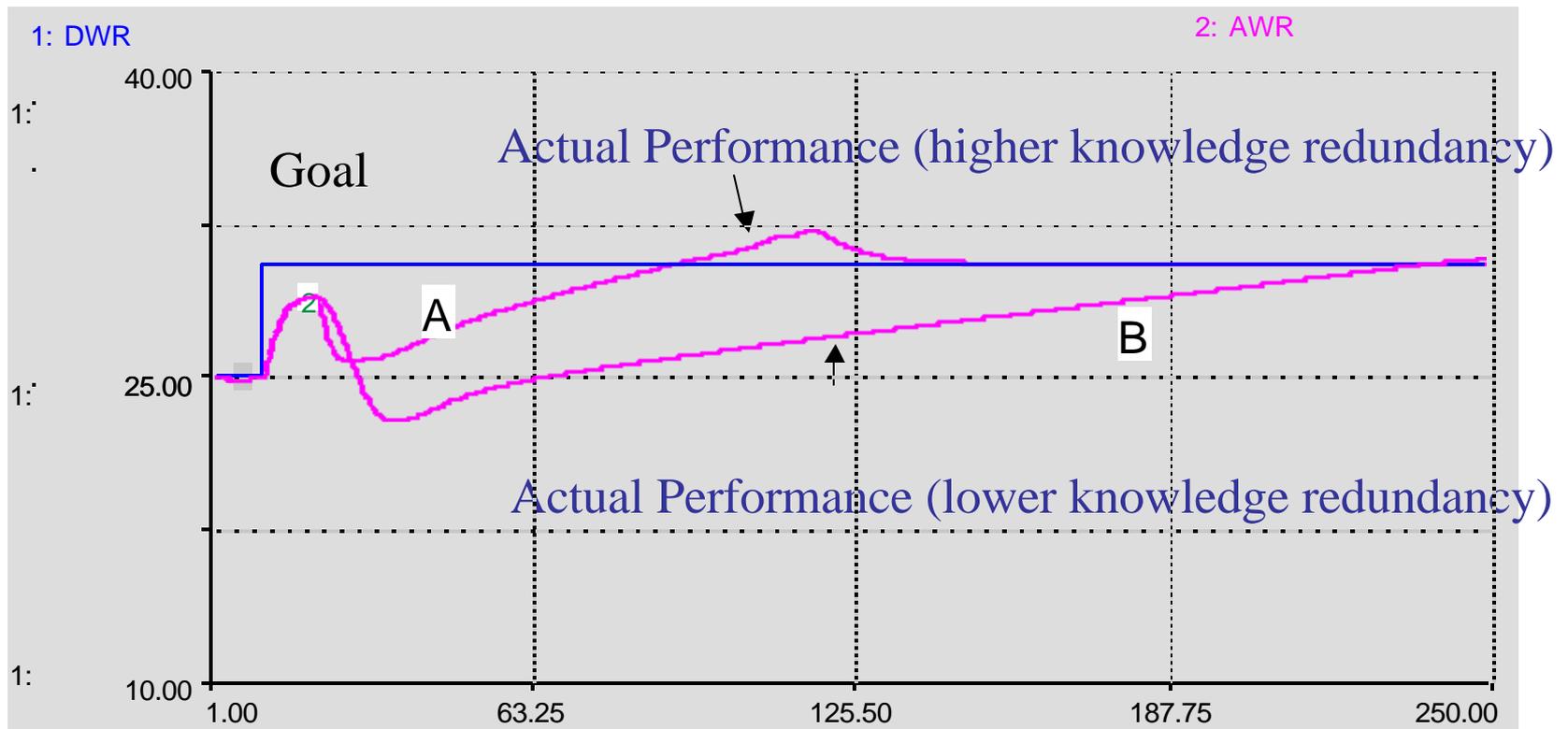| Key Areas	KM Policy	Kinds of knowledge
Goal appropriateness (Loop1)	Information sharing	Operational knowledge Environment and system state
Mutual understanding (Loop5)	**Knowledge redundancy, Knowledge transfer**	**Operational knowledge Task knowledge, Shared structure**
Local design and social innovation (Loop6)	**Knowledge redundancy, Environment availability, Learning and change culture**	**Operational knowledge Task knowledge, Shared structure**

5.1 Insights into the KM policy(2)

Key Areas	KM Policy	Kinds of knowledge
Error detection (Loop8,Loop9)	Knowledge redundancy, Task governance, Internal competition	Operational knowledge Task knowledge
Learning form error (Loop11)	Learning from others, Learning culture	Operational knowledge Skill, Experience

5.1 Insights into the KM policy(2)

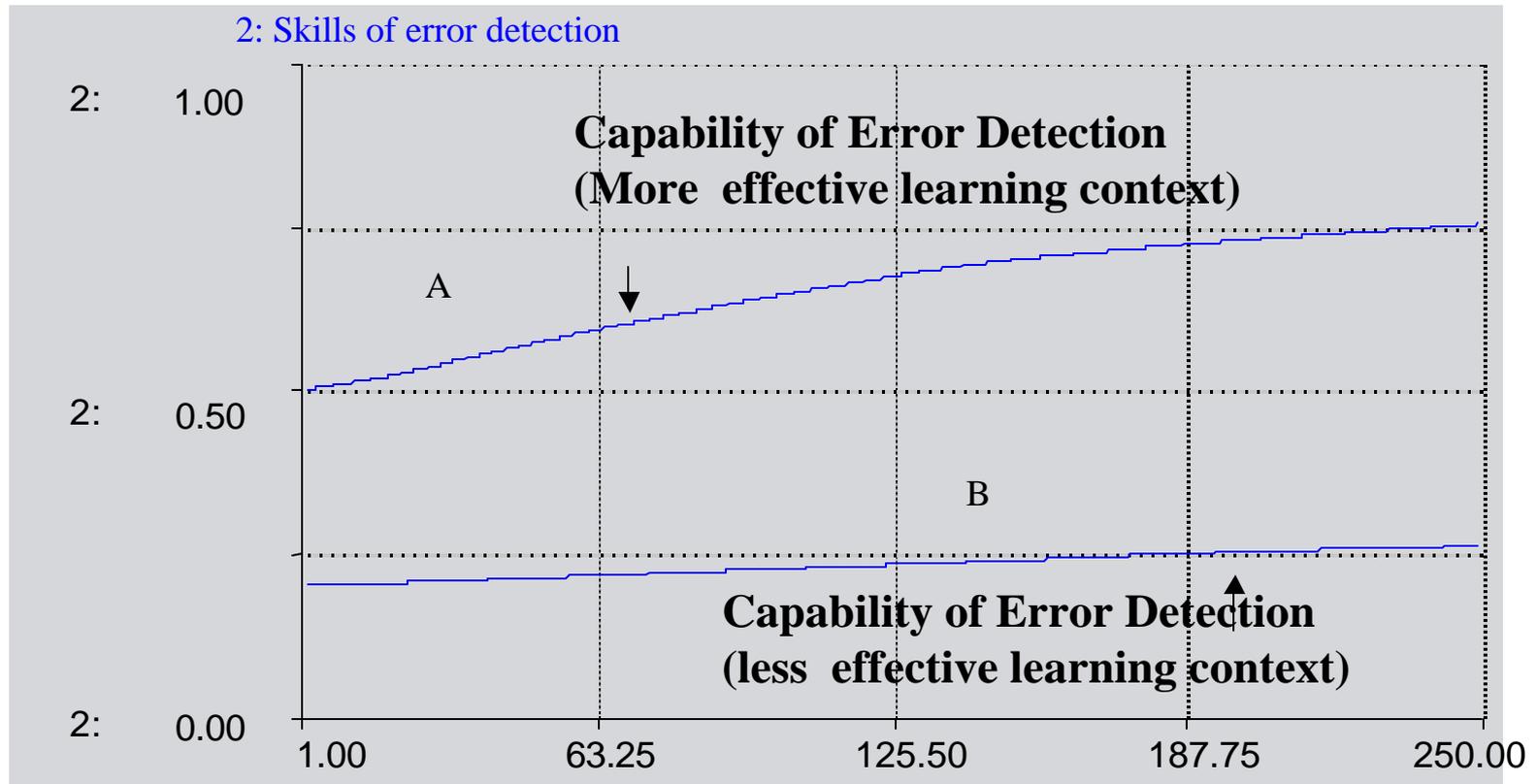| Key Areas	KM Policy	Kinds of knowledge
Learning context (Loop12,Loop13)	Hiring/Leaving policy, Training, On-the-job learning, Task governance, Learning environment, Learning culture	Operational knowledge Task knowledge, Shared structure
Change process	**Understanding and sharing of the structure and dynamic behaviors**	**System knowledge Structure and behaviors**

5.2.Simulation for KM policy in Self-Organizing Teams(1)

- Higher knowledge redundancy

5.2.Simulation for KM policy in Self-Organizing Teams(2)

- IT for communication efficiency

2: ERS

Cumulated Errors with IT Improvement

B

Cumulated Errors without Improvement

A

5.2.Simulation for KM policy in Self-Organizing Teams(3)

- More effective learning context

2: Skills of error detection

Capability of Error Detection
(More effective learning context)

A

B

Capability of Error Detection
(less effective learning context)

6.Discussion

- The common difficulty of KM in organization-Where and How to begin-can be resolved.

- Diversified knowledge are required

- Systems Analysis and Structure Understanding for Leverages of KM

7.Conclusion

- Self-organizing is one important strategy of change management.
- To strengthen the self-organizing ability, the team's structure and dynamic re-organizing process should receive equal attentions
- Structural and behavioral understanding highlights the most critical KM policies
- KM can facilitate the self-organizing team a lot, in both process and performance