



## SST 26 External Shock and Differential Rates of Change



### The Harbour That Lost Its Ships

For generations, the town of Seaborne depended upon its harbour. Fishing boats filled the docks each morning. Local businesses supplied equipment, repaired vessels, and processed the daily catch. Families expected that their children would eventually work in the same industries as their parents. Life was not always easy, but it was stable.

Then, almost overnight, everything changed. A new international trade agreement opened the market to large industrial fishing fleets operating thousands of miles away. Within a few years, local catches declined dramatically and many fishing businesses closed.

The harbour was still there. The boats were still there. The skills were still there. But the world around them had changed.

Some businesses adapted quickly. Others failed. Younger residents moved away in search of new opportunities. Older residents struggled to understand why long-established ways of life were disappearing.

Local government attempted to attract new industries, but investment moved slowly. Training programmes took years to produce results. Meanwhile, economic decline continued.

People argued about the cause of the crisis. Some blamed politicians. Others blamed foreign competition. Others blamed local businesses.



Yet beneath these arguments lay a deeper problem. The external environment had changed rapidly, while the town's structures, skills, institutions, and expectations adapted much more slowly. Seaborne had become unstable because different parts of the system were changing at different rates.

### Formal Description

External shocks occur when significant changes in external constraints alter the conditions under which a social system operates.

Examples include:

- economic crises;
- technological breakthroughs;
- natural disasters;
- pandemics;
- geopolitical changes;
- environmental disruptions.

Within the Enhanced Morphogenetic Cycle (EMC), external constraints can change first. Existing structures and cultures were developed under previous conditions and therefore require time to adapt.

Differential rates of change occur when constraint domains evolve at different speeds.

Common examples include:

- technology changing faster than law;
- markets changing faster than institutions;
- demographics changing faster than infrastructure;
- globalisation changing faster than cultural adaptation.

The resulting misalignment can produce instability, conflict, declining performance, and reduced system viability.

### Plain English Explanation

Social systems are constantly adapting to their environments. Most of the time these changes occur gradually. Occasionally, however, the environment changes much faster than the system can respond.

When this happens, previously successful ways of working may no longer fit the new situation.

The problem is often made worse because different parts of the system adapt at different speeds.

For example:

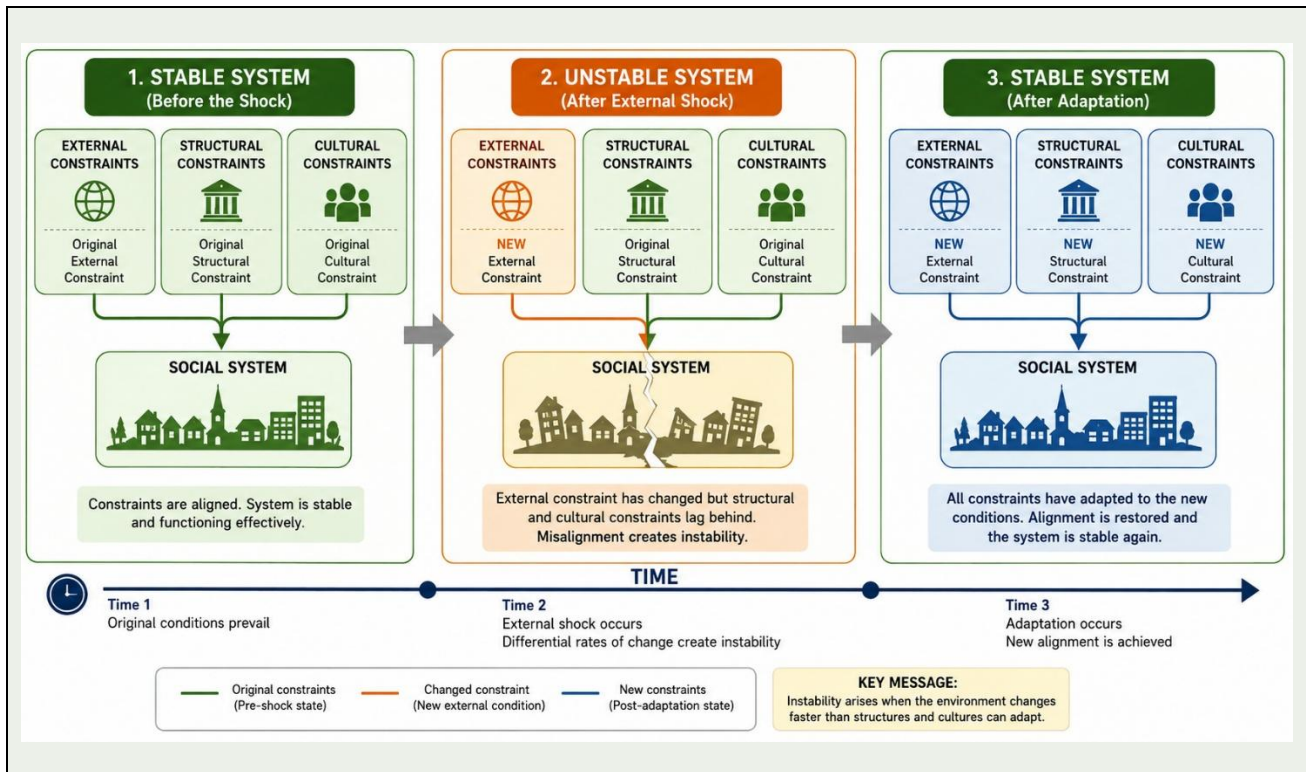
- businesses may change quickly;
- governments may change slowly;
- infrastructure may take years to develop;
- cultural expectations may take decades to change.

The resulting mismatch creates tension throughout the system.

What appears to be a single crisis is often a collection of adaptation problems occurring simultaneously.

The key diagnostic question is:

**"What significant external constraint has changed, and which parts of the system are adapting most slowly?"**



### Example 1 – The COVID-19 Pandemic

A pandemic rapidly alters external conditions.

- Health systems come under pressure.
- Businesses close.
- Remote working expands.
- Governments introduce emergency measures.

Different sectors adapt at different speeds.

Result: Temporary instability emerges from rapid environmental change and uneven adaptation.

### Example 2 – Globalisation

International markets become increasingly interconnected.

- Manufacturing relocates.
- Supply chains become global.
- New opportunities emerge.

Some industries adapt rapidly while others struggle. Communities dependent on older industries may experience long periods of instability.

Result: Temporary instability emerges from external change combined with differential rates of adaptation.

### Provenance and Links

The concepts of external shock and differential rates of change emerged from applying the Enhanced Morphogenetic Cycle (EMC) to periods of social instability.

During the development of Constraint Analysis it became apparent that many crises begin with changes in external constraints. However, instability often arises not from the change itself but from differences in the speed at which external, structural, and cultural constraints adapt.



This module draws upon:

- General Systems Theory (Ludwig von Bertalanffy)
- Morphogenesis (Margaret Archer)
- System Dynamics (Jay Forrester)
- Resilience Theory (C. S. Holling)

Within the broader Social Systems Theory framework these concepts provide a foundation for understanding social adaptation, destabilisation, resilience, and intervention design.

### **Practical Exercise – Student Response Area**

Think of a social system that has recently experienced a major external change.

Examples: a workplace; an organisation; a local community; an industry sector; or a nation.

1. What external constraint changed?
2. Which parts of the system adapted quickly?
3. Which parts adapted slowly?
4. What tensions or problems resulted from these different rates of adaptation?
5. How might the system reduce these misalignments in future?