



SST 36 – Viability and Viability Dimensions



A cargo ship is crossing the Atlantic Ocean. During its journey it encounters changing weather, strong winds, equipment failures, and unexpected delays. Despite these challenges, the ship continues towards its destination.

The ship remains operational because many different systems are working together. The engines provide power. Navigation systems determine direction. Communication systems maintain contact with the outside world. The crew monitor conditions and respond to problems as they arise. Spare parts, supplies, and maintenance procedures help ensure that unexpected failures do not become disasters.

If any one of these functions becomes seriously impaired, the voyage may be threatened. If fuel runs out, the ship cannot continue. If communication systems fail, coordination becomes difficult. If the crew cannot respond to changing conditions, small problems may grow into major ones.

The success of the voyage depends not on a single factor but on the combined effectiveness of many different functions working together.



Social systems face similar challenges. Organisations, communities, public services, and nations must all maintain themselves while responding to changing circumstances. To understand how well they are doing, we need a way of assessing their overall condition.

This broader capacity to sustain themselves and continue functioning is known as viability.

Formal Description

Viability is the capacity of a system to maintain itself and adapt successfully over time despite changes in its environment.

Because viability cannot be directly observed, assessment of system viability requires the use of diagnostic dimensions and indicators that provide indirect evidence regarding system condition.

A viability dimension is a broad analytical category used to assess a particular aspect of system viability. In the Systemic Diagnostics framework, Potential, Flow, Capability, and Flexibility constitute the primary viability dimensions.

Plain English Explanation

When we ask whether an organisation, community, business, or nation is healthy, we are often really asking whether it is viable.

Viability refers to a system's ability to continue functioning over time. A viable system is able to maintain itself, cope with challenges, respond to change, and continue pursuing its purpose. A non-viable system gradually loses these abilities and becomes increasingly vulnerable to failure.

The difficulty is that viability cannot be observed directly. We cannot simply look at an organisation and measure its viability in the same way that we might measure its income or number of employees. Viability is a higher-level property that emerges from the interaction of many different parts of the system.

To overcome this problem, we break viability into a number of more observable dimensions. These dimensions provide clues about different aspects of system condition.

Potential concerns the ability of the system to generate future opportunities and capabilities.

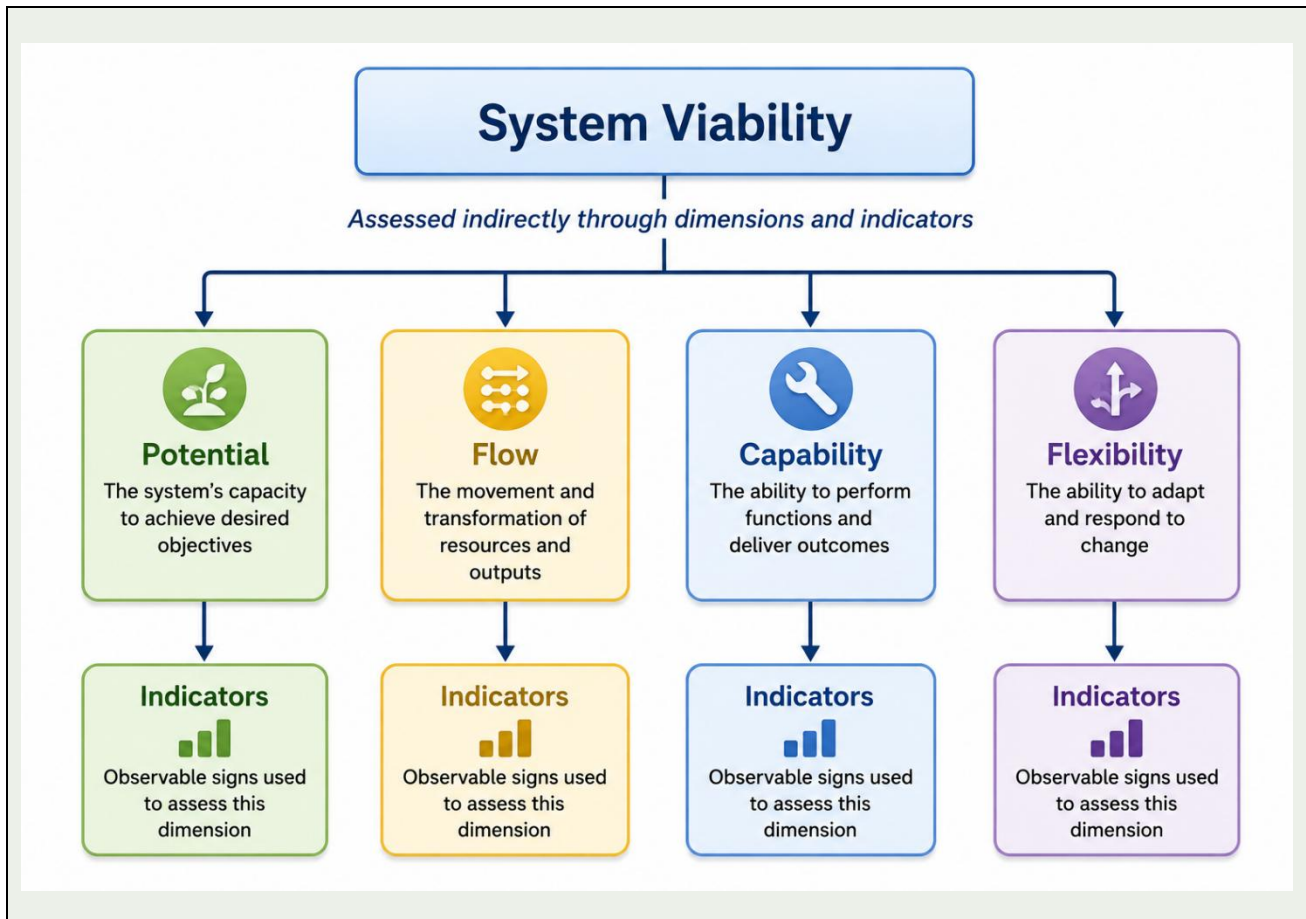
Flow concerns the movement of information, resources, authority, and other transfers needed for effective operation.

Capability concerns the ability of the system to achieve its goals and produce desired outcomes.

Flexibility concerns the ability of the system to learn, adapt, and respond to changing circumstances.



Together, these dimensions provide a practical way of assessing system condition and identifying where further investigation may be required. They do not explain why problems exist, but they help us identify where further investigation should begin.



Example 1 – A Business

A company may currently be profitable, but if it is failing to train staff, invest in new technologies, or develop future products, its long-term viability may be declining even though present performance appears satisfactory.

Example 2 – A Public Service

A healthcare service may employ highly skilled staff and possess substantial resources. However, if communication is poor, adaptation is slow, and coordination is ineffective, overall viability may still be reduced.

Example 3 – A Nation

A nation may possess considerable wealth and infrastructure. Yet if innovation declines, trust falls, institutions become inflexible, and long-term investment decreases, future viability may be threatened.



Provenance and Links

The concept of viability occupies a central place in systems theory and cybernetics. W. Ross Ashby emphasised the importance of adaptation in maintaining system survival. Stafford Beer developed the Viable System Model as a framework for understanding organisational viability. Similar concerns appear in ecology, economics, management science, and resilience theory.

This framework extends traditional discussions of viability by disaggregating viability into four diagnostic dimensions: Potential, Flow, Capability, and Flexibility. These dimensions provide a practical structure for assessing system condition and directing subsequent investigation.

Practical Exercise

Choose an organisation, community, business, or public service that you know reasonably well.

1. Briefly describe the purpose of the system.
2. Assess its Potential, Flow, Capability, and Flexibility using a simple rating of High, Medium, or Low.
3. Which dimension appears strongest?
4. Which dimension appears weakest?
5. What additional information would you want before drawing firm conclusions about its viability?