Systems Thinking and Strategic Foresight

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Integrating Systems Thinking and Strategic Foresight for Resilient Policymaking

◆ **Foresight is essential, not optional**

*In a rapidly changing world, policymakers must navigate **complexity and uncertainty** to create **resilient and adaptive policies**.*

◆ **Systems Thinking and Strategic Foresight work together**

*Systems thinking is a **key component of foresight**, helping to identify **interlinkages among drivers of change** and uncover **hidden dynamics within complex policy environments**.*

Systems Thinking: The ability to **analyze complex systems**, understand **how different factors interact**, and identify **leverage points** for effective interventions.

Strategic Foresight: A structured **methodology for anticipating future challenges**, using tools like **scenario planning and horizon scanning** to inform policy decisions.

By combining systems thinking with foresight, policymakers can develop forward-looking, coherent, and future-ready policies.

Limitations of Traditional Planning

🌍 *We live in a VUCA world:*
Volatile, Uncertain,   Complex,
Ambiguous

Traditional Planning		Adaptive Planning
Static	**ENVIRONMENT**	Dynamic
Sequential, linear	**APPROACH**	Iterative, cyclical
Executing the "right plan" effectively	**FOCUS**	Validating hypotheses and responding together
Detailed upfront	**PLANNING**	Minimal upfront, ongoing
Heavy, comprehensive	**DOCUMENTATION**	Minimal, essential
Persuading	**DECISION-MAKING**	Demonstrating

Why Traditional Planning Falls Short
➤ **Rigid Structure**: Cannot accommodate unexpected developments or rapid changes
➤ **Process Over Outcomes**: Focuses on following established procedures rather than achieving results
➤ **Prediction-Dependent**: Assumes accurate forecasting is possible in increasingly unpredictable contexts

The Need for New Approaches in Governance

Governments today face **complex, interconnected challenges** that require **new thinking and adaptive governance**.

- ➢ Climate Risks
- ➢ Economic Shifts
- ➢ Digital Transformation

Why Change is Needed?

- ➢ Issues are **interconnected**—climate change impacts economies, which affect social stability.
- ➢ **Siloed decision-making** weakens governance; **collaboration and foresight** are essential.
- ➢ **Governments must anticipate and adapt**, rather than react to crises.

🔍 **New Approaches for Better Governance:**

Systems Thinking helps map complexities and avoid unintended policy impacts

**Strategic Foresight** enables forward-looking, resilient decision-making.

Anticipatory Governance ensures policies remain future-ready, adaptive, and integrated across sectors

Why Systems Thinking is Necessary

Traditional Thinking: Linear, cause-effect problem-solving.
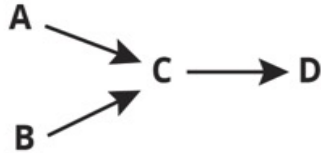
Systems Thinking: Recognizes **interconnections, feedback loops, and unintended consequences**.
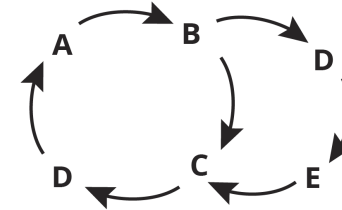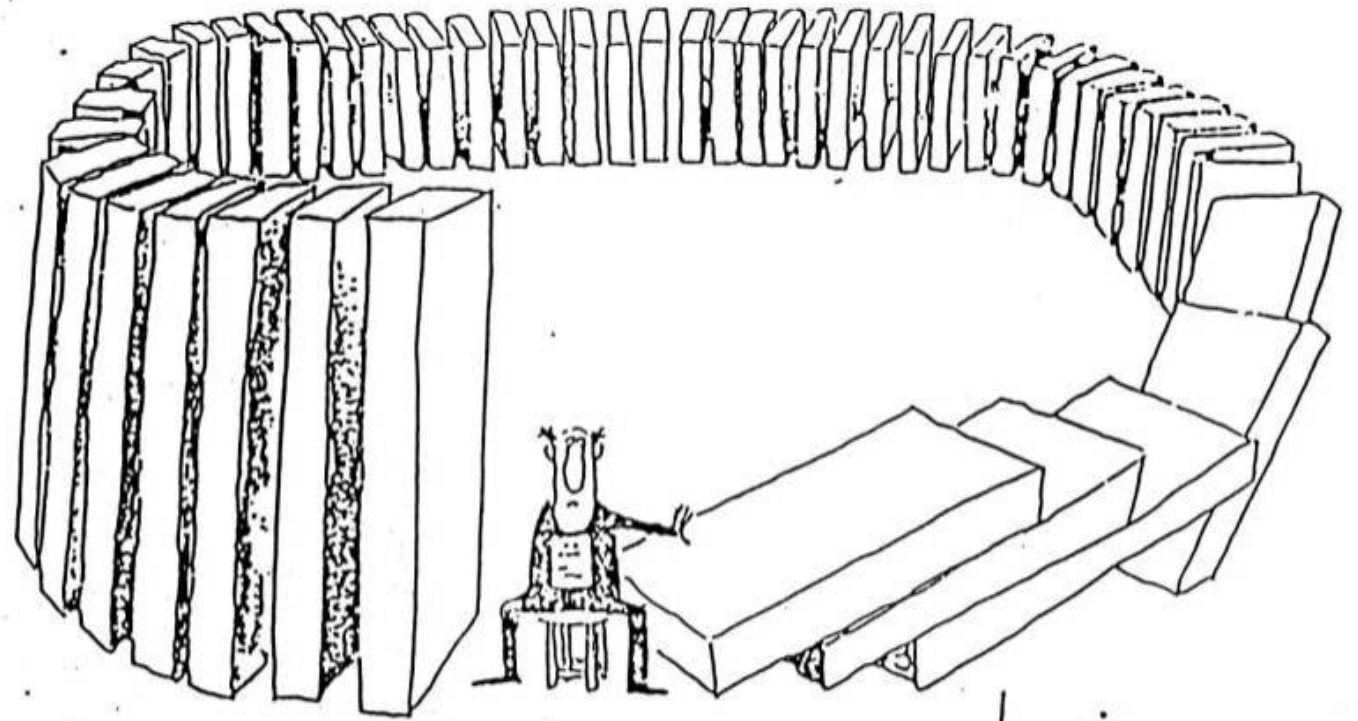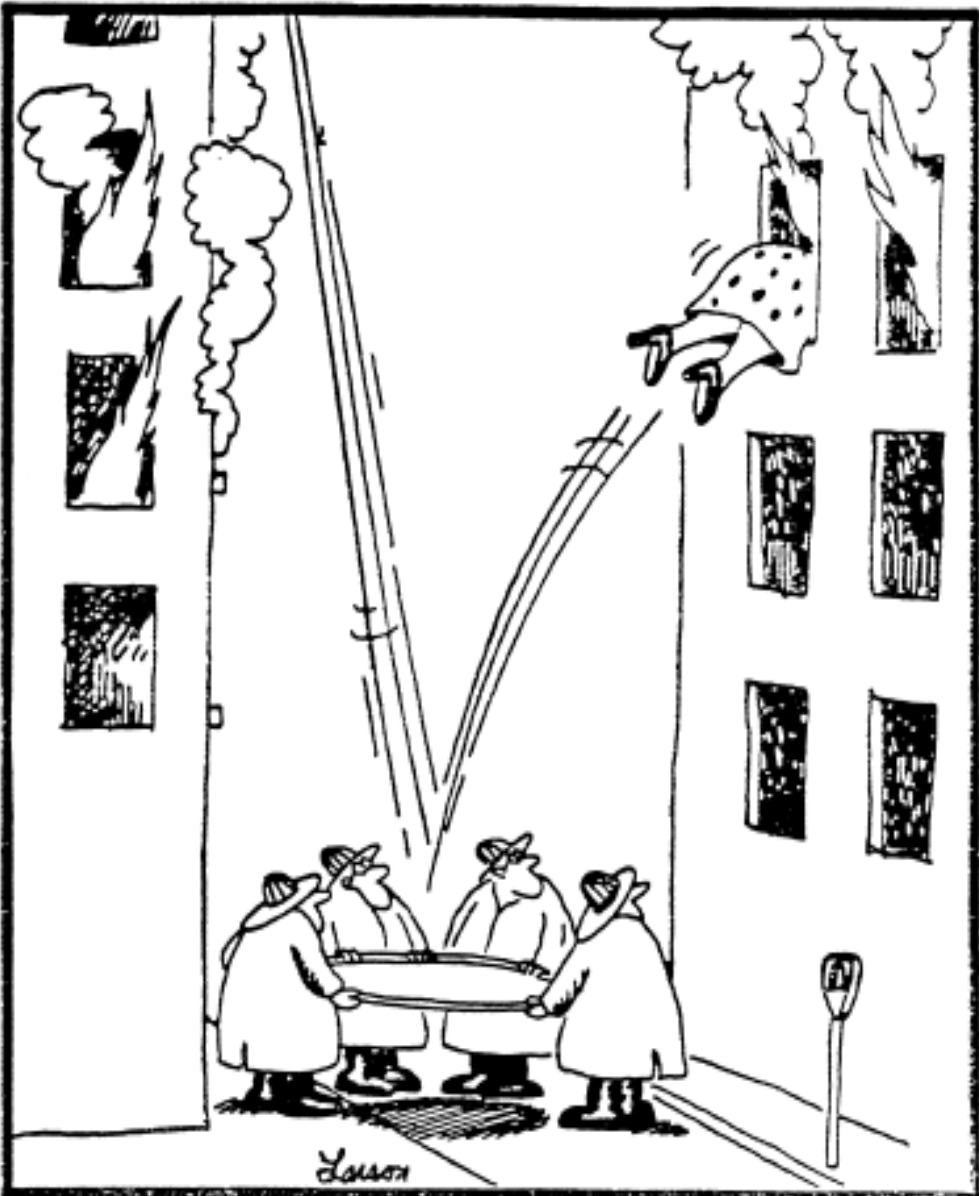

Why Do We Need Systems Thinking?

➢ **Modern challenges are complex and interconnected (e.g., SDGs).**
➢ **Sectoral approaches are insufficient**—policies in one area affect others.
➢ **Holistic, integrated solutions** are needed for sustainable impact.

With systems, there are always surprises

Drawing by Levin; © 1976 The New Yorker Magazine, Inc.

Systems Thinking Foundation
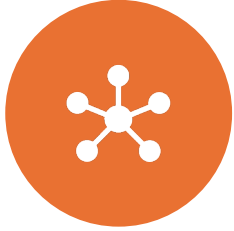
Views complex phenomena as interconnected systems, not isolated components
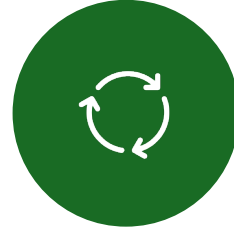
Focuses on relationships, patterns, and feedback loops

Helps see interrelationships and patterns of change rather than static snapshots
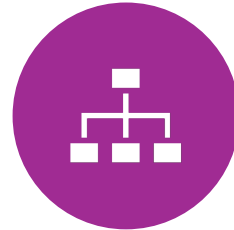
Organizations as open systems - external environment impacts internal functioning

Essential for understanding long-term implications of policy decisions

Cross Government Collaboration: Systems Mapping

- Example of Youth in NEET (not in education, employment or training) as outcome indicator and its causes of outcomes and consequences of outcomes

Vocational education and trained graduates → Youth NEET → Harmful use of alcohol → Mortality rate due to NCDs, road accidents

Ministry of Education **Ministry of Economy** **Ministry of Health** **Ministry of Health** **Ministries of Justice, Transport**
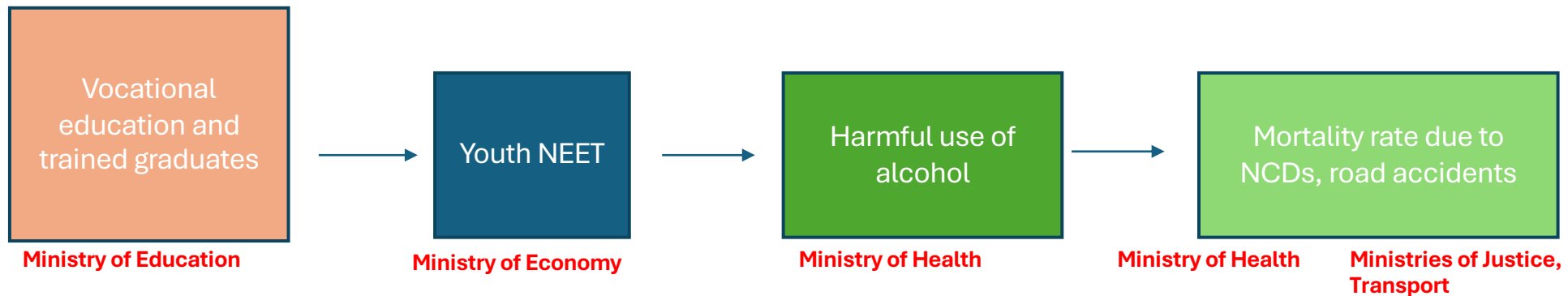
Effective solutions require collaboration between ministries beyond coordination within Technical Working Groups

The Iceberg Model of Systems Thinking

Most people react to visible **events**, but these are just the tip of the iceberg—the real causes lie beneath the surface**.**

Systems Thinking helps us move beyond surface-level events and uncover deeper causes:

- ➢ **Patterns & Trends:** Recurring events that indicate systemic behaviors over time.
- ➢ **Underlying Structures:** Policies, institutions, and power dynamics that shape those trends.
- ➢ **Mental Models:** Deep-seated beliefs and assumptions that guide decision-making.

ICEBERG MODEL
SYSTEM THINKING

EVENTS ···· WHAT HAPPENED?

PATTERN TRENDS ···· WHAT TRENDS ARE NOTICEABLE OVER TIME?

STRUCTURES ···· WHAT HAS INFLUENCED THIS TRENDS

MENTAL MODELS ···· WHAT ARE PEOPLE ASSUMPTIONS ABOUT THE SYSTEM?

Shifting mental models enables anticipatory governance. A foresight mindset extends planning beyond short-term fixes to adaptive, long-term approaches. Identifying necessary mindsets ensures policies remain resilient in our rapidly evolving world.

Causal Loop Diagrams

Mapping System Relationships

➢ Visual tool for mapping relationships between variables in a system

➢ Shows how variables influence each other (positive/negative relationships)

➢ Identifies two types of feedback loops

  ➢ **Reinforcing loops**: Change amplifies in same direction

  ➢ **Balancing loops**: Change countered by opposite forces

➢ Helps identify leverage points for effective intervention

➢ Creates shared understanding of how systems work

CLD Example on Agricultural Subsidies and Enviromental Sustainability
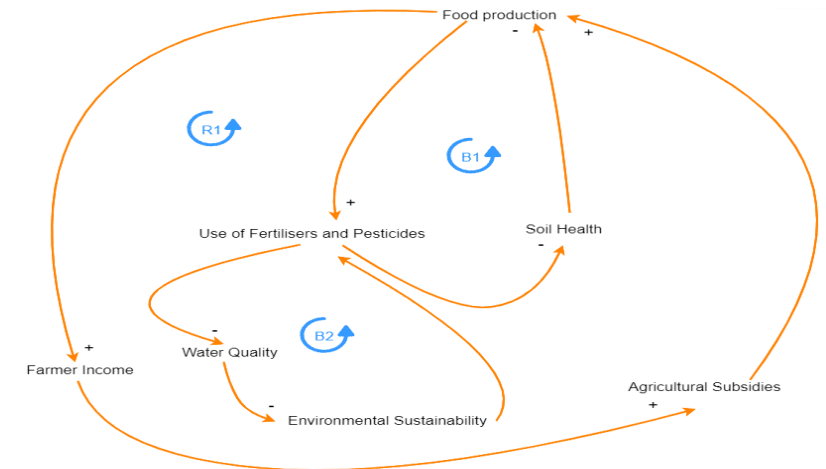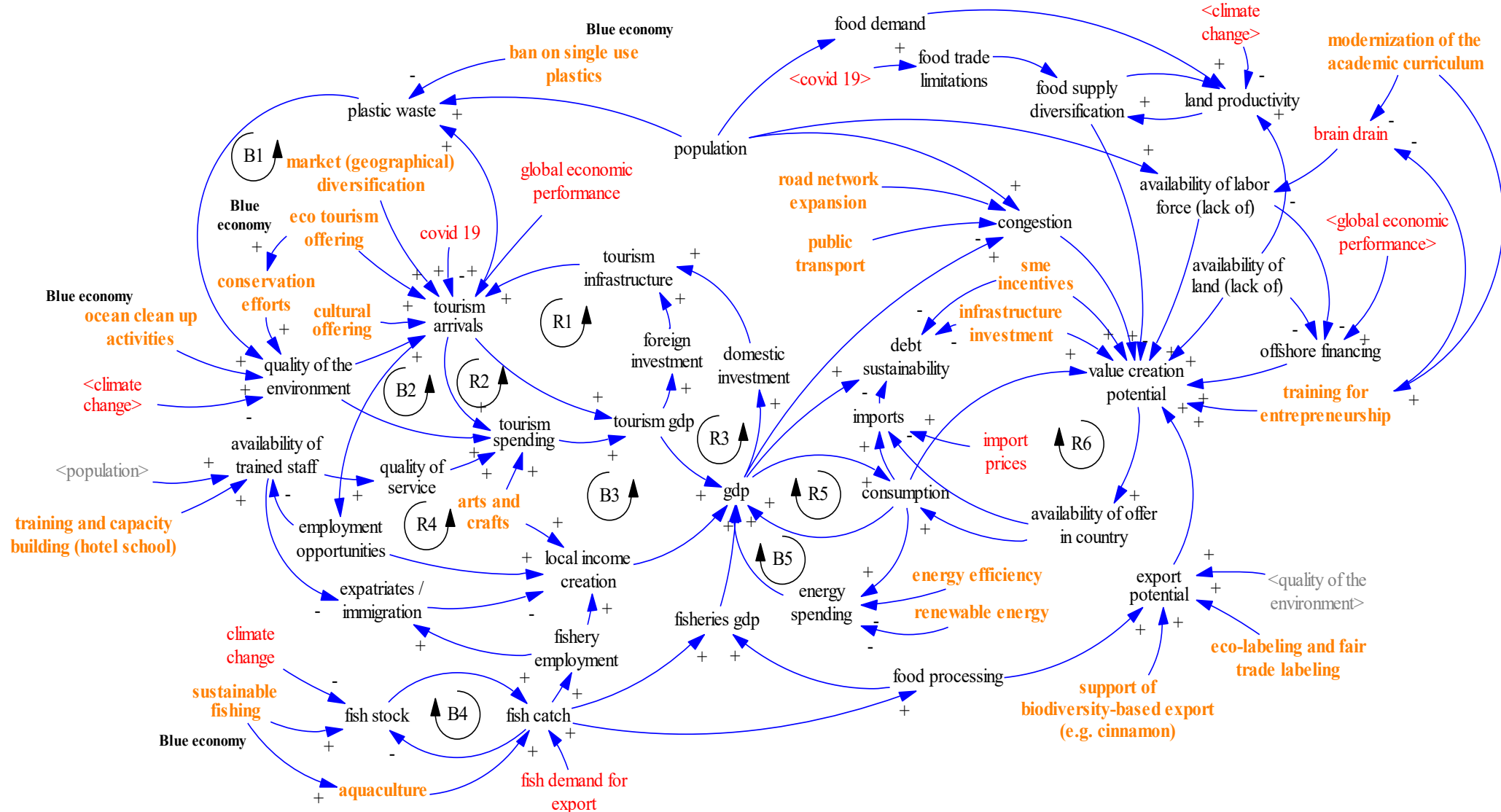
Strategic Foresight: Building on Systems Understanding

Systems Thinking helps us understand complexity, interconnections, and feedback loops, revealing how different elements influence each other

But understanding alone is not enough—we must also prepare for change.

Strategic Foresight builds on this understanding to navigate uncertainty by exploring multiple futures.

Increased awareness of future trends

Visualized future radar and scenarios

Early warnings on opportunities and threats

Future-proof plans and decisions

Thought leadership

Together, these approaches create an integrated framework for anticipatory, future-ready decision-making, with thought leadership driving the mindset shifts essential for sustainable transformation.

Why use foresight?

Why do people use foresight?

- Challenge our assumptions
- Avoid future surprises and threats
- Anticipate and shape the future
- Generate future possibilities, scenarios, options
- Extend your time horizons
- Align organization or community around change

Adapted from futurist Andy Hines
Photo by Thong Vo on Unsplash

SCHOOL OF INTERNATIONAL FUTURES

- The future has **multiple possible paths**
  - ➤ **not one predetermined outcome**
- Different scenarios can exist **simultaneously across regions**
- **Change is constant**
  - ➤ **but not always predictable**
- The future is a **fiction we write together**
  - ➤ **limited only by imagination**

Foresight Application Areas and Tools

Explore the tools through three areas of application

Imagine possible futures

These are the tools for identifying new possibilities for the future, building scenarios, and identifying what a desired future might look like.

- ➢ **Scenario Development**
- ➢ **Desired Future Matrix**
- ➢ **Policy Gaming**
- ➢ **Causal Layered Analysis**

Make sense of change

These are the tools that help us make sense of what is happening: they help us to observe the world and to look out for signals of change—things that might be small today but could become big in the future, or vice-versa.

- ➢ **Horizon Scanning**
- ➢ **Three Horizons**
- ➢ **Futures**
- ➢ **Triangle Futures Wheel**
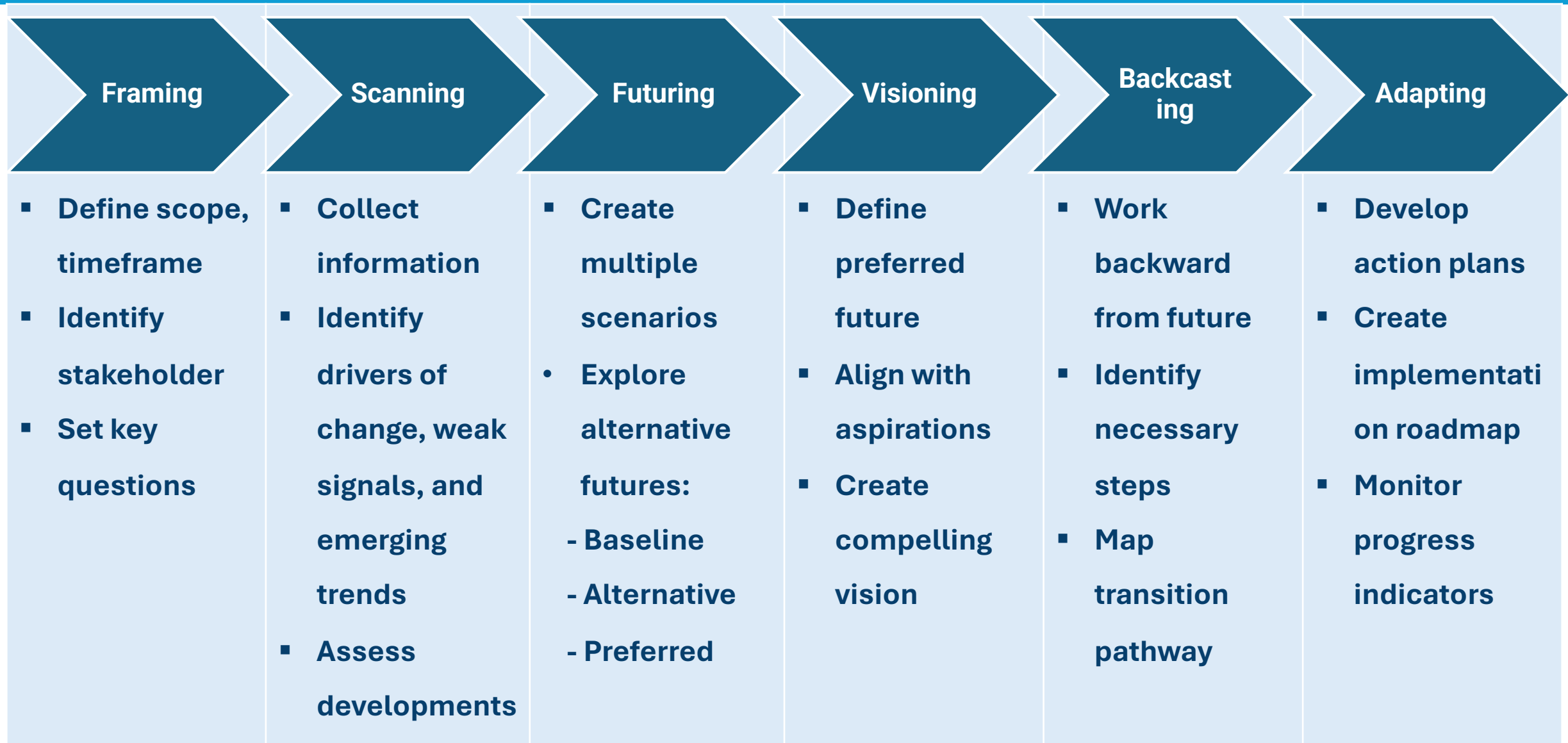
Take action

These are the tools that have to do with bringing the future back to the present. What transformations need to happen to bring about our desired future? What do we need to start doing now to move towards that future?

- ➢ **Back Casting**
- ➢ **Change Agenda**
- ➢ **Wind Tunnel Testing**

Source: UN Futures Lab (2023), UN Strategic Foresight Guide, pg12

Foresight Process Overview

Framing	Scanning	Futuring	Visioning	Backcasting	Adapting

▪ Define scope, timeframe
▪ Identify stakeholder
▪ Set key questions
	▪ Collect information
	▪ Identify drivers of change, weak signals, and emerging trends
	▪ Assess developments
		▪ Create multiple scenarios
		• Explore alternative futures:
		   - Baseline
		   - Alternative
		   - Preferred
			▪ Define preferred future
			▪ Align with aspirations
			▪ Create compelling vision
				▪ Work backward from future
				▪ Identify necessary steps
				▪ Map transition pathway
					▪ Develop action plans
					▪ Create implementation roadmap
					▪ Monitor progress indicators

Scenarios - examples

Post Anthropocene

Scenario 1: In 2050, societies are highly divided, unequal and suppressed. Most of the Earth's ecosystems are on a clearly chartered recovery plan.

2050 Scenarios: Four plausible futures

Arup created these scenarios to visualize alternative futures to challenge assumptions, identify desirable outcomes, and inform critical decisions about our built environment.

Humans Inc.

Scenario 4: The world in 2050 is shaped by three decades of gradual societal improvement, coupled with half-hearted environmental stewardship.

Greentocracy

Scenario 2: The world of 2050 boasts a balanced biosphere: humanity and 'spaceship Earth' are thriving in harmony.
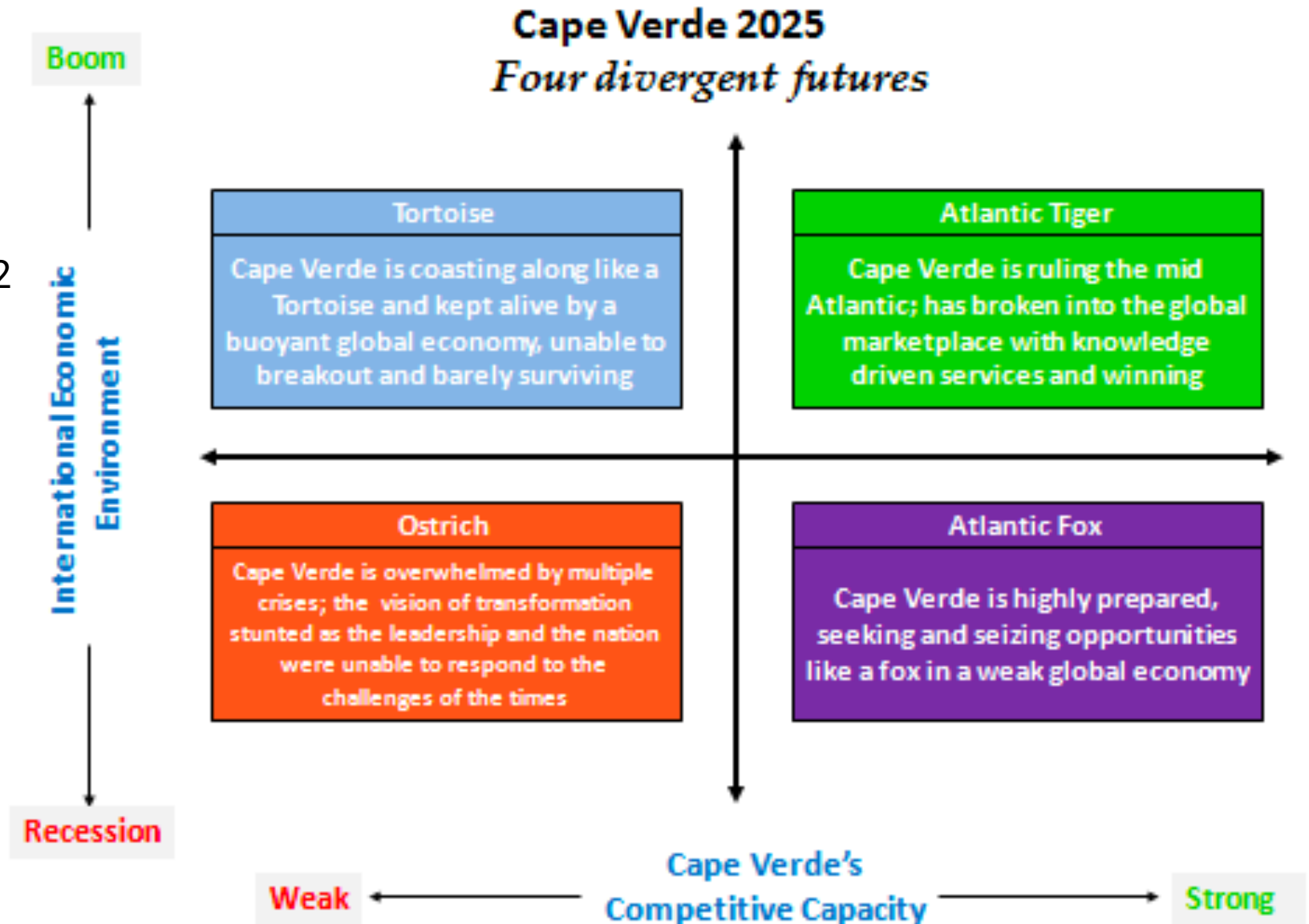

Extinction Express

Scenario 3: The mid-21st century is marked by the extensive degradation of planetary and human conditions.

Source: Arup, (2019), "2050 Scenarios: Four Plausible Futures"

Scenarios - examples

These scenarios developed in 2012 explore how internal capacity and external economic conditions interact to shape development paths for a small island nation.

Cape Verde 2025
Four divergent futures

Boom

International Economic Environment

Recession

Weak ← Cape Verde's Competitive Capacity → Strong

Tortoise
Cape Verde is coasting along like a Tortoise and kept alive by a buoyant global economy, unable to breakout and barely surviving

Atlantic Tiger
Cape Verde is ruling the mid Atlantic; has broken into the global marketplace with knowledge driven services and winning

Ostrich
Cape Verde is overwhelmed by multiple crises; the vision of transformation stunted as the leadership and the nation were unable to respond to the challenges of the times

Atlantic Fox
Cape Verde is highly prepared, seeking and seizing opportunities like a fox in a weak global economy

Strategic Foresight and SDG Implementation

The SDGs require long-term vision and adaptability to changing global trends.

Scenario planning reveals future barriers and accelerators, helping prioritize SDG investments.

Long-term SDG success requires anticipating disruptions - for example, climate policies must consider future energy transitions, as countries investing in coal today risk stranded assets when carbon pricing becomes widespread.

Cross-sector SDG collaboration improves when stakeholders share a common vision of future challenges.

Adaptive governance models informed by foresight enable rapid policy adjustments to maintain SDG progress.

Systems Thinking and Strategic Foresight for Public Sector Innovation

Governments must **embed ST and SF** as **ongoing, adaptive processes** to enhance **resilience, sustainability, and policy coherence**.

Anticipatory Governance ensures policies remain **future-ready, adaptive, and integrated across sectors**.

Why Innovation in Governance?

➢ Rapid changes demand adaptive, forward-thinking policies
➢ Traditional approaches struggle with emerging technologies and climate vulnerabilities

Benefits

➢ Anticipating Disruptions: Detects emerging trends early (climate change, digital transformation)
➢ Breaking Silos: Promotes cross-sector collaboration for integrated solutions
➢ Agile Policy Development: Enables experimental approaches (regulatory sandboxes, policy labs)
➢ Resilient Decision-Making: Shifts from reactive to proactive governance

Challenges

➢ Institutional Resistance: Prioritizing short-term stability
➢ Siloed Decision-Making: Limited cross-sector collaboration
➢ Capacity Gaps: Insufficient tools and expertise

Embedding Strategic Foresight & Systems Thinking drives experimentation, adaptability, and long-term resilience.

DESA's capacity building in SIDS on Systems Thinking and Strategic Foresight

🔵 **Seychelles**
- ➤ Trained **20 government officials, CEOs, and financial analysts** in foresight tools for **future-ready policymaking**.
- ➤ Enhanced **inter-ministerial coordination**, aligning strategies for **SDG 16 & SDG 17**.

🌱 **Mauritius**
- ➤ Strengthened **strategic foresight capacity** for **climate change scenario planning**.
- ➤ Integrated foresight into **national sustainability strategies** to improve long-term resilience.

🔍 **Impact**:
- ➤ Supports **forward-looking, adaptive policymaking** in SIDS.
- ➤ Embeds foresight in government planning to **enhance resilience and policy coherence**.

Thank You