

Japan's Challenge towards Integrated Disaster Risk Management (IDRiM): Policy, Practice and Implementation

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Lessons Learned from the 1995 Hanshin-Awaji Earthquake

- Self-rescue/relief (自助・共助)力 → Enhancement of coping capacity
- Day-to-day Practice for the Ownership of Knowledge and Technology (Lessons Implemented) Long-range proactive management to be switched to retroactive management
- Strategy to Overlap with Urban/Regional Management

Why Integrated Disaster Risk Management (IDRiM) ?

- Disaster management for multiple hazards/disasters
- Disaster Management for multiple stakeholders in cities, regions and communities
- More participatory disaster risk management needed as a part of IDRiM governance
- Incorporating disaster management into urban/regional/community management
- Methodological framework for more cross-disciplinary, more policy and practice oriented
- Implementation science for IDRiM highly expected

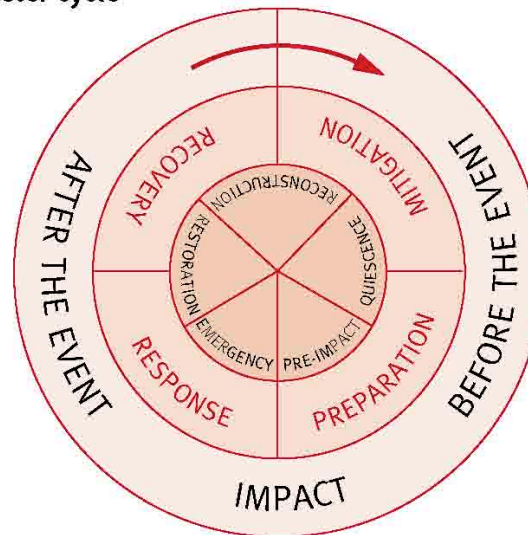
Distinct Levels of IDRiM and Implications for Governance

- Positioning and interlinking distinct spatial and temporal levels of description and governance → Pagoda Model
- Visualizing a bundle of policies and practices to be connected with a particular policy and practice as a focus → Octopus Model
- Conceptualizing IDRiM as a part of sustainable management of cities and regions: addressing coping capacity and complexities → Vitae System Model

Integration **DD**:
Combining both **daily** and **disaster** mode
(disaster and non-disaster cycle),

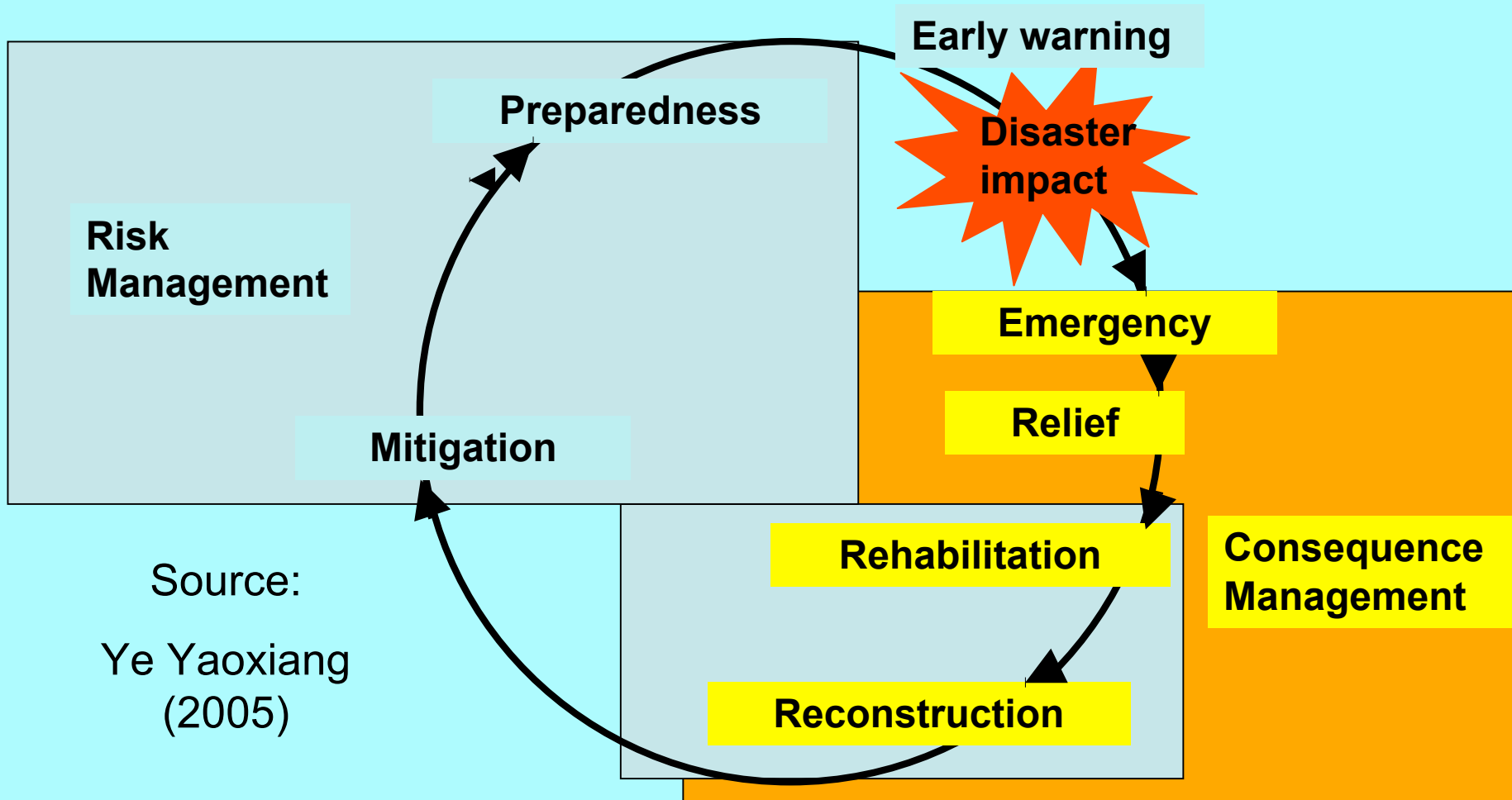
Disaster Cycle (Alexander)

Figure 2.1
The disaster cycle



D. Alexander, *Principles of Emergency Planning and Management* (Harpندن: Terra Publishing, 2002), p. 6.

Pre-disaster risk reduction phase

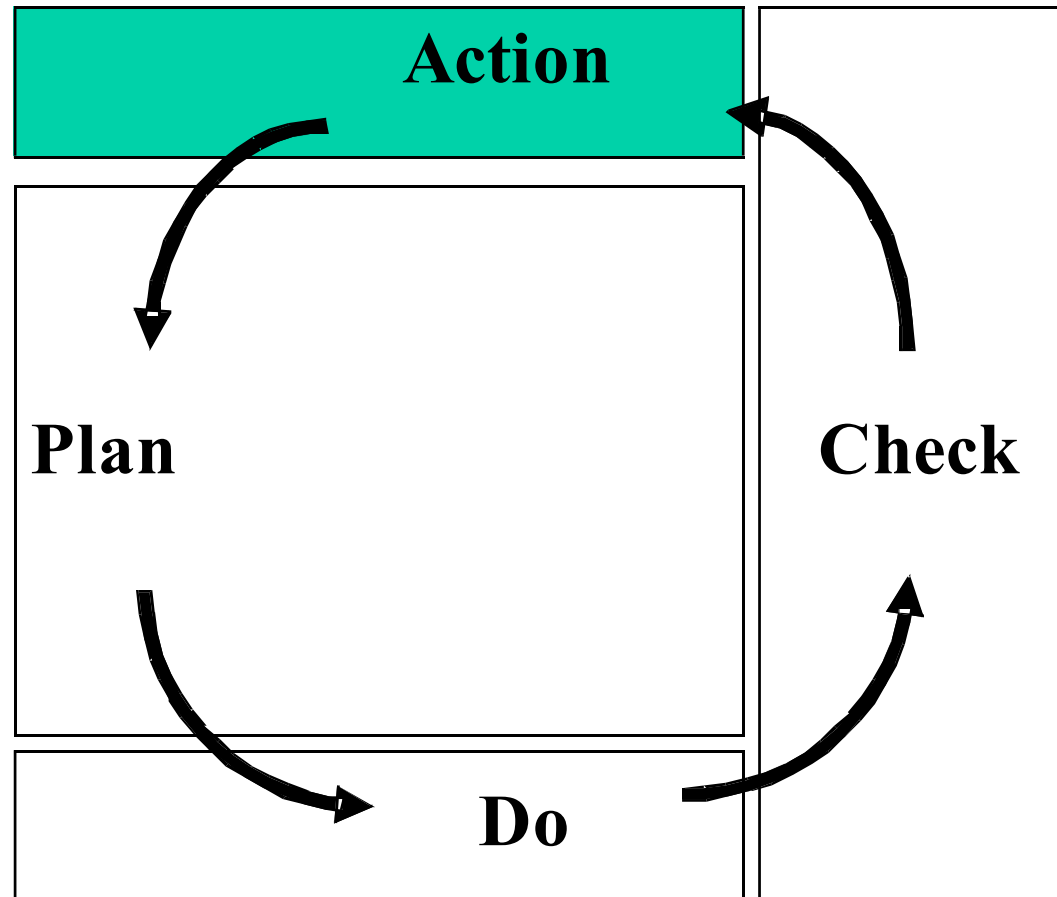


Source:
Ye Yaoxiang
(2005)

Post-disaster recovery phase

Participatory Approach based on a Workshop Method

As a PDCA Cyclic Process

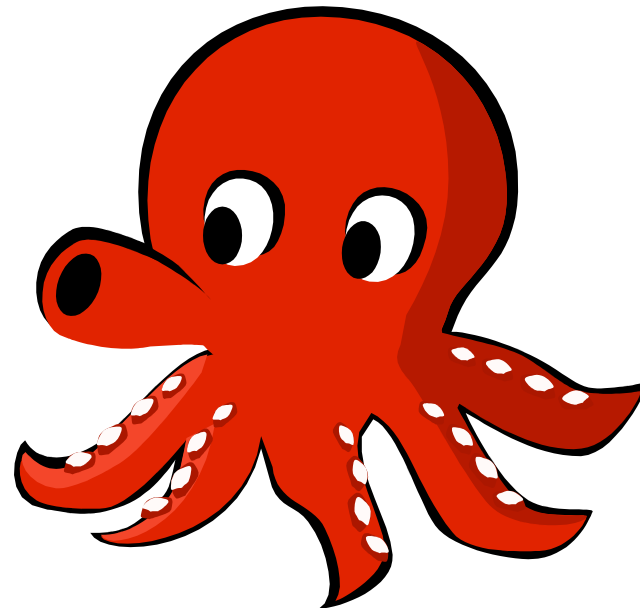


City/regions viewed as spatial-temporal multi-layer system



Five-storied Pagoda Model

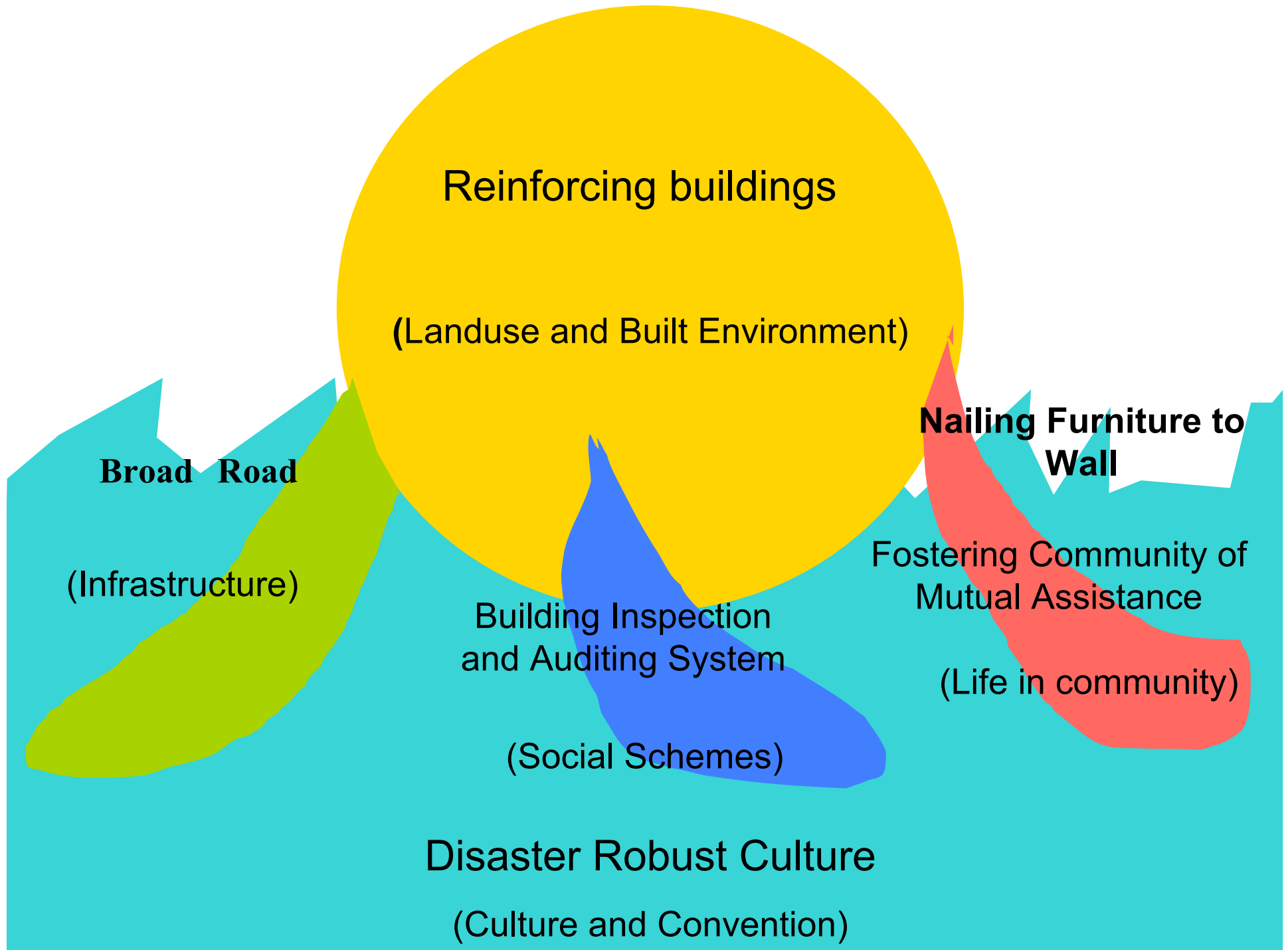
Integration **KP**: Systematizing and linking a piece of particular, specialized **knowledge & technology** to relevant **policy concerns and governance** issues



Policy Linkage: Octopus Model

(Okada, 2002) Multidisciplinary Approach

We need multiple legs (polyped) which cling to other interface areas.



Missing Knowledge of Sustainability: Vital Integration

- Vitae system (Living body) as both the object and subject of Sustainable Management
- Three functions as a systemic (organic) whole.
- (1) To live through (to survive)
- (2) To live vigorously (to vitalize)
- (3) To live together with others (to con-vive)
- To build resilient capacity should mean dynamic and rhythmic balance of the whole in tension and relaxation over time.

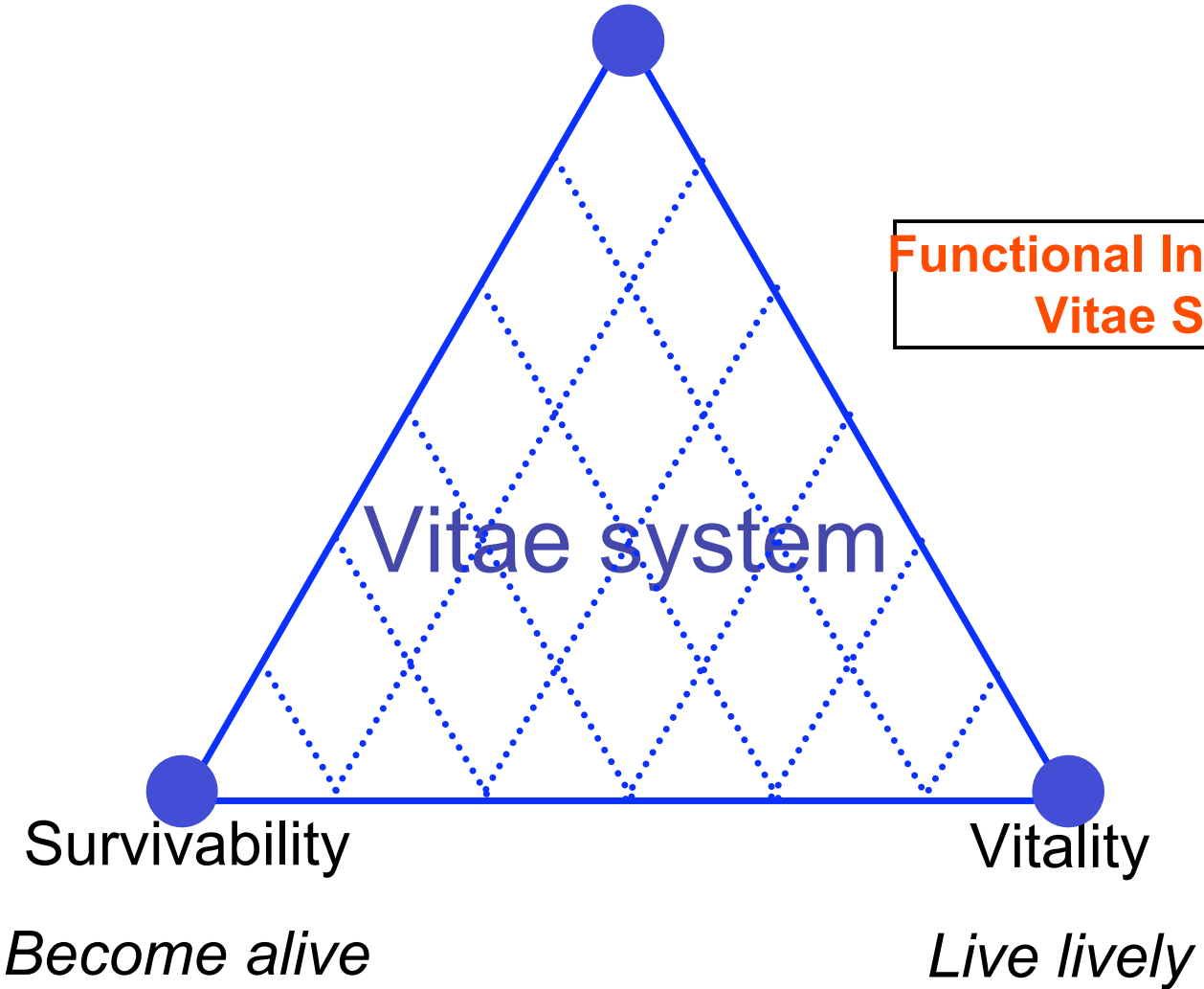
Tension mode 緊張位相

**Sympathetic nerve mode
交感神経系位相**

Conviviality

Live together

**Functional Integration of
Vitae System**

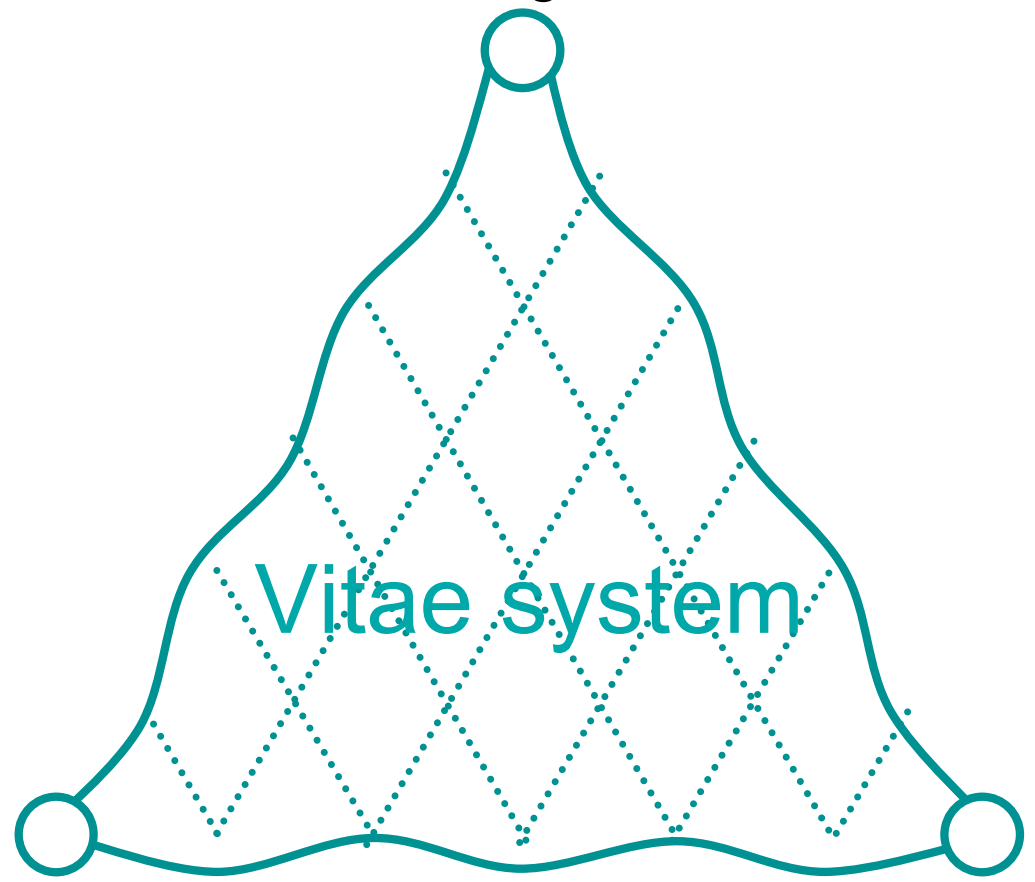


Relaxation mode 弛緩位相

Para sympathetic nerve mode
副交感神經系位相

Conviviality

Live together



Vitae system

Survivability

Live through

Vitality

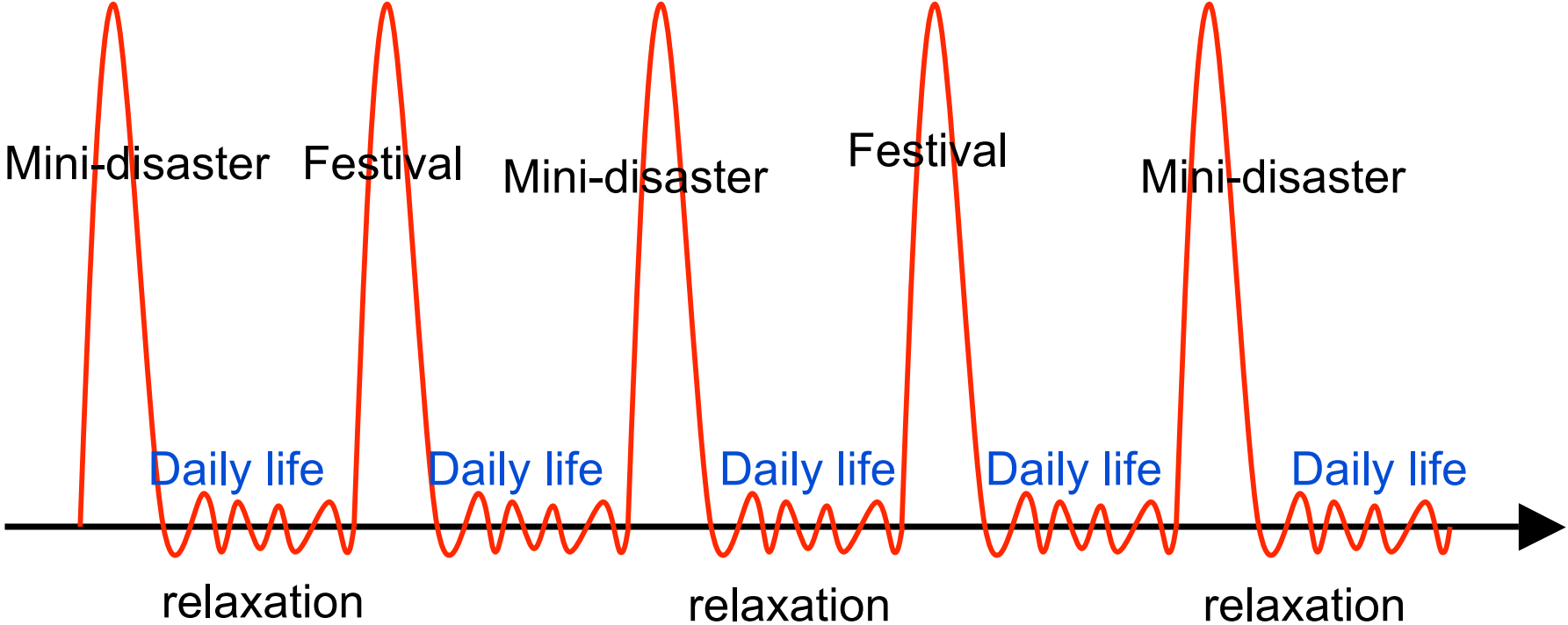
Live lively

Vital Rhythms

Tension

Tension

Tension



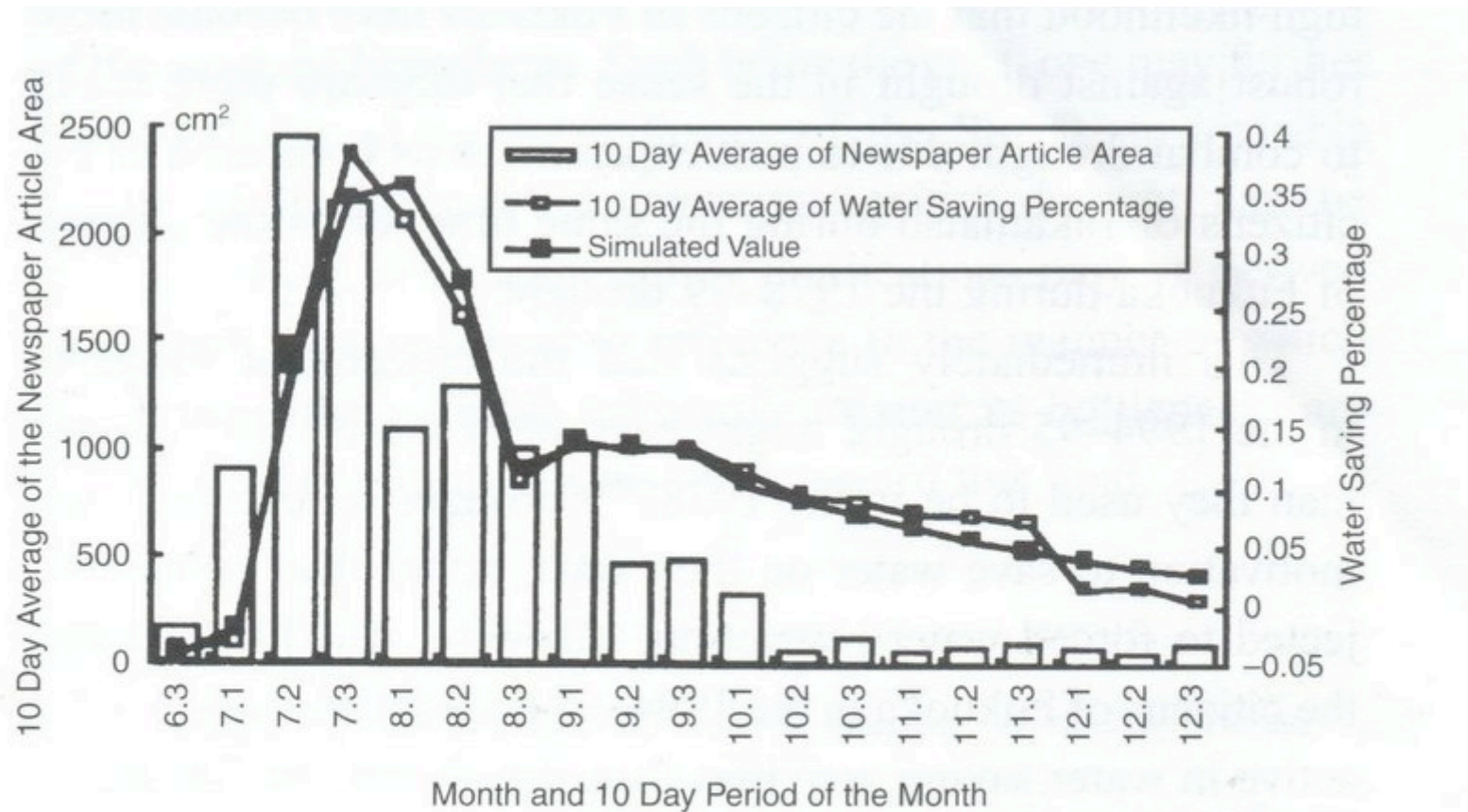


Figure 8.10. Comparison of observed SPRD, WSP, and simulated WSP (Takamatsu, 1994).

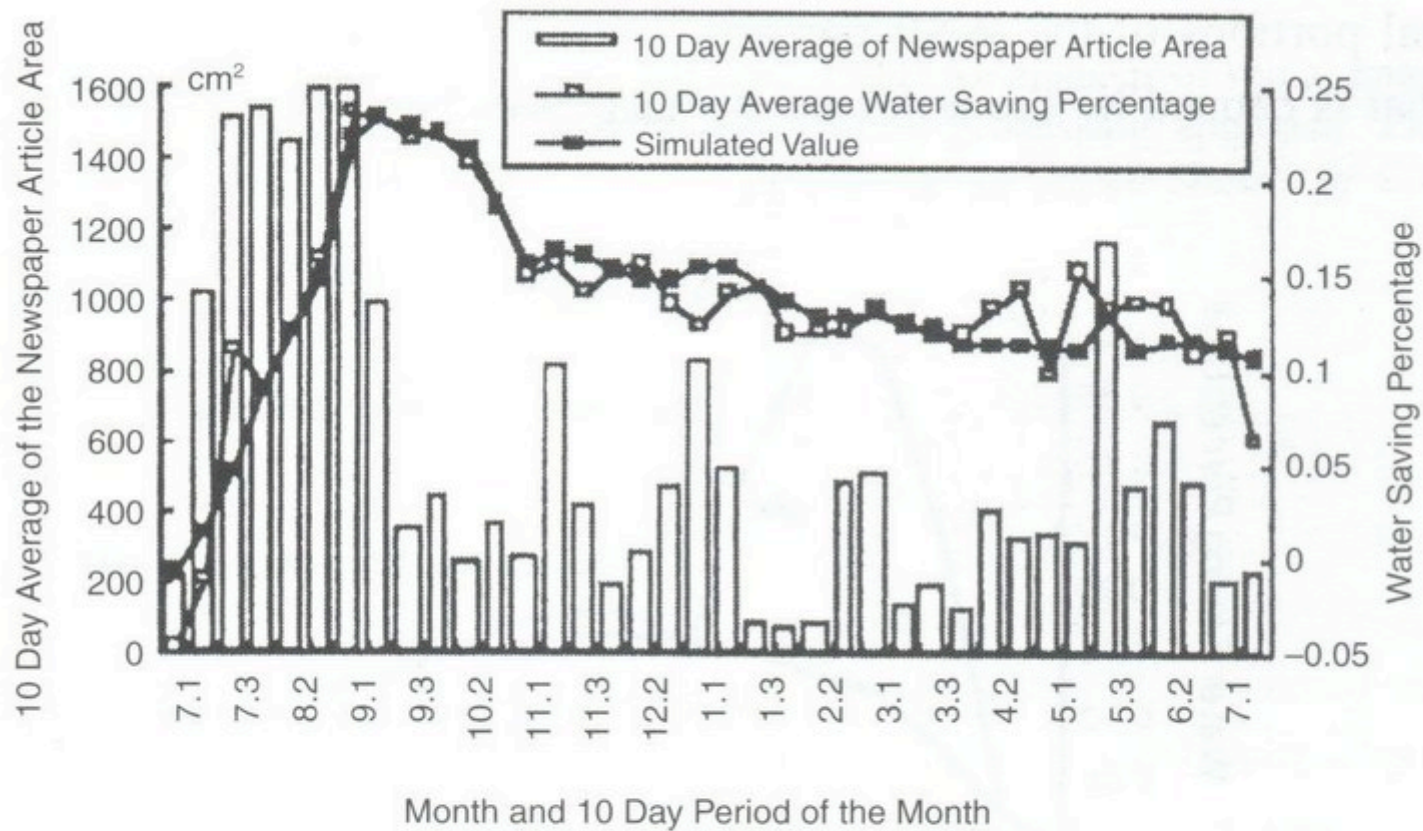


Figure 8.11. Comparison of observed SPRD, WSP, and simulated WSP (Fukuoka, 1994–95).

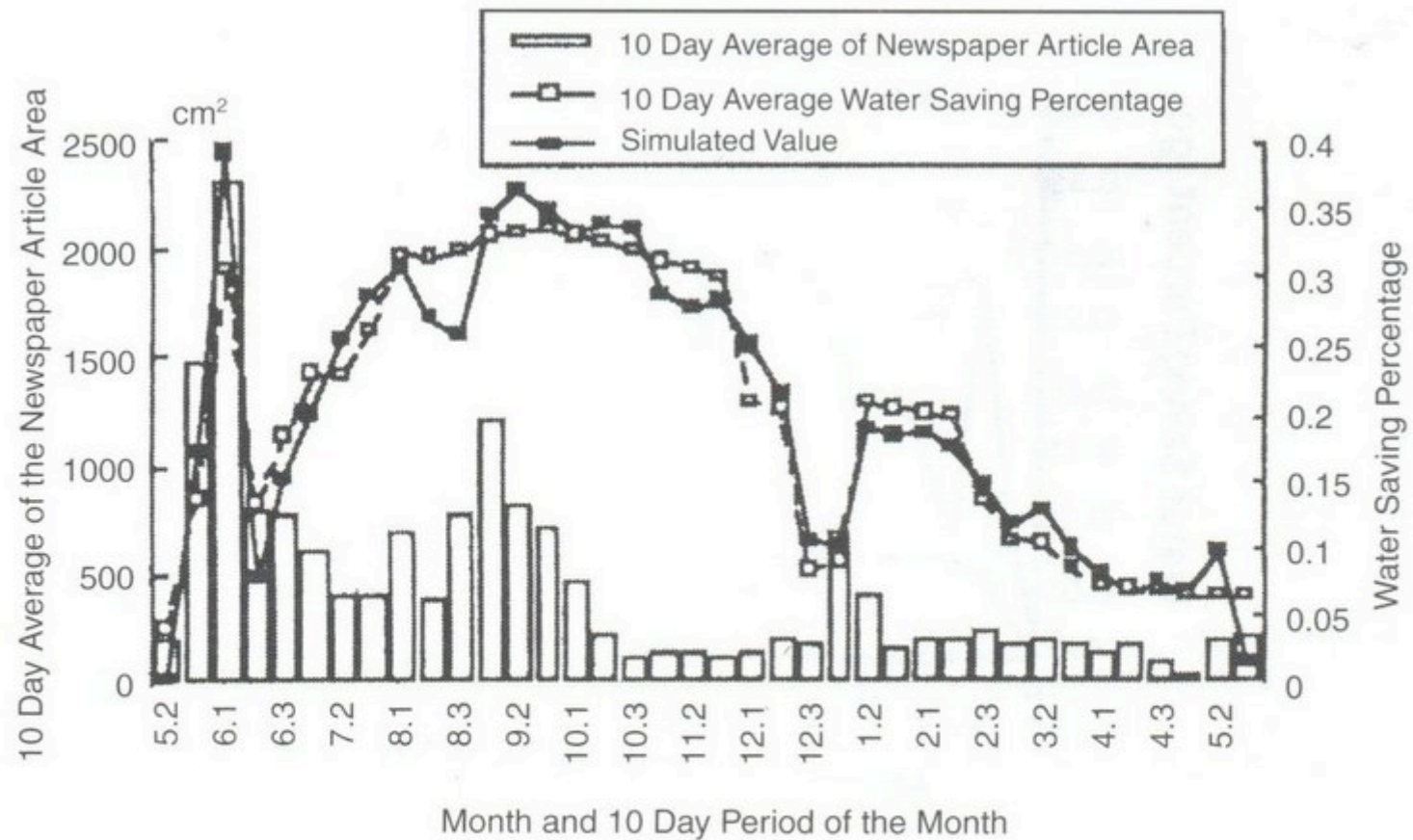


Figure 8.12. Comparison of observed PRD, WSP, and simulated WSP (Fukuoka, 1978–79).

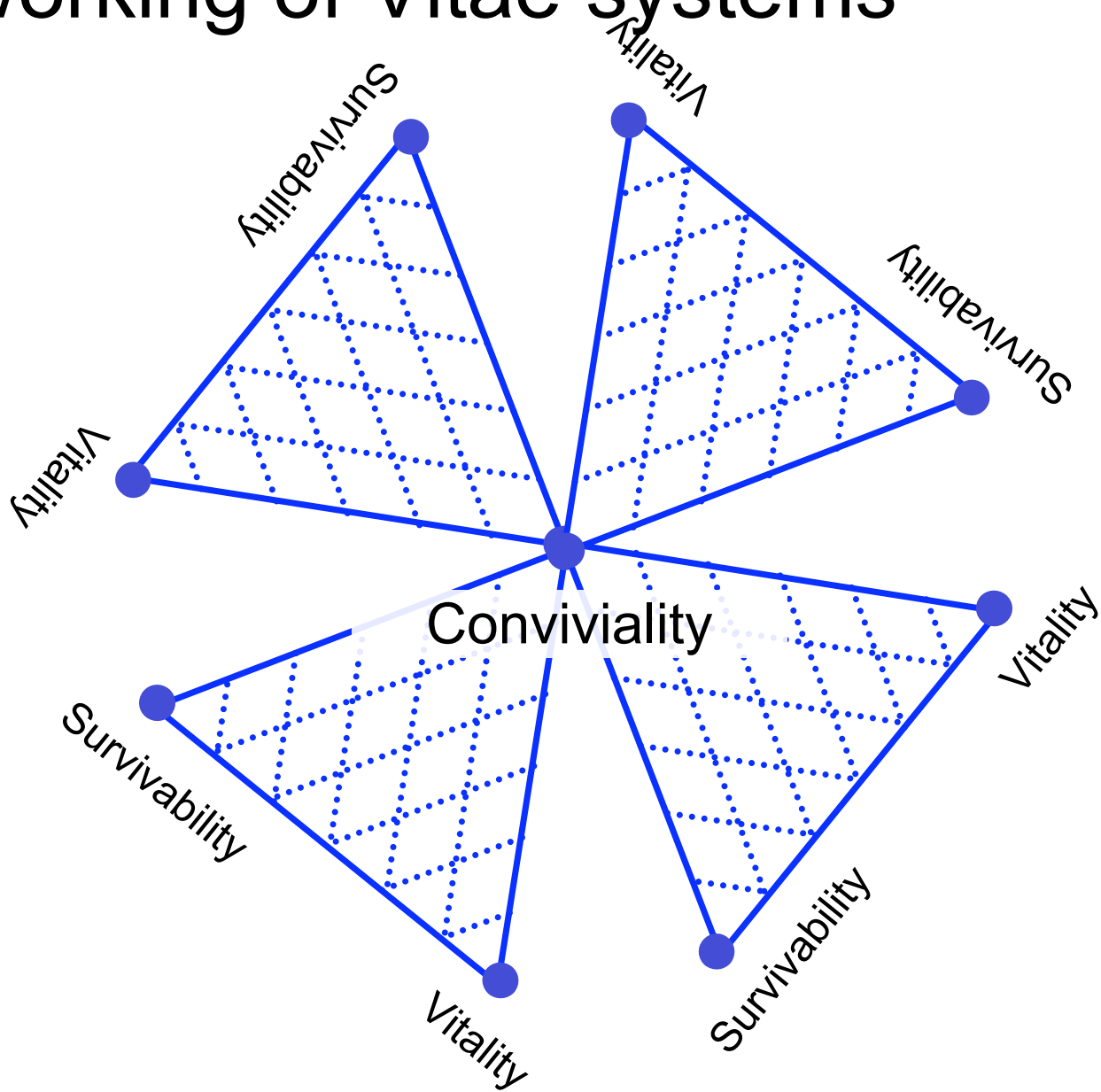
Vitae System Dynamics

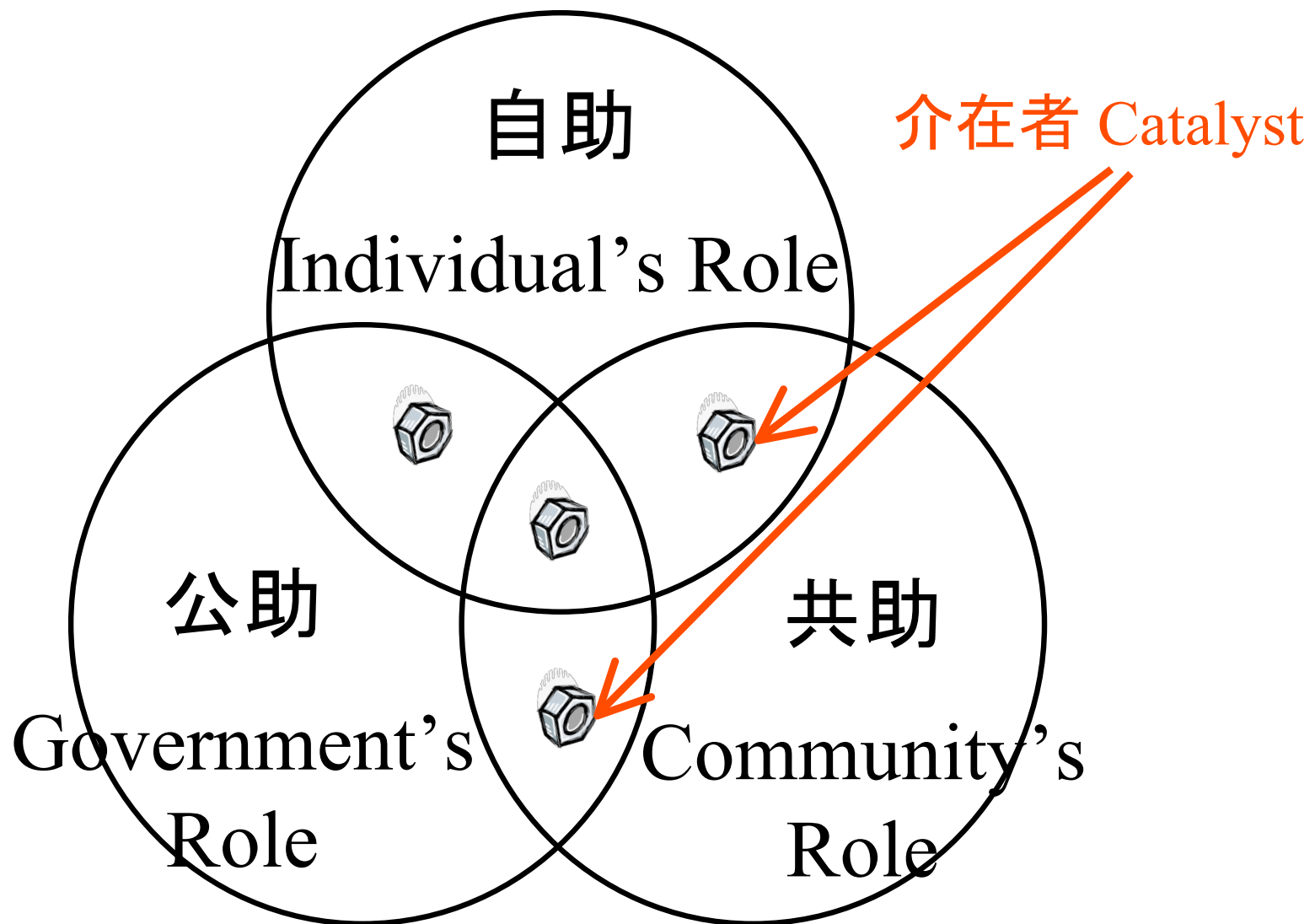
- S=Survivability, V=Vitality, C=Conviviality
E=Environment, t=time
- $S(t)$ as Death-overcoming Stamina= Function of $V(t)$ and $C(t)$.
- $V(t)$ =Function of $S(t)$ and $C(t)$.
- $C(t)$ =Function of $S(t)$, $V(t)$ and $E(t)$.
- $S(t)$, $V(t)$ and $C(t)$ are mutually interactive and interdependent.
- The Dynamism is highly nonlinear and complex.
- The System is **semi-open-ended and thus needs highly adaptive management.**
- The 21st century still misses the knowledge of this kind.
- This is a part of **implementation knowledge (science).**

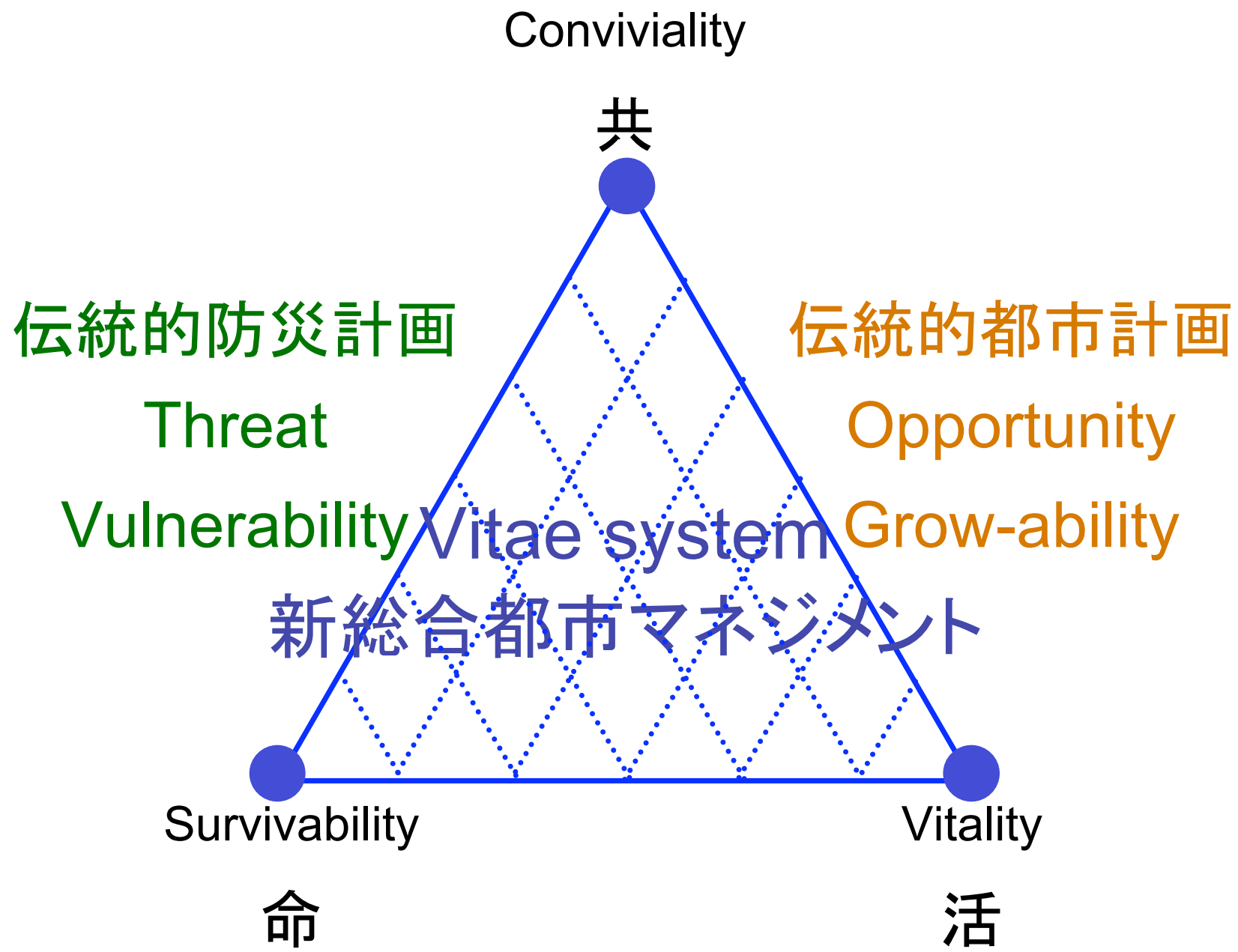
Networked Vitae System

- Every vitae system covers a marginally extended and thus a more resilient system is expected.
- Thus each governs the area of one's own locality, and thus to be networked to service the entire region.

Networking of Vitae systems







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