

SYSTEMS THINKING  
RESEARCH & LEADERSHIP  
DEVELOPMENT INSTITUTE

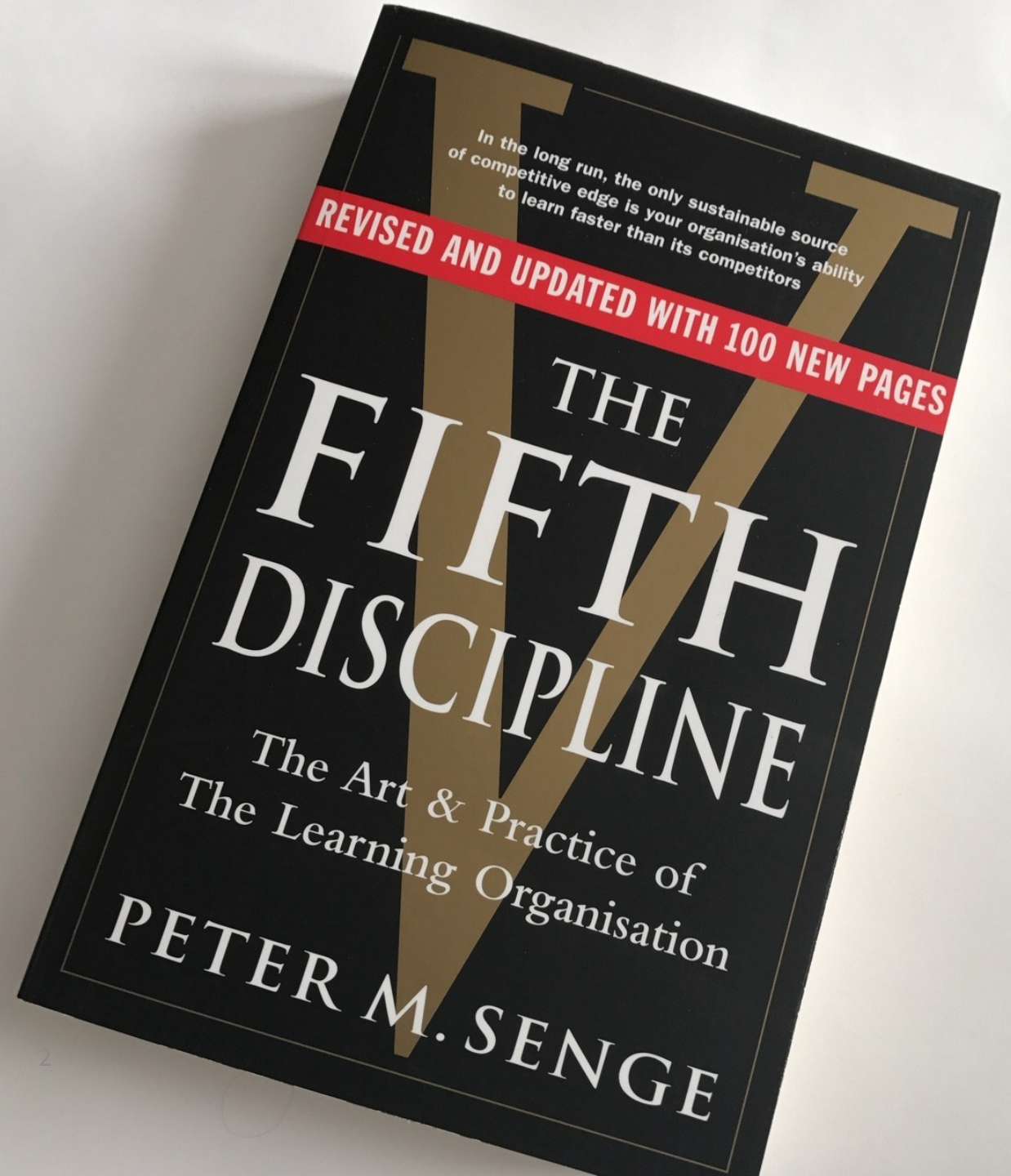
— THE NATIONAL STRATEGY FIRM —

STRLDi

**SHEILA  
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LEAD CONSULTANT

**SYSTEMS THINKING  
RESEARCH & LEADERSHIP  
DEVELOPMENT INSTITUTE  
(STRLDi), BOTSWANA**

Sheila Damodaran STRLDi – Systems Thinking  
Research & Leadership Development Institute



# Our Profile

## **STRLDi**

- Systems Thinking Research Institute
- Leadership Development Institute
- On contract with Office of the President from 2008-2012, taught public servant leadership across the country The Fifth Discipline, pending research and strategy formulation for NDP input

## **PINNACLE FOODS:**

- Food manufacturing & franchising (2012 in development)
- Brand conception and development (My Farmhouse Kitchens) as prelude to manufacturing
- Commercial horticulture seedlings production (2020 – 2023)
- Farmers' Learning Centre – short-term workshops for horticulture farmers (2022 – present)

# Objectives for the Engagement

- **Acknowledge the moment** — Grateful for the opportunity to have the Institute's work heard by a former President.
- **Open the presidential conversation** — Explore whether the study can provide a basis for **past and present Presidencies to jointly examine the systemic structures that keep reproducing persistent national challenges and draining resources without commensurate change.**
- **Move the needle** — Determine what it would take for Botswana and Southern Africa to **build productive capability, diversify their economies and expand formal employment fast enough to eliminate persistent unemployment**, while strengthening the region's position in the global economy.



# STRLDi Unemployment Study Presentation Roadmap

1. Botswana's Historical Response to Unemployment
2. Why the Problem Persists Despite 50 Years of Intervention
3. Systems Thinking and the Study Methodology
4. Behaviour Over Time: What the Data Reveals
- 5. Structural Drivers of Persistent Unemployment**
- 6. Productive Sector Analysis:**
  - Agriculture • Manufacturing • Retail • Government
- 7. STEM Capability and Labour Absorption Constraints**
- 8. Household Stability and Long-Term Capability Formation**
9. The STRLDi Structural Recommendations
10. National Implementation Pathway
11. National Systemic Integration & NDP Alignment
12. Discussion: Implications for Botswana's Future Development Strategy



# Botswana: Typical Strategies Adopted Over the past 50 years

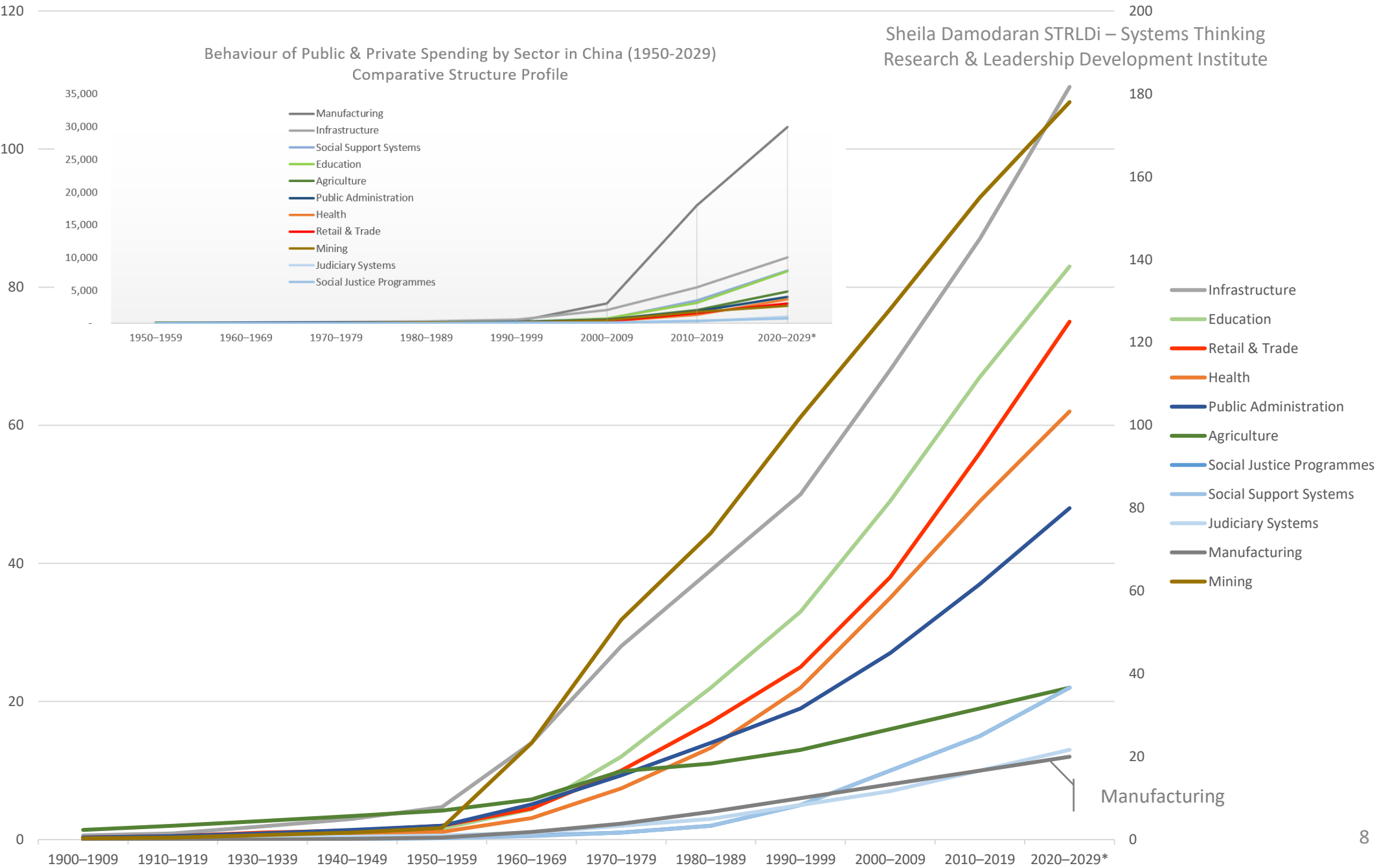
- Public Sector Expansion
- Education Expansion Strategy
- Youth & Labour-Based Public Works Programmes
- Citizen Economic Empowerment Schemes
- Economic Stimulus & Diversification Strategies
- Foreign Direct Investment (FDI) Attraction
- Agricultural Support Programmes
- Infrastructure-Led Development
- Poverty Alleviation & Social Protection Programmes
- Government-Led Market Creation Programmes
- National Planning & Reform Approaches



## Behavior of Public & Private Spending By Sector in Botswana 1900 -2029

| Years / Period | SOCIAL / ADMINISTRATIVE SECTORS |         |                |                       |                           |                        |                   | CORE PRODUCTIVE SECTORS |               |         |                     |
|----------------|---------------------------------|---------|----------------|-----------------------|---------------------------|------------------------|-------------------|-------------------------|---------------|---------|---------------------|
|                | Education                       | Health  | Infrastructure | Public Administration | Social Justice Programmes | Social Support Systems | Judiciary Systems | Agriculture             | Manufacturing | Mining  | Retail & Trade      |
| 1900–1909      | 0.2                             | 0.1     | 0.6            | 0.3                   | 0                         | 0                      | 0.1               | 1.4                     | 0             | 0.3     | 0.3                 |
| 1910–1919      | 0.3                             | 0.2     | 0.9            | 0.5                   | 0                         | 0                      | 0.1               | 2                       | 0             | 0.5     | 0.5                 |
| 1930–1939      | 0.6                             | 0.4     | 1.9            | 0.9                   | 0                         | 0                      | 0.5               | 2.7                     | 0             | 1.1     | 1                   |
| 1940–1949      | 0.9                             | 0.7     | 3              | 1.4                   | 0.1                       | 0.1                    | 0.4               | 3.4                     | 0.1           | 1.7     | 1.3                 |
| 1950–1959      | 1.6                             | 1.1     | 4.7            | 2                     | 0.2                       | 0.2                    | 0.6               | 4.2                     | 0.3           | 2.8     | 2                   |
| 1960–1969      | 4.4                             | 3.1     | 14             | 5.1                   | 0.6                       | 0.5                    | 1                 | 5.8                     | 1.1           | 23.3    | 4.5                 |
| 1970–1979      | 12                              | 7.4     | 28             | 9.3                   | 1                         | 1                      | 2                 | 9.9                     | 2.3           | 53      | 10                  |
| 1980–1989      | 22                              | 13.3    | 39             | 14                    | 2                         | 2                      | 3                 | 11                      | 4             | 74      | 17                  |
| 1990–1999      | 33                              | 22      | 50             | 19                    | 5                         | 5                      | 5                 | 13                      | 6             | 102     | 25                  |
| 2000–2009      | 49                              | 35      | 68             | 27                    | 10                        | 10                     | 7                 | 16                      | 8             | 128     | 38                  |
| 2020–2029*     | 83                              | 62      | 109            | 48                    | 22                        | 22                     | 13                | 22                      | 12            | 178     | 75                  |
| Rank           | 3                               | 5       | 2              | 6                     | 8                         | 8                      | 10                | 7                       | 10            | 1       | 4                   |
| TOTAL          | P274.50                         | P194.60 | P407.50        | P165.20               | P55.90                    | P59.70                 | P42.90            | P113.00                 | P43.80        | P720.60 | P230.60<br>P2308.3B |

Behaviour of Public & Private Spending by Sector in Botswana (1900-2029)



# Botswana's Economic Structure – Shift in Dominance

## BOTSWANA ECONOMIC STRUCTURE BY GVA: SECTOR RANKING OVER TIME

Ranked by Share of Gross Value Added (GVA)

| 1960                                                                                                            | 1980                                                                                                            | 2000                                                                                                              | 2020                                                                                                              | 2024                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|  <b>Agriculture</b><br>43.0%   |  <b>Industry</b><br>48.3%      |  <b>Industry</b><br>47.5%      |  <b>Market-facing</b><br>47.4% |  <b>Market-facing</b><br>42.6% |
|  <b>Market-facing</b><br>33.3% |  <b>Market-facing</b><br>23.4% |  <b>Market-facing</b><br>30.7% |  <b>Government</b><br>16.8%    |  <b>Industry</b><br>32.9%      |
|  <b>Government</b><br>10.0%    |  <b>Government</b><br>9.5%     |  <b>Government</b><br>13.2%    |  <b>Industry</b><br>27.1%      |  <b>Government</b><br>16.9%    |
|  <b>Industry</b><br>13.3%      |  <b>Agriculture</b><br>14.0%   |  <b>Manufacturing</b><br>5.8%  |  <b>Manufacturing</b><br>5.5%  |  <b>Manufacturing</b><br>4.9%  |
|  <b>Manufacturing</b><br>0.5%  |  <b>Manufacturing</b><br>4.8%  |  <b>Agriculture</b><br>2.9%    |  <b>Agriculture</b><br>2.1%    |  <b>Agriculture</b><br>1.6%    |
|  <b>Diamond</b><br>0.0%        |  <b>Diamond</b><br>0.0%        |  <b>Diamond</b><br>0.0%        |  <b>Diamond</b><br>1.0%        |  <b>Diamond</b><br>1.0%        |



= Largest sector



= Second largest



= Third largest



= Fourth largest



= Fifth largest



= Sixth largest



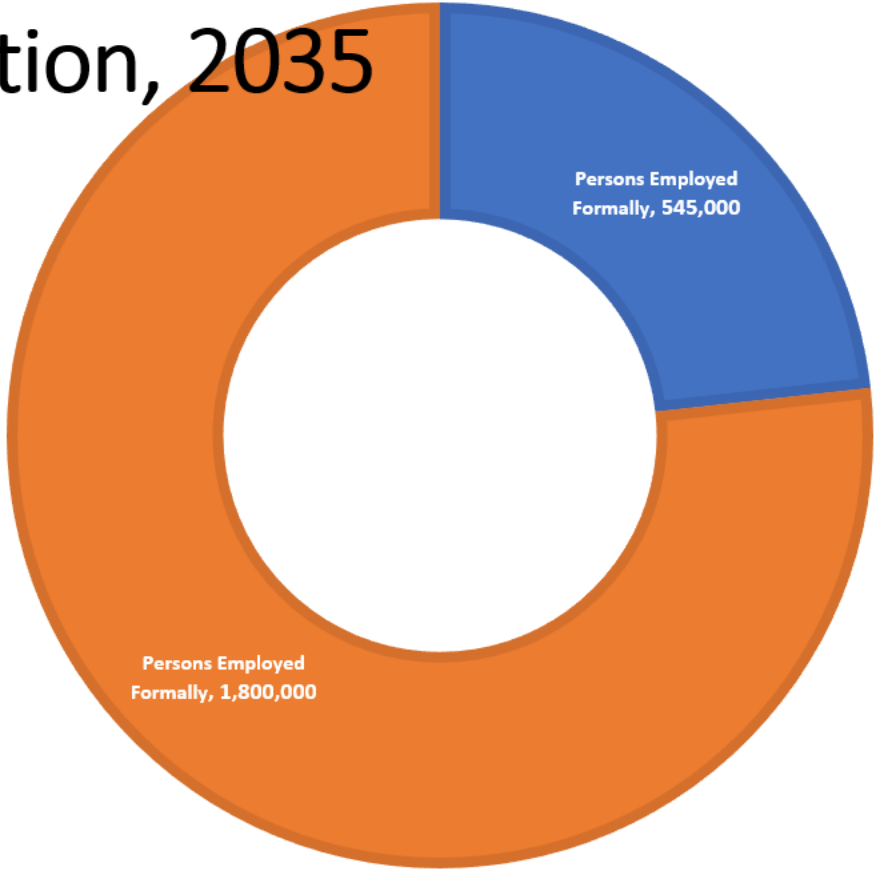
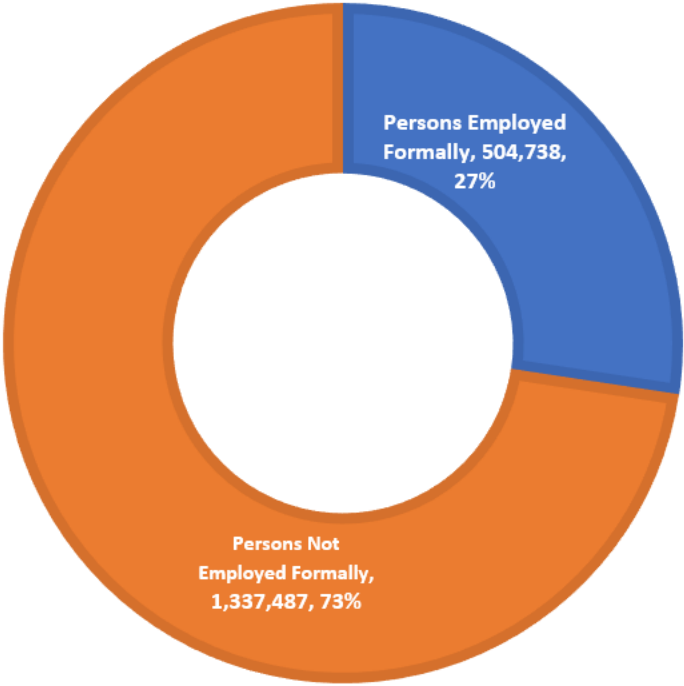
**Key Insight:** Botswana's economic structure has transformed over time: from Agriculture-led (1960) → Industry-led (1980 & 2000) → Market-facing-led (2020 & 2024), while Government has remained consistently among the top three sectors.

**But economic dominance does not tell us employment capacity.  
That is the next question.**



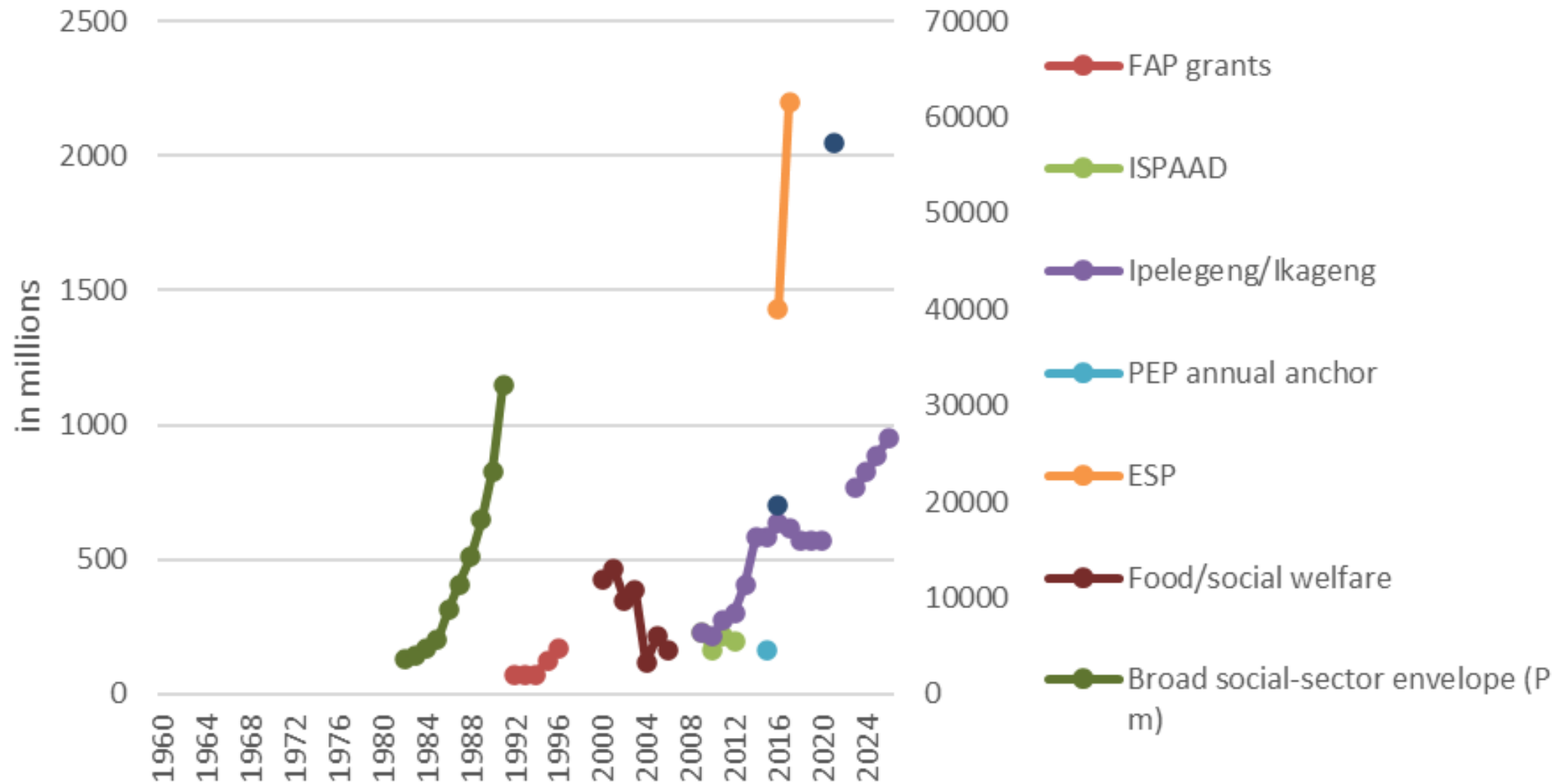
# BOTSWANA'S LARGEST UNTAPPED ECONOMIC RESOURCE

## Distribution of Employable Population, 2035



| Year | Population | Employable Population | %   | Persons Employed Formally | %   | Persons Not Employed Formally | %   | Persons Likely Employed Informally | %   | Unemployed           | %   |
|------|------------|-----------------------|-----|---------------------------|-----|-------------------------------|-----|------------------------------------|-----|----------------------|-----|
| 2024 | 2,763,338  | 1,842,225             | 67% | 504,738                   | 27% | 1,337,487                     | 73% | 784,820                            | 43% | 552,668 <sup>9</sup> | 30% |
| 2035 | 3,500,000  | 2,345,000             | 67% | 545,000                   | 23% | 1,800,000                     | 77% | 1,058,000                          | 45% | 742,000              | 30% |

## The Growing Financial Response to Unemployment: Productive Intervention, Employment Relief and Social Support, 1980–2026



# GDP: Three Ways of Measuring the Same Economy

## PRODUCTION

- **GDP = GVA + Taxes on Products – Subsidies on Products**
- *What is produced?*

## EXPENDITURE

- **GDP = Consumption + Investment + Government Spending + (Exports – Imports)**
- *What is spent on the economy's output?*

## INCOME

- **GDP = Labour Income + Operating Surplus + Mixed Income + Taxes – Subsidies**
- *How is the value created distributed as income?*

# Gross Value Added by Sector

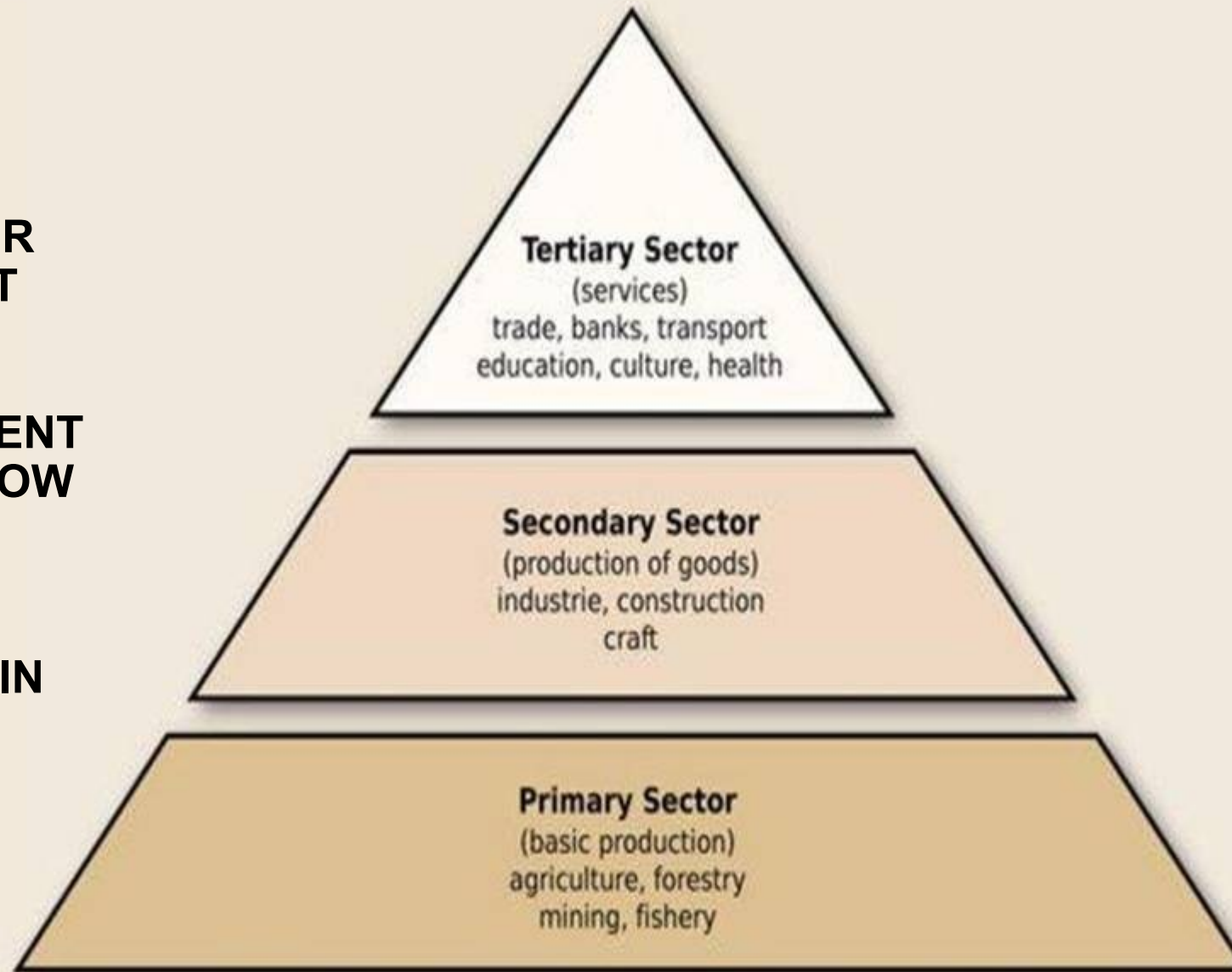
Current Prices — BWP Millions (1960 - 2024)

| Year | GVA    | Agriculture   | Manufacturing  | Diamond       | Industry       | Market-facing   | Government     |
|------|--------|---------------|----------------|---------------|----------------|-----------------|----------------|
| 1960 | ABS    | 9,376,400     | 100,000        | 0             | 2,891,800      | 7,255,590       | 2,169,310      |
|      | %      | 43.0%         | 0.5%           | 0.0%          | 13.3%          | 33.3%           | 10.0%          |
|      | GROWTH |               |                |               |                |                 |                |
|      | RANK   | 1             | 5              | 6             | 3              | 2               | 4              |
| 1980 | ABS    | 104,750,000   | 36,300,000     | 0             | 361,900,000    | 175,275,000     | 71,325,000     |
|      | %      | 14.0%         | 4.8%           | 0.0%          | 48.3%          | 23.4%           | 9.5%           |
|      | GROWTH | 1017.2%       | 36200.0%       | 0.0%          | 12414.7%       | 2315.7%         | 3187.9%        |
|      | RANK   | 3             | 5              | 6             | 1              | 2               | 4              |
| 2000 | ABS    | 825,300,000   | 1,661,700,000  | 0             | 13,673,000,000 | 8,826,491,000   | 3,797,059,000  |
|      | %      | 2.9%          | 5.8%           | 0.0%          | 47.5%          | 30.7%           | 13.2%          |
|      | GROWTH | 687.9%        | 4477.7%        | 0.0%          | 3678.1%        | 4935.8%         | 5223.6%        |
|      | RANK   | 5             | 4              | 6             | 1              | 2               | 3              |
| 2020 | ABS    | 3,644,700,000 | 9,698,900,000  | 1,725,520,000 | 47,497,300,000 | 83,019,020,000  | 29,449,980,000 |
|      | %      | 2.1%          | 5.5%           | 1.0%          | 27.1%          | 47.4%           | 16.8%          |
|      | GROWTH | 341.6%        | 483.7%         | 0.0%          | 247.4%         | 840.6%          | 675.6%         |
|      | RANK   | 5             | 4              | 6             | 2              | 1               | 3              |
| 2024 | ABS    | 4,250,000,000 | 12,999,000,000 | 2,631,400,000 | 87,494,000,000 | 113,242,060,000 | 44,996,940,000 |
|      | %      | 1.6%          | 4.9%           | 1.0%          | 32.9%          | 42.6%           | 16.9%          |
|      | GROWTH | 16.6%         | 34.0%          | 52.5%         | 84.2%          | 36.4%           | 52.8%          |
|      | RANK   | 5             | 4              | 6             | 2              | 1               | 3              |

## Key Structural Insights

1. Total GVA has grown **from P21.7 Million in 1960** to nearly **P250 Billion by 2024**, demonstrating massive nominal expansion.
2. The **'Productive Spine'** (Agriculture and Manufacturing) **has thinned significantly** relative to overall GVA, exemplifying the Shifting the Burden archetype.
3. **Market-Facing services and Government sectors have expanded dramatically**, absorbing the bulk of economic value.
4. Diamond Manufacturing has been supported as a key strategic value chain since 2005, contributing to mineral beneficiation.

**CAPACITY FOR  
EMPLOYMENT  
BY SECTOR  
WHEN  
UNEMPLOYMENT  
RATES ARE LOW  
& A ROBUST  
RESOURCE  
DEPENDANT  
ECONOMY IS IN  
PLACE**



Sectoral structure of an economy

[www.regionales-wirtschaften.de](http://www.regionales-wirtschaften.de)



# Economic Healing Starts with National Attitude

## THE POISON

### Conduit Economy

TYPE: KEY FINDING: Earnings pass through the economy like a pipe, immediately leaking out via imports.

IMPORTS

ESTABLISHED ROUTES



#### THE "SYMPTOMATIC" RELIEF TRAP

Quick-relief solutions provide temporary stability but cause the core productive capability to wither



#### ALLOCATION BY DEFAULT

Economic flows are shaped by intermediaries and established routes rather than coordinated local planning

**60–80%**  
of National Income  
Exits the System

### Container Economy

TYPE: KEY FINDING:  
The Interlocking Gears of Local Multiplication: Wealth compounds when STEM, manufacturing, and agricultural science work in a coordinated loop.

SHIFT FROM  
CONDUIT TO  
CONTAINER



#### FAMILY STABILITY AS THE "FIRST ECONOMY"

Intact households provide the cognitive discipline and long-horizon mindset required for technical mastery



#### REBUILDING THE PRODUCTIVE SPINE

Shifting from consuming imports to producing with a clear view of market absorption

## THE HERBS





# Core Research Question

- What structures, behaviours, assumptions, and feedback processes continue reproducing this condition across time — and what leverage exists to change its trajectory?

## STRLDi Principle

- Persistent conditions cannot be understood through events alone. Systems Thinking begins by learning to see patterns before events, and structures before interventions.

# THE INTENT OF THE FIVE DISCIPLINES

- **Why Peter Senge Called Them Disciplines**
- The Five Disciplines are called disciplines because they require **continuous practice**. They are not techniques to be learned once, but capacities that develop over a lifetime.
- Their purpose is not simply organisational improvement. Their deeper purpose is to expand our ability to **see, learn, and act within complex human systems**.
- The disciplines work together to help individuals, teams, organisations, and societies move beyond reacting to events toward understanding the structures producing those events.

# OBJECTIVE OF OUR RESEARCH STUDIES

## Understanding Why Persistent Conditions Persist

- **Focus on persistent national, regional, and global conditions** such as unemployment, poverty, economic stagnation, declining institutional performance, environmental degradation, health outcomes, educational outcomes, and social fragmentation.
- **Study Behaviour Over Time** to distinguish recurring patterns from isolated events and identify how conditions reproduce themselves across years, decades, and generations.
- **Move beyond symptoms, events, and root causes** to uncover the reinforcing structures, feedback processes, systemic archetypes, and mental models sustaining persistence.
- **Help leaders develop structural understanding** of the conditions they seek to change, strengthening their ability to identify leverage points for lasting improvement.
- **Build capability while conducting research**, enabling participants to learn the tools, disciplines, and practices required to continue systemic inquiry independently.
- **Support cross-sector strategy development**, recognising that persistent conditions rarely originate within a single institution, ministry, industry, or stakeholder group.
- **Generate transferable learning** so that lessons from one region, nation, sector, or challenge can inform understanding elsewhere.



# What the Disciplines Help Us See

- Without disciplined practice, **attention** naturally gravitates toward:
  - Events
  - Crises
  - Symptoms
  - Operational pressures
  - Immediate fixes
- The disciplines **help us** develop the capacity to see:
  - Behaviour Over Time
  - reinforcing and balancing feedback
  - systemic archetypes
  - mental models shaping perception'
  - shared futures worth creating

# Why This Matters Today

- Many institutions have become highly sophisticated at managing **detailed complexity**.
- Far fewer have developed the capacity to recognise **dynamic complexity** — the reinforcing structures and delayed consequences that quietly reproduce conditions across years, decades, and generations.
- As a result:
  - we often respond to consequences rather than causes
  - we treat recurring patterns as isolated events
  - we become trapped in cycles of reaction and intervention



# The Deeper Purpose of the Five Disciplines

- The Five Disciplines help build the capacity to:
  - think systemically
  - learn collectively
  - surface assumptions
  - strengthen long-term vision
  - recognise recurring structures
  - act from understanding rather than reaction

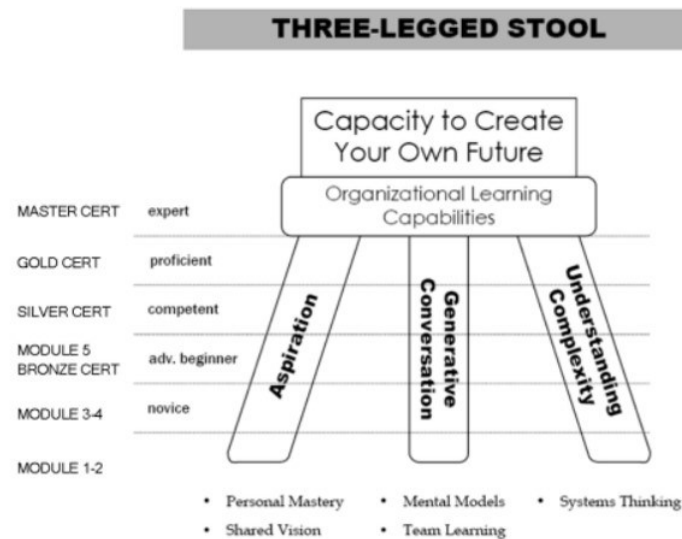
## **The Core Insight**

- Systems Thinking begins by learning to see patterns before events.
- The Five Disciplines exist to help human beings develop that capacity together.

# TOOLS OF THE FIFTH DISCIPLINE

## THE FIFTH DISCIPLINE OVERVIEW – INTENT: MANAGE CHANGE SEAMLESSLY

Incredible Tools for Unlocking The Secret To Understanding & Learning To  
Work With Our Realities



### TOOLS OF THE LEARNING ORGANISATION!

#### A ONE-PAGE SUMMARY OF THE FIFTH DISCIPLINE, THE ART AND PRACTICE OF THE LEARNING

| Personal Mastery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Shared Vision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Mental Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Team Learning                                                                                                                                                                                                                                                                                                                                                                                                                               | Systems Thinking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRACTICES AND PRINCIPLES:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>CLARIFYING PERSONAL VISION</li> <li>HOLDING CREATIVE TENSION (FOCUS ON RESULTS AND SEEK CURRENT REALITY)</li> <li>MAKING CHOICES</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>VISIONING PROCESS</li> <li>ACKNOWLEDGING CURRENT REALITY</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>DISTINGUISHING "DATA" FROM ABSTRACTION BASED ON DATA</li> <li>TESTING ASSUMPTIONS</li> <li>"LEFT-HAND COLUMN"</li> </ul>                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>SUSPENDING ASSUMPTIONS</li> <li>ACTING AS COLLEAGUES</li> <li>SURFACING OWN DEFENSIVENESS</li> <li>"PRACTICING"</li> </ul>                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>SYSTEM ARCHETYPES</li> <li>SIMULATION</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>PRACTICE TOOLS:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>Personal Mastery goes beyond proficiency</li> <li>Creative Tension Model</li> <li>Personal Vision</li> <li>Holding Creative Tension</li> <li>Structural Conflict</li> <li>Commitment to the Truth</li> <li>Using the subconscious</li> <li>Integrating Reason and Intuition</li> <li>Seeing our connectedness to the world</li> <li>Compassion</li> <li>Commitment to the Whole</li> <li>Centering long enough to focus on what we want</li> <li>Crafting the Purpose Statement – 1<sup>st</sup> Choice</li> </ul> | <ul style="list-style-type: none"> <li>Encouraging Personal Vision</li> <li>From Personal to Shared Visions</li> <li>Spreading Visions                             <ul style="list-style-type: none"> <li>Enrolment</li> <li>Commitment</li> <li>Compliance</li> </ul> </li> <li>Guidelines for enrolment and commitment</li> <li>Anchoring Vision to Purpose and Values</li> <li>Positive versus Negative Vision</li> <li>Creative tension and commitment to the truth</li> <li>Why visions die prematurely</li> </ul> | <ul style="list-style-type: none"> <li>Planning as learning</li> <li>Managing mental models at personal and interpersonal levels</li> <li>Reflection Skills                             <ul style="list-style-type: none"> <li>Leaps of Abstraction or Ladder of Inference</li> <li>Left Hand Column</li> </ul> </li> <li>Inquiry Skills                             <ul style="list-style-type: none"> <li>Balancing Inquiry and Advocacy</li> </ul> </li> <li>Epoused Theory versus Theory-in-Use</li> <li>Double Loop Learning</li> </ul> | <ul style="list-style-type: none"> <li>Dialogue and Discussion                             <ul style="list-style-type: none"> <li>Participants suspend their assumptions</li> <li>Seeing each other as colleagues</li> <li>There must be a facilitator who "holds" the context</li> </ul> </li> <li>Dealing with Current Reality: Conflict and defensive</li> <li>The Missing Link: Practice</li> <li>Learning how "to practice"</li> </ul> | <ul style="list-style-type: none"> <li>11 laws of complexity</li> <li>Seeing circles of causality</li> <li>Balancing Loop</li> <li>Reinforcing Loop</li> <li>Delays</li> <li>Archetypes                             <ul style="list-style-type: none"> <li>Accidental Adversaries</li> <li>Balancing Loop with Delays</li> <li>Drifting Goals</li> <li>Escalation</li> <li>Fixes that Backfire</li> <li>Growth and Underinvestment</li> <li>Limits to Success</li> <li>Shifting the Burden</li> <li>Success to the Successful</li> <li>Tragedy of the Commons</li> </ul> </li> <li>Behavior Time Graphs</li> <li>Leverages</li> </ul> |
| <b>THE ESSENCE OF THE DISCIPLINE:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| The essence of Personal Mastery is learning how to generate and sustain creative tension in our lives                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Shared Vision is a force of "impressive power" that emerges when people share a desire to be connected in an important undertaking.                                                                                                                                                                                                                                                                                                                                                                                     | The essence of Mental Models is Learning to uncover deeply held internal images we have about how the world works, altering forever the way we think and create new ideas.                                                                                                                                                                                                                                                                                                                                                                   | Team Learning is the process of aligning and developing the capacity of a team to create the results it truly desire.                                                                                                                                                                                                                                                                                                                       | The Art of seeing the forest and the trees! Seeing through complexity to the underlying structures generating change.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

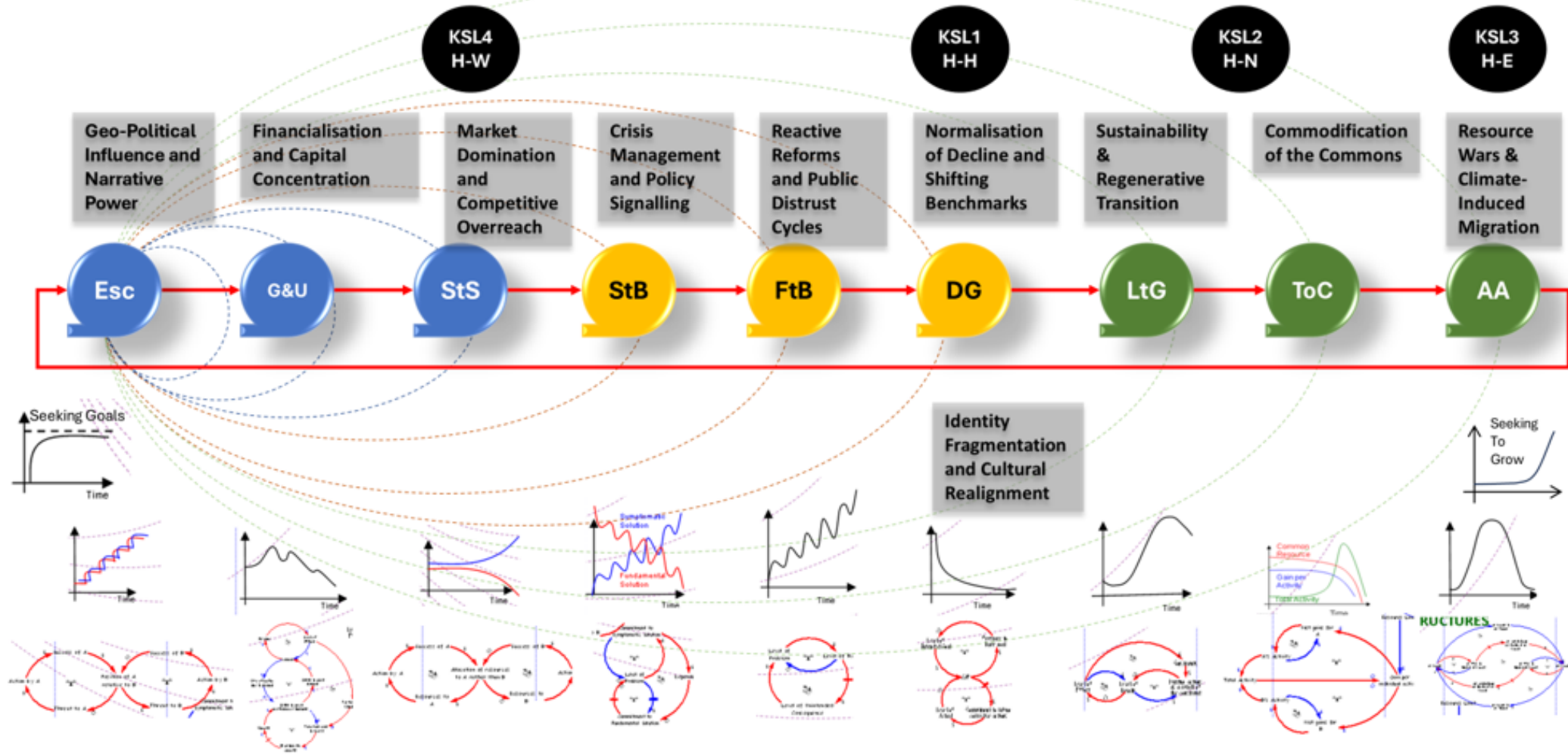
*As presented by Peter Senge in his signature book (compiled by Sheila)*

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# THE SYSTEMIC ONION FRAMEWORK

## Understanding How Systemic Archetypes Drive Persistent Patterns of Growth, Decline, and Renewal

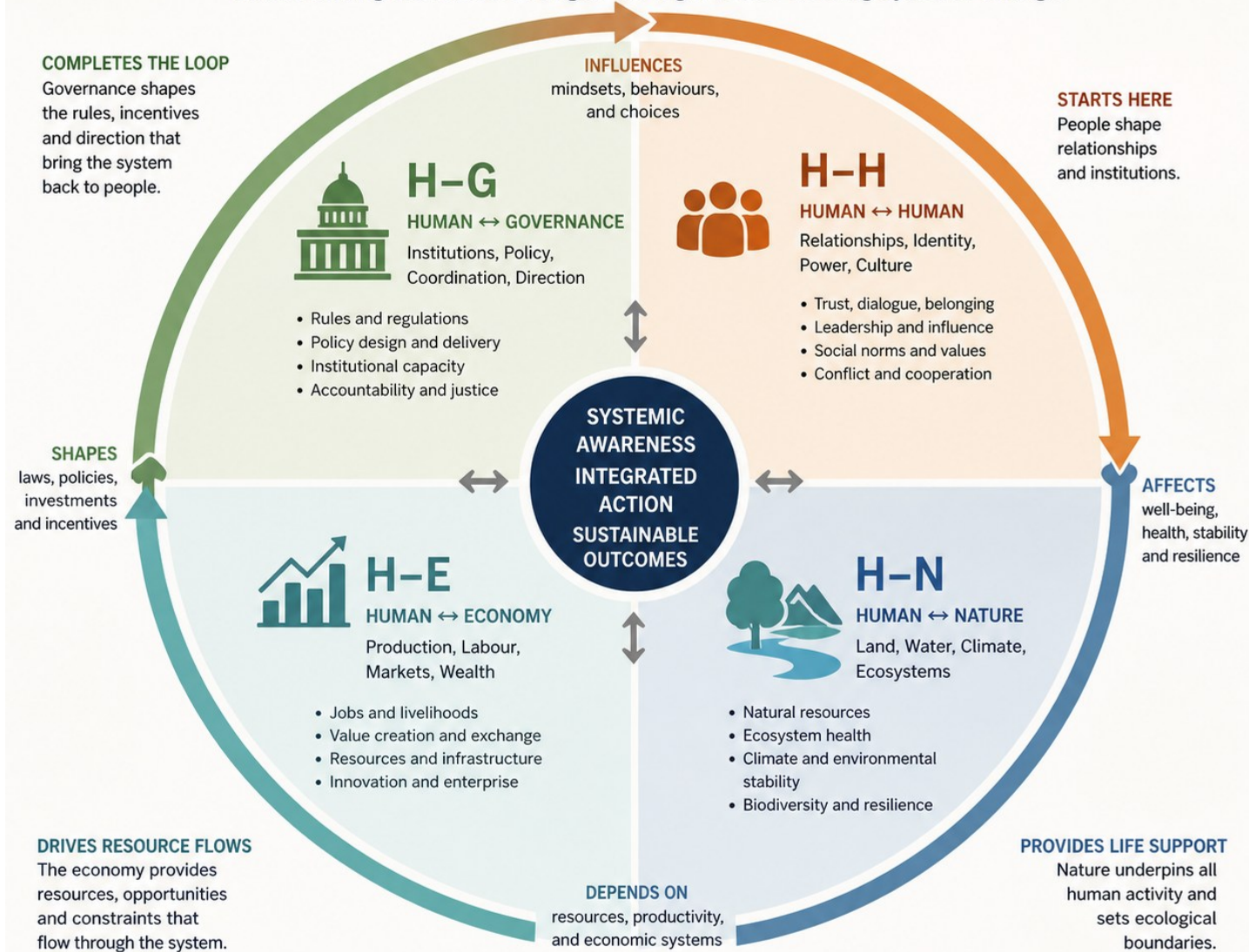
Developed by Ms Sheila Damodaran, STRLDi, integrating and extending the seminal systems archetype work of Peter Senge and his MIT team



# THE FOUR-QUADRANT SYSTEMS FRAMEWORK

Created by STRLDi 1st produced May 2005

Understanding the Whole. Acting in the Right Place. Creating Systemic Change.



**FEEDBACK LOOP:** Every action in one quadrant creates effects in the others.  
The system grows or declines based on the quality of our choices.

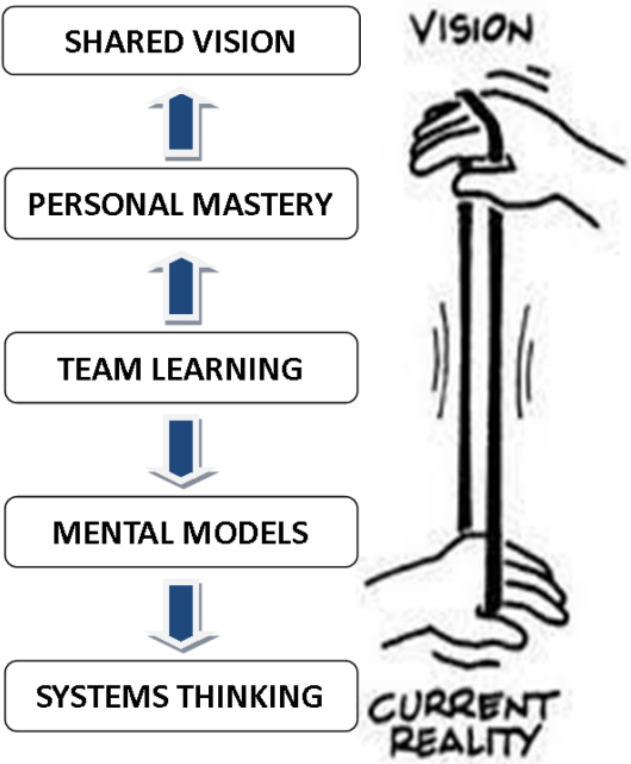
**NOT WISELY.  
CHOOSE SYSTEMICALLY.**





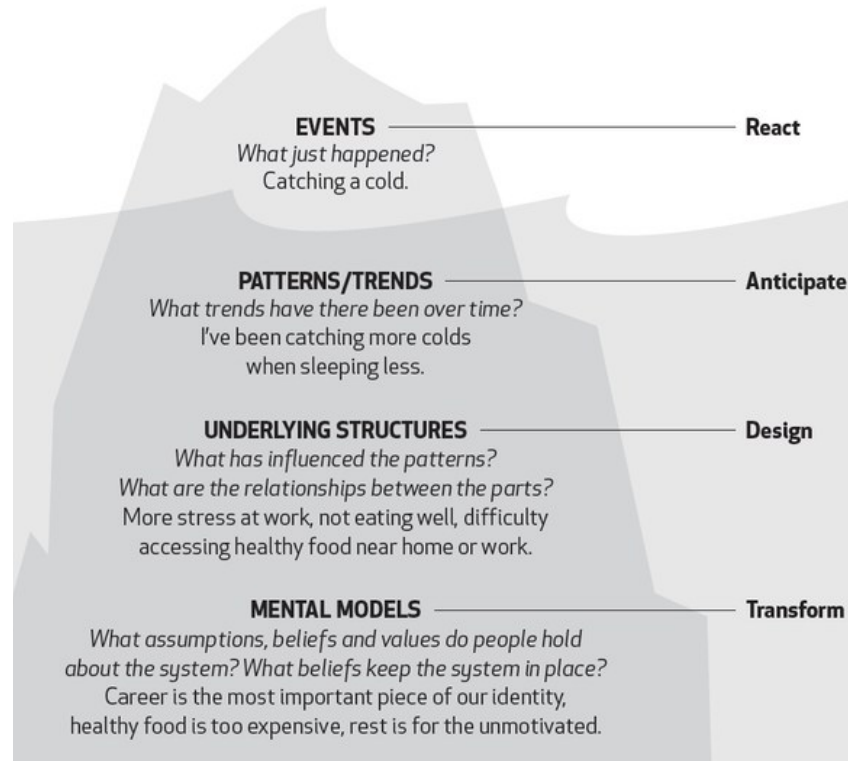
# KEY POINTS OF PRACTICE

## CREATIVE TENSION MODEL



## THE ICEBERG

**THE ICEBERG**  
*A Tool for Guiding Systemic Thinking*



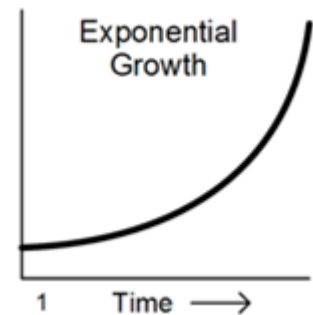
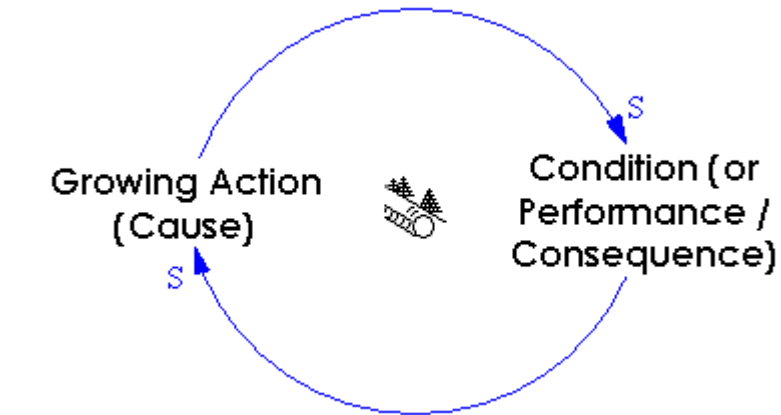
## DEFINITION OF SYSTEMS THINKING

- Systems Thinking is to **discipline us in seeing and understanding patterns** – looking beyond events – to deeper “structures” that control events and, discovering the leverage that lies hidden in these structures.
- The **essence** of the discipline lies in a shift of mind (pg 68):
  - See **interrelationships** rather than linear cause-effect chains, and
  - See **processes of change** rather than snapshots

# THERE ARE TWO DISTINCT PATTERNS IN SYSTEMS THINKING

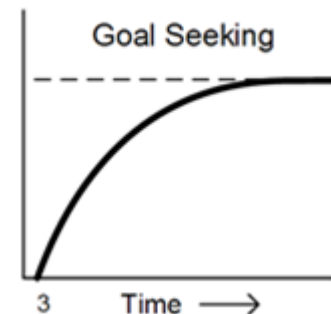
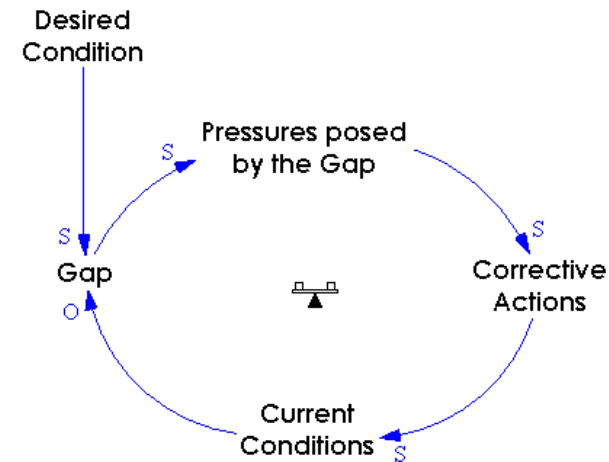
## REINFORCING LOOP

SEEKS TO GROW (NOT STABILISE)



## BALANCING LOOP

SEEKS TO STABILISE (NOT GROW)





# TIMELINE OF STUDY & RESULTS

- APR 2008 **STUDY FIRST MOOTED**
- MAR 2012 **RESEARCH GROUP FIRST FORMED**
- 2012-2018 RESEARCH ON HOLD PENDING STATISTICS BOTSWANA FORMATION
- AUG 2018 RE-INITIATION OF STUDY
- DEC 2018 DATA RECEIVED FROM STATISTICS BOTSWANA
- JAN 2019 **STUDY COMPLETED (in 2 weeks)**
- MAY 2019 PRESENTATION AT PS's FORUM, OFFICE OF THE PRESIDENT
- OCT 2019 NATIONAL ELECTIONS
- APR 2020 – AUG 2021 COVID LOCKDOWNS
- DEC 2021 ANNOUNCEMENT OF IMPORT BAN OF HORTICULTURE PRODUCE
- JUL 2024 IMPORT BAN LIST IS EXPANDED AND PERIOD EXTENDED TO DEC 2025
- NOV 2024 CHANGE OF PARTY POLITICAL SYSTEMS
- MAY 2026 PRESENTATION TO NPC LEADERSHIP



# BOTSWANA: PAST UNEMPLOYMENT STRATEGIES vs STRLDI STRUCTURAL RECOMMENDATIONS

## FROM

- PUBLIC SECTOR EXPANSION
- EDUCATION EXPANSION
- YOUTH & PUBLIC WORKS PROGRAMMES
- CITIZEN EMPOWERMENT SCHEMES
- ECONOMIC DIVERSIFICATION POLICIES
- FDI ATTRACTION
- AGRICULTURAL SUPPORT PROGRAMMES
- INFRASTRUCTURE-LED DEVELOPMENT
- POVERTY & SOCIAL SUPPORT PROGRAMMES
- NATIONAL PLANNING & REFORMS

## TO

- PRODUCTIVE-SECTOR DEEPENING
- STEM & PRODUCTIVE CAPABILITY STABILISATION
- LONG-HORIZON LABOUR ABSORPTION DESIGN
- PRODUCTIVE VALUE-CHAIN DEVELOPMENT
- STRUCTURAL DIVERSIFICATION CAPABILITY
- PRODUCTIVE-STRUCTURE READINESS
- AGRICULTURE–MANUFACTURING INTEGRATION
- PRODUCTIVE ECONOMIC ECOSYSTEMS
- REDUCING STRUCTURAL PRESSURE SOURCES
- SYSTEMS COORDINATION & BEHAVIOURAL LEARNING

# WHAT THE COUNTRY GAINS

- **6.25× HIGHER PER-CAPITA PROSPERITY**

-  Higher National Production
-  Stronger Consumer Demand
-  Higher Government Revenue
-  Higher GDP Growth
-  Stronger Household Prosperity

## STRATEGIC INSIGHT

- Unemployment is not merely a labour-market issue.
- It is one of the largest opportunity costs to national productivity, household income, fiscal sustainability, and economic growth.

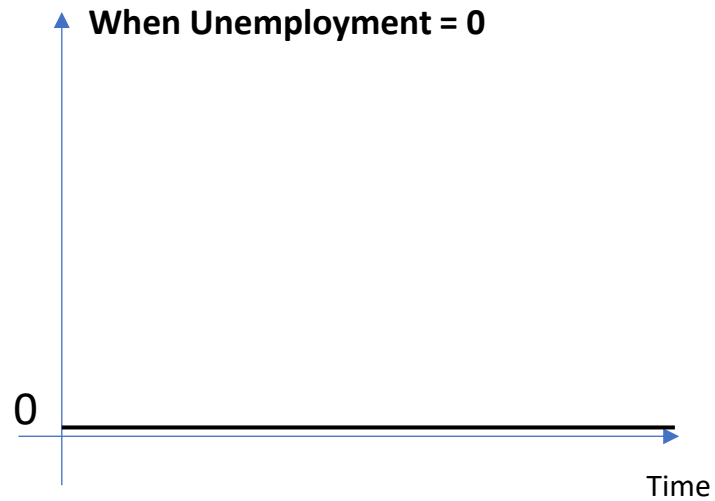
# WHAT CAUSES PERSISTENT UNEMPLOYMENT

SELF WORK. QUESTIONS:

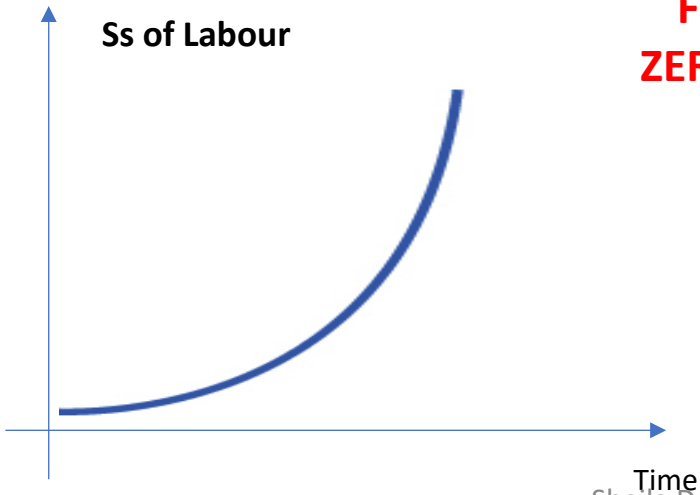
- IDENTIFY ORGANISATIONAL (GOVT, PTE, COMMUNITY, PROFESSIONALS) STAKEHOLDERS
- WHAT FILTERS TODAY MAY HAVE STOPPED THEM FROM LEARNING ABOUT THESE ALREADY?
- IDENTIFY IMPACT OF CAUSES THAT IMPACT YOUR ORGANISATION.



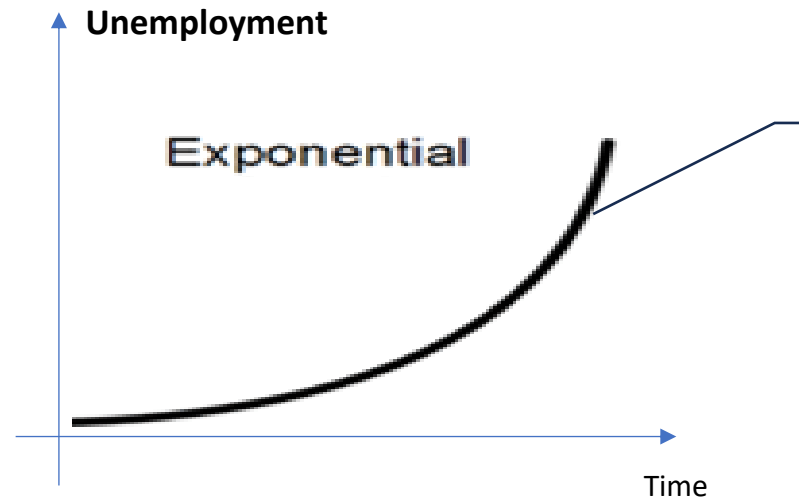
# DRILLING DOWN PERSISTENT NATIONAL UNEMPLOYMENT



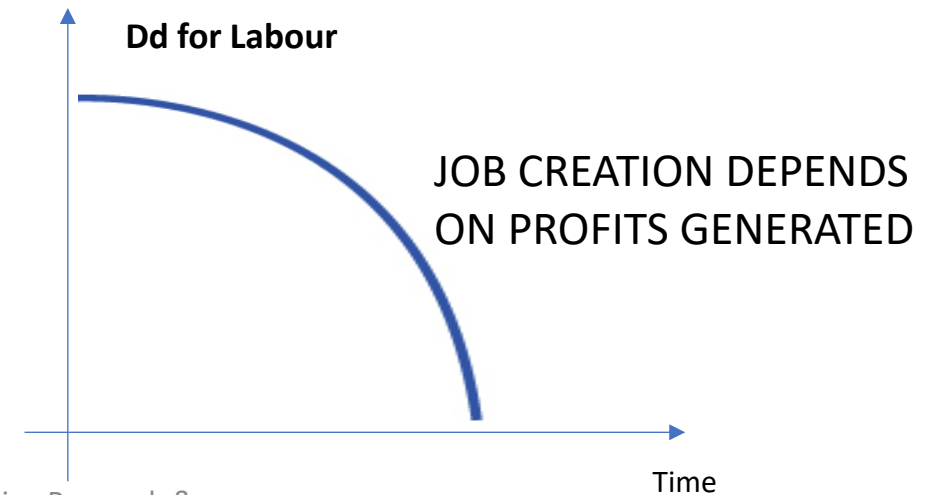
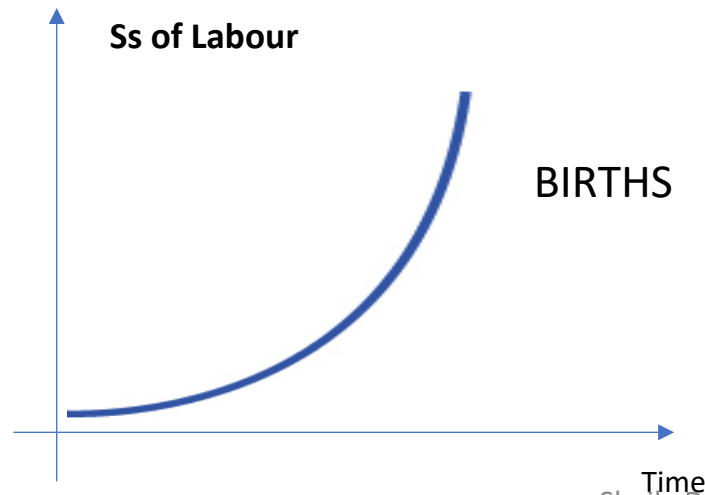
**SS = DD MEANS  
FULL EMPLOYMENT  
ZERO UNEMPLOYMENT**



# DRILLING DOWN PERSISTENT NATIONAL UNEMPLOYMENT



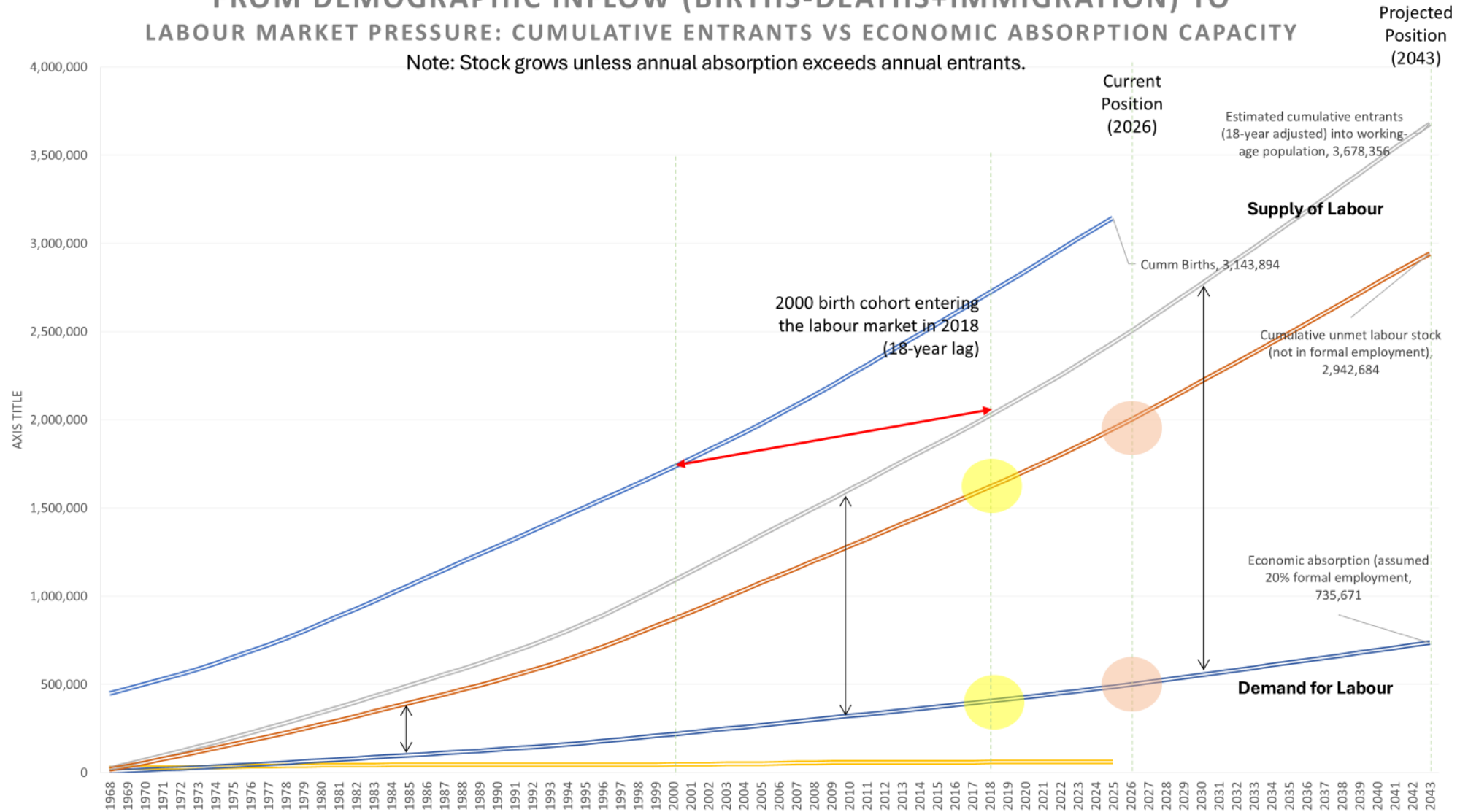
These graphs are indicating that a reinforcing causal loop structures are at play that are seeking to grow.





# FROM DEMOGRAPHIC INFLOW (BIRTHS-DEATHS+IMMIGRATION) TO LABOUR MARKET PRESSURE: CUMULATIVE ENTRANTS VS ECONOMIC ABSORPTION CAPACITY

Note: Stock grows unless annual absorption exceeds annual entrants.

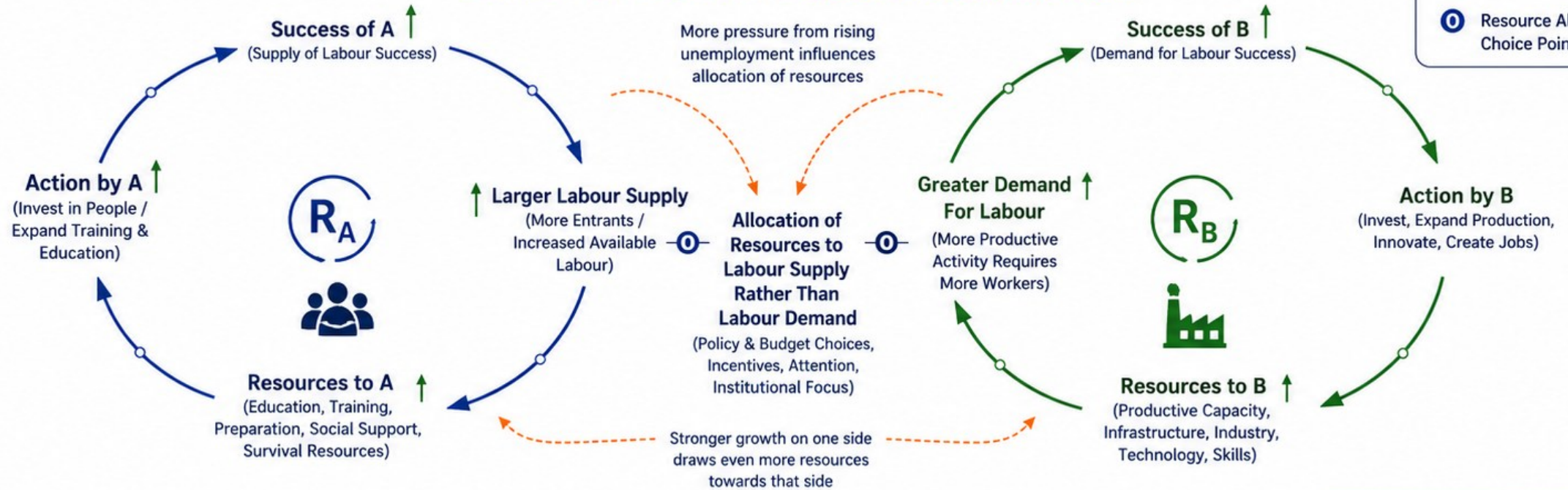


# SUCCESS TO THE SUCCESSFUL (StS) ARCHETYPE

## SUPPLY OF LABOUR vs DEMAND FOR LABOUR

### LEGEND

- R** Reinforcing Loop
- O** Resource Allocation Choice Point



### BEHAVIOUR OVER TIME (BOTS)



### RELEVANCE FOR BOTSWANA & SOUTHERN AFRICA



High labour supply from demographics and education expansion meets slower job creation in the productive sector.

Shifting resources towards productive capacity, innovation, and market expansion is essential to close the gap and create shared prosperity.

**THE SHIFT** From managing unemployment to building productivity.

➔ From resources to survival, to resources for opportunity.



Invest in People



Build Capabilities



Grow Productive Sectors



Expand Markets



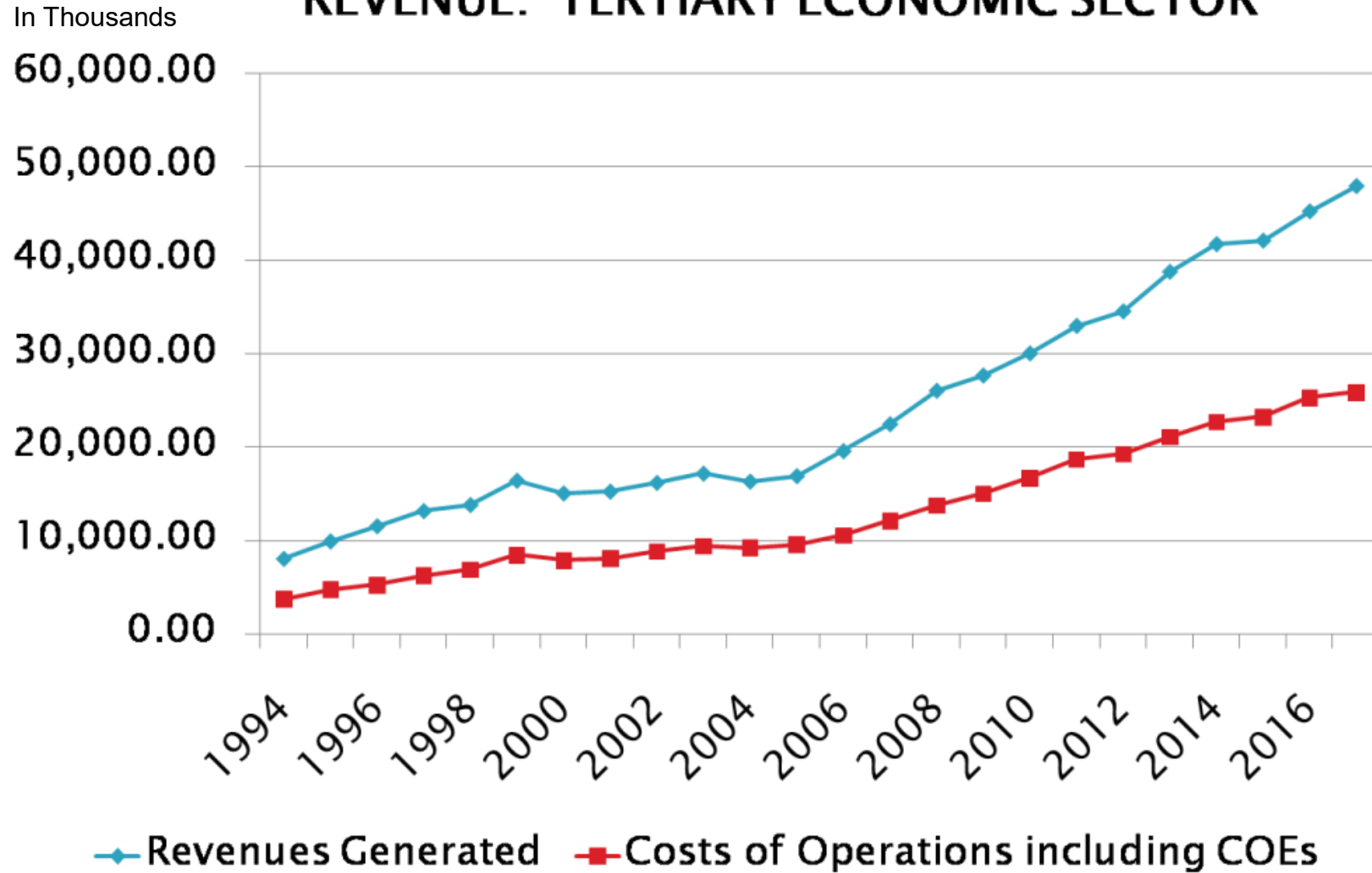
Create Jobs & Shared Prosperity



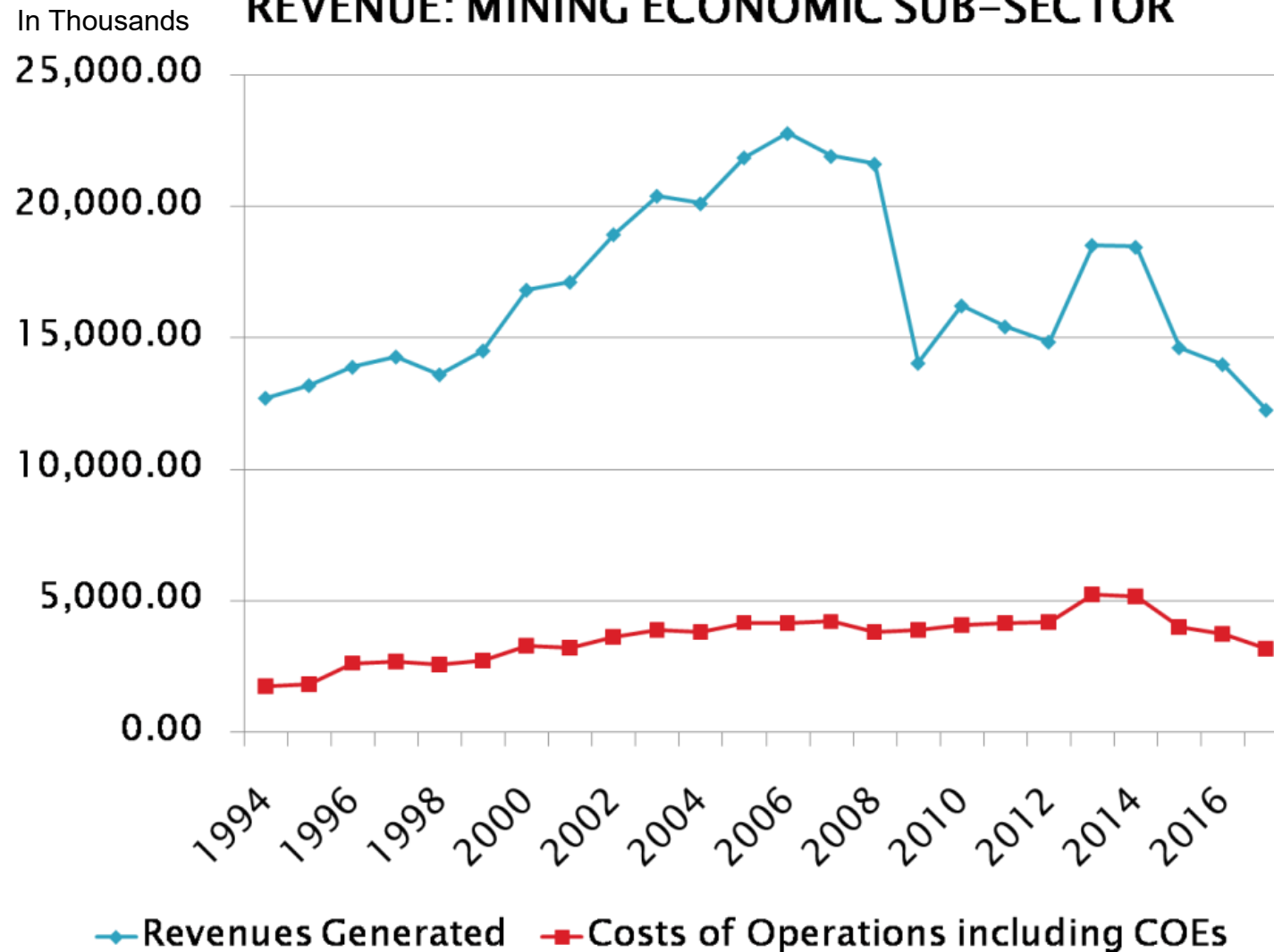
**STRLDi**

SYSTEMS THINKING FOR  
RELEVANT LEADERSHIP &  
DEVELOPMENT INSTITUTE

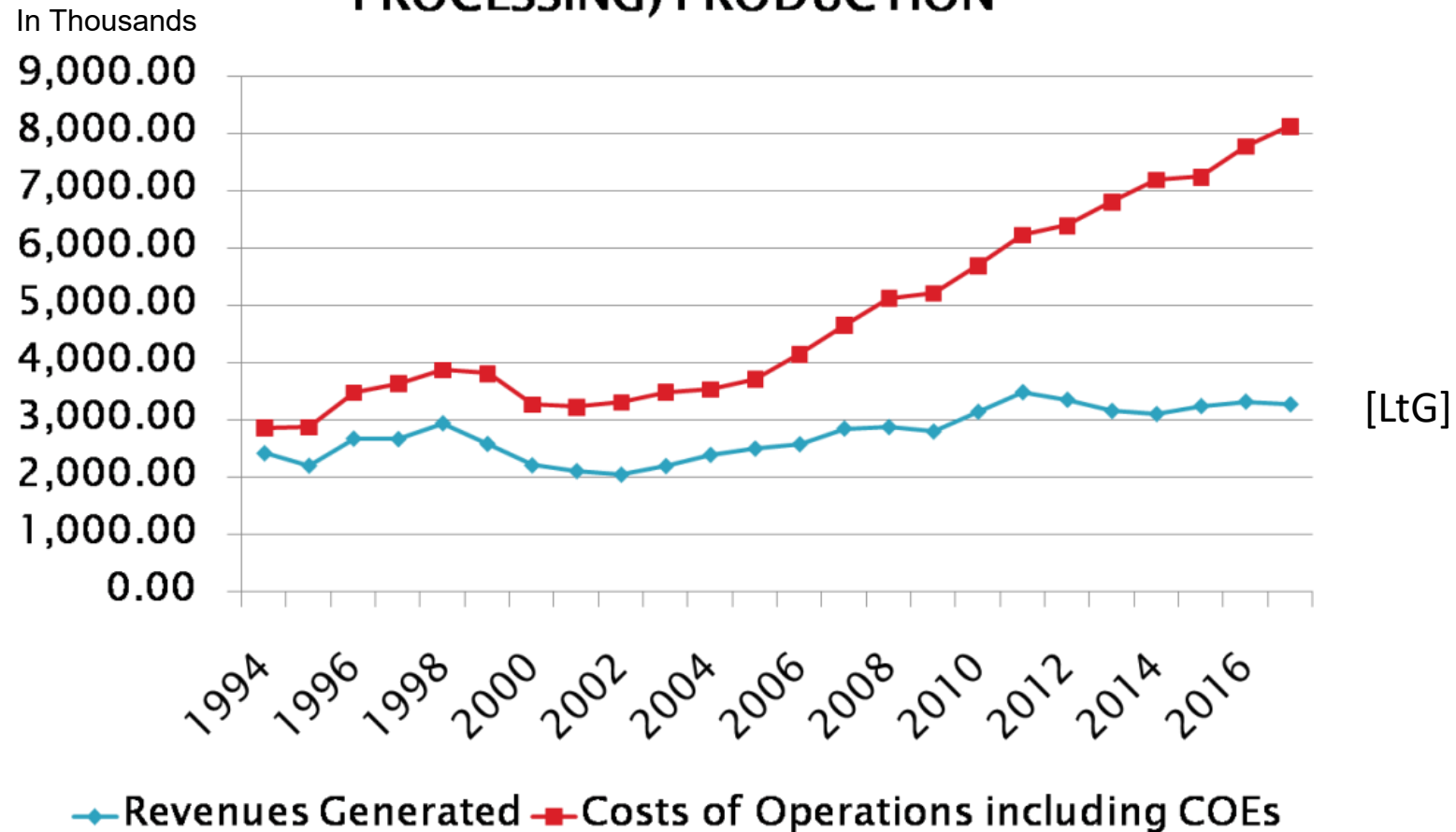
## BEHAVIOUR OF COSTS OF PRODUCTION VS REVENUE: TERTIARY ECONOMIC SECTOR



## BEHAVIOUR OF COSTS OF PRODUCTION VS REVENUE: MINING ECONOMIC SUB-SECTOR

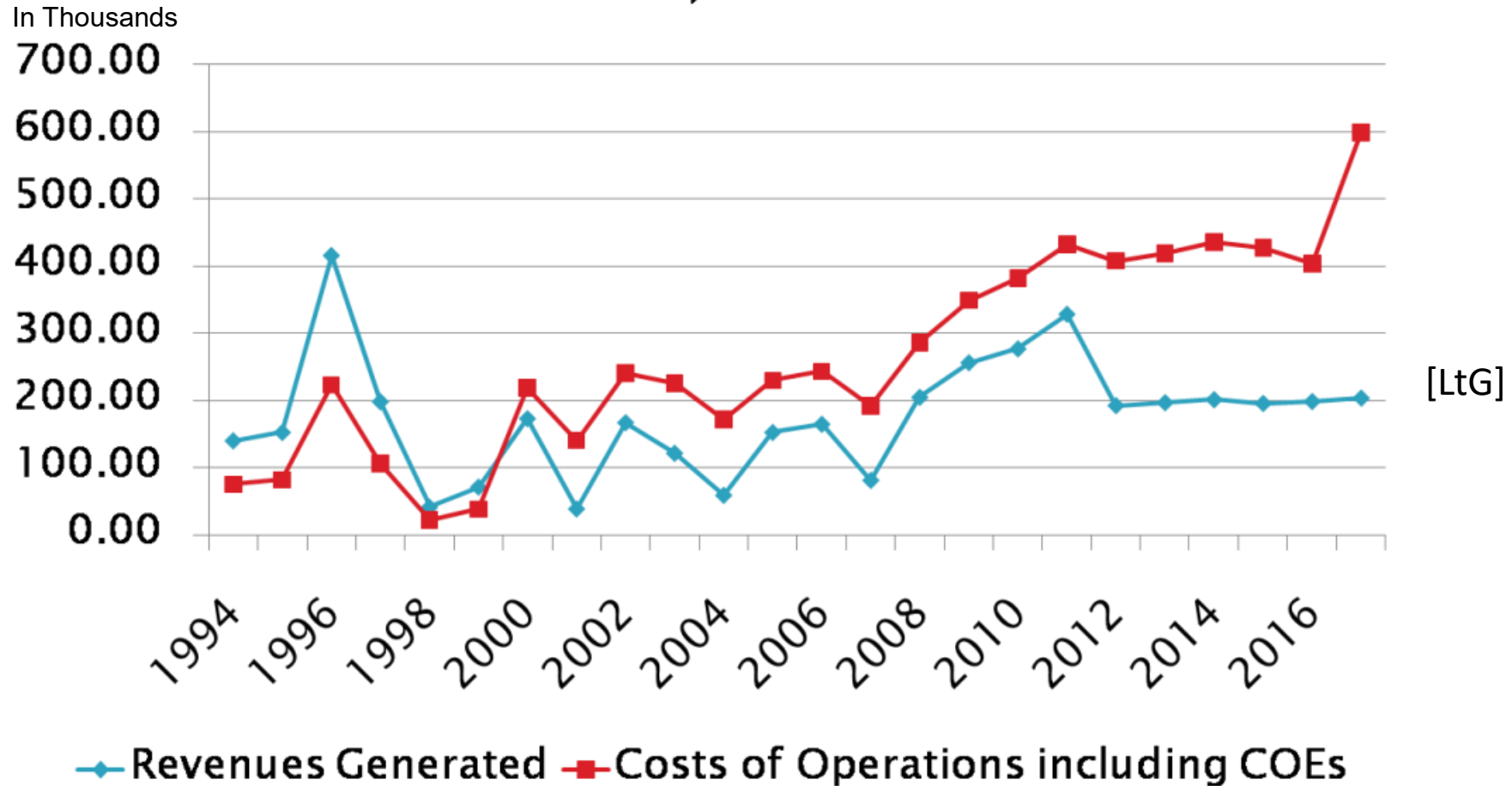


## BEHAVIOUR OF COSTS OF PRODUCTION VS REVENUE: MANUFACTURING (NOT INCLUDING OTHERS / DIAMOND PROCESSING) PRODUCTION

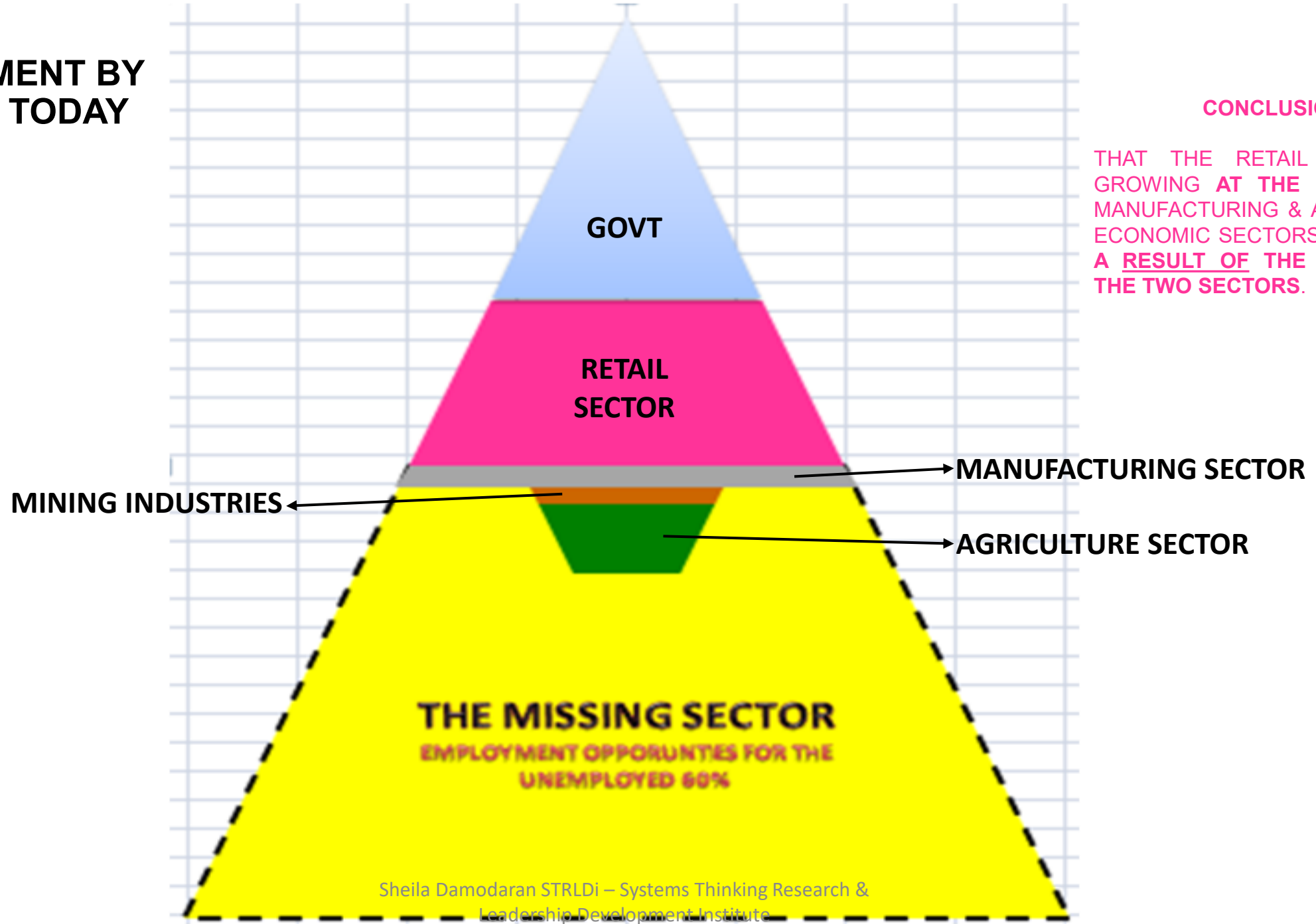




# BEHAVIOUR OF COSTS OF PRODUCTION VS REVENUE: PLANT (CROP+HORTICULTURE +FORESTRY) PRODUCTION



## EMPLOYMENT BY SECTOR TODAY

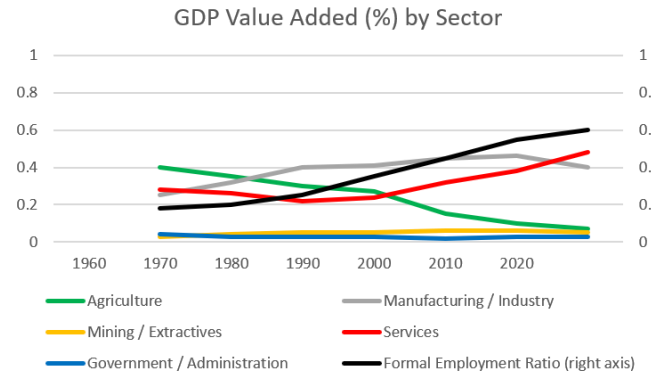


### CONCLUSION:

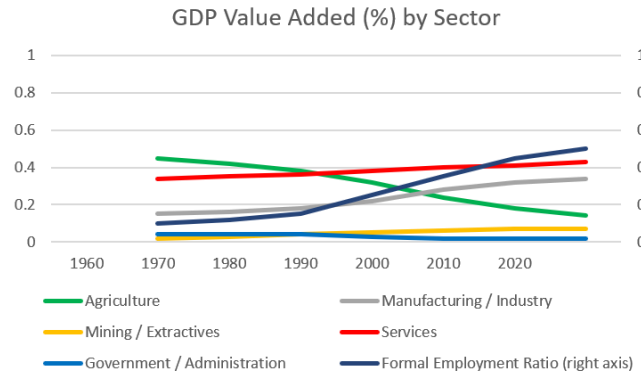
THAT THE RETAIL SECTOR IS GROWING **AT THE EXPENSE OF** MANUFACTURING & AGRICULTURE ECONOMIC SECTORS BUT **NOT AS A RESULT OF THE GROWTH OF THE TWO SECTORS.**



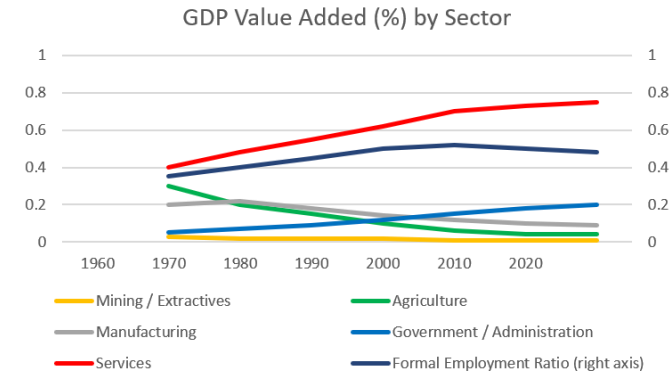
China – Pop: 1,41bil, GDP per capita: \$10.5K



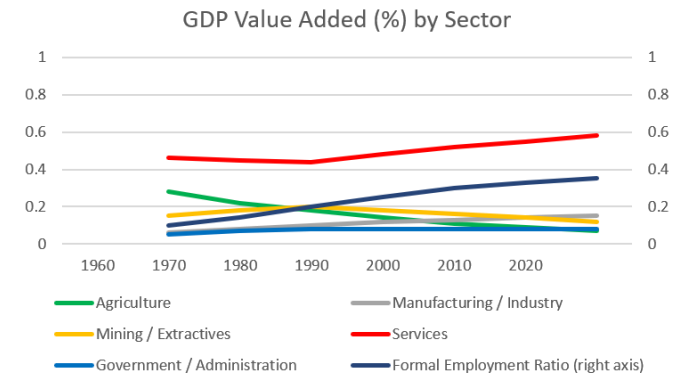
Vietnam – Pop: 97mil, GDP per capita: \$2.8K



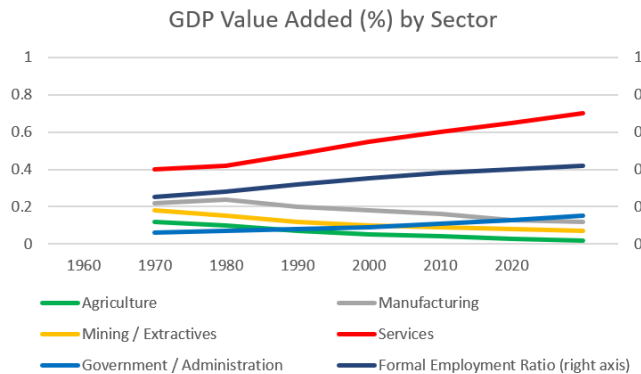
Greece – Pop: 10.7mil, GDP per capita: \$19K



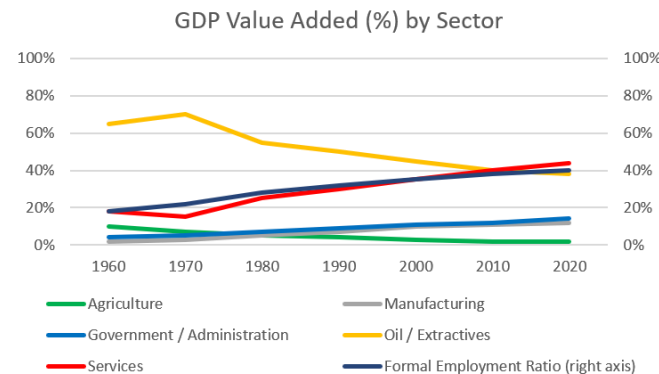
Namibia – Pop: 2.5mil, GDP per capita: \$4.7K



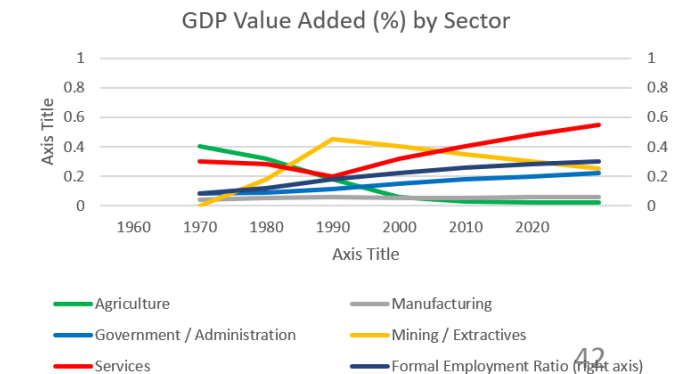
South Africa – Pop: 59mil, GDP per capita: \$6K



Saudi Arabia – Pop: 35mil, GDP per capita: \$20K



Botswana – Pop: 2.4mil, GDP per capita: \$6.8K



Before We Model the System, Did We First Look at Its Behaviour?

<https://www.linkedin.com/pulse/before-we-model-system-did-first-look-its-behaviour-sheila-damodaran-ycjsf/?trackingId=NBUVjQJ9QY6itDBS9QZg9w%3D%3D>

# Distribution of economic sector depending on the stage of economic development

| Economic Stage                      | Primary Sector (%) | Secondary Sector (%) | Tertiary Sector (%) |
|-------------------------------------|--------------------|----------------------|---------------------|
| Fully Developed Economy             | 3–5%               | 15–25%               | 70–80%              |
| Resource-Dependent Emerging Economy | 15–25%             | 30–40%               | 35–45%              |
| Industrialized, Value-Added Economy | 5–10%              | 30–40%               | 50–60%              |

- In fully developed economies, services dominate the economy while manufacturing and raw material extraction have a minimal share.
- In contrast, resource-dependent emerging economies maintain a higher share of the primary sector due to ongoing reliance on raw outputs, balanced by significant manufacturing activity.
- Meanwhile, in economies driven by industrialization and value-added processing, the secondary sector is robust, with a growing service sector complementing a modest primary sector.

# What is the change we want?

| Economic Stage                      | Primary Sector (%) | Secondary Sector (%) | Tertiary Sector (%) |      |
|-------------------------------------|--------------------|----------------------|---------------------|------|
| Resource-Dependent Emerging Economy | 25 %               | 40 %                 | 35 %                | 100% |
| Botswana 2023 Comparison            | 23 % (2% Agric)    | 22 % (7% Mfg)        | 37 %                | ? %  |
| Change That Is Needed:              | ? %                | ? %                  | ? %                 |      |

- What policies in agriculture and manufacturing economic sectors will secure that change for the country?



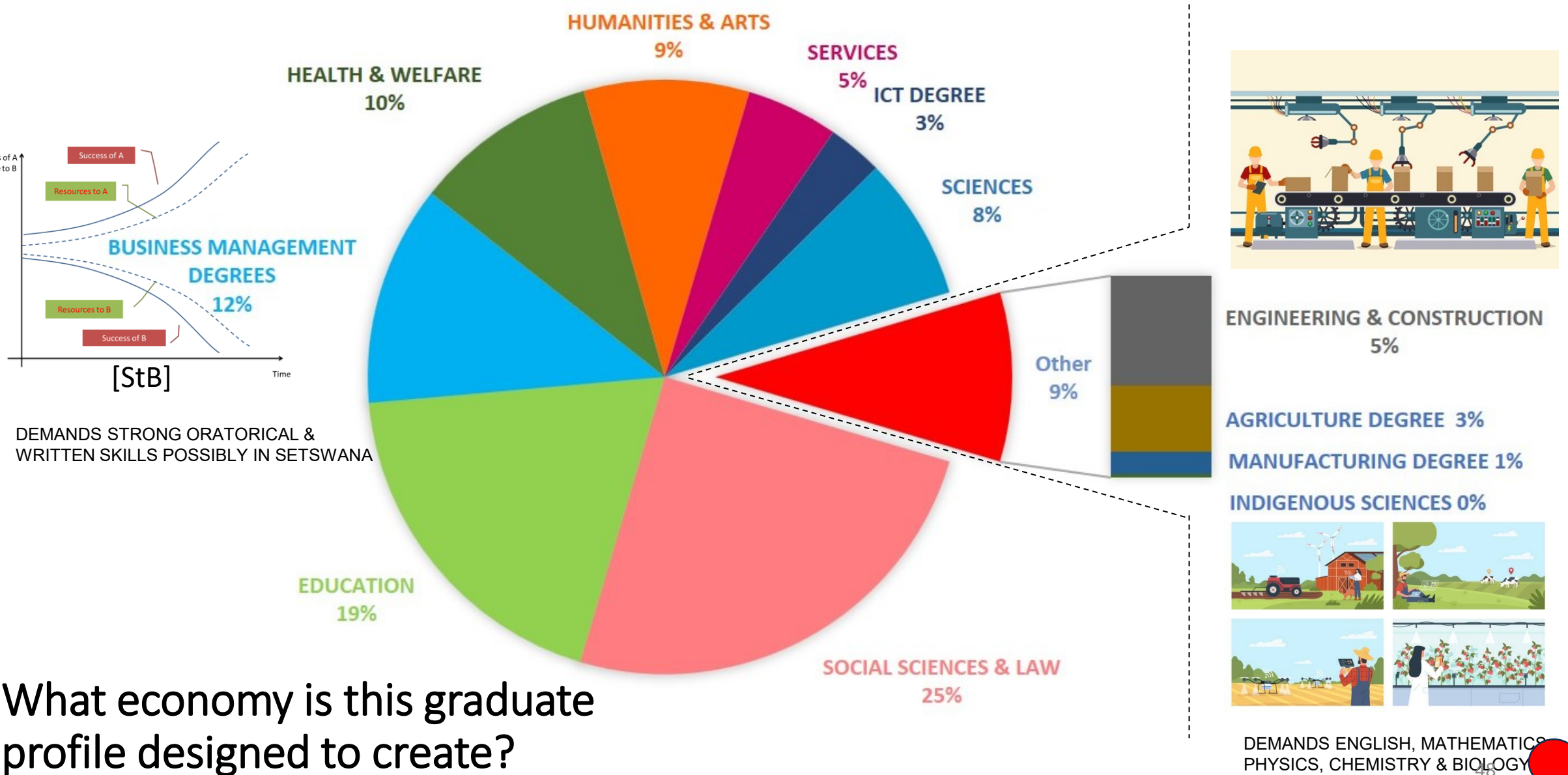
# WHY ARE THESE NOT ALREADY HAPPENING?



# THE PRODUCTIVE CAPABILITY QUESTION

*"What kind of economy is Botswana's education system reproducing?"*

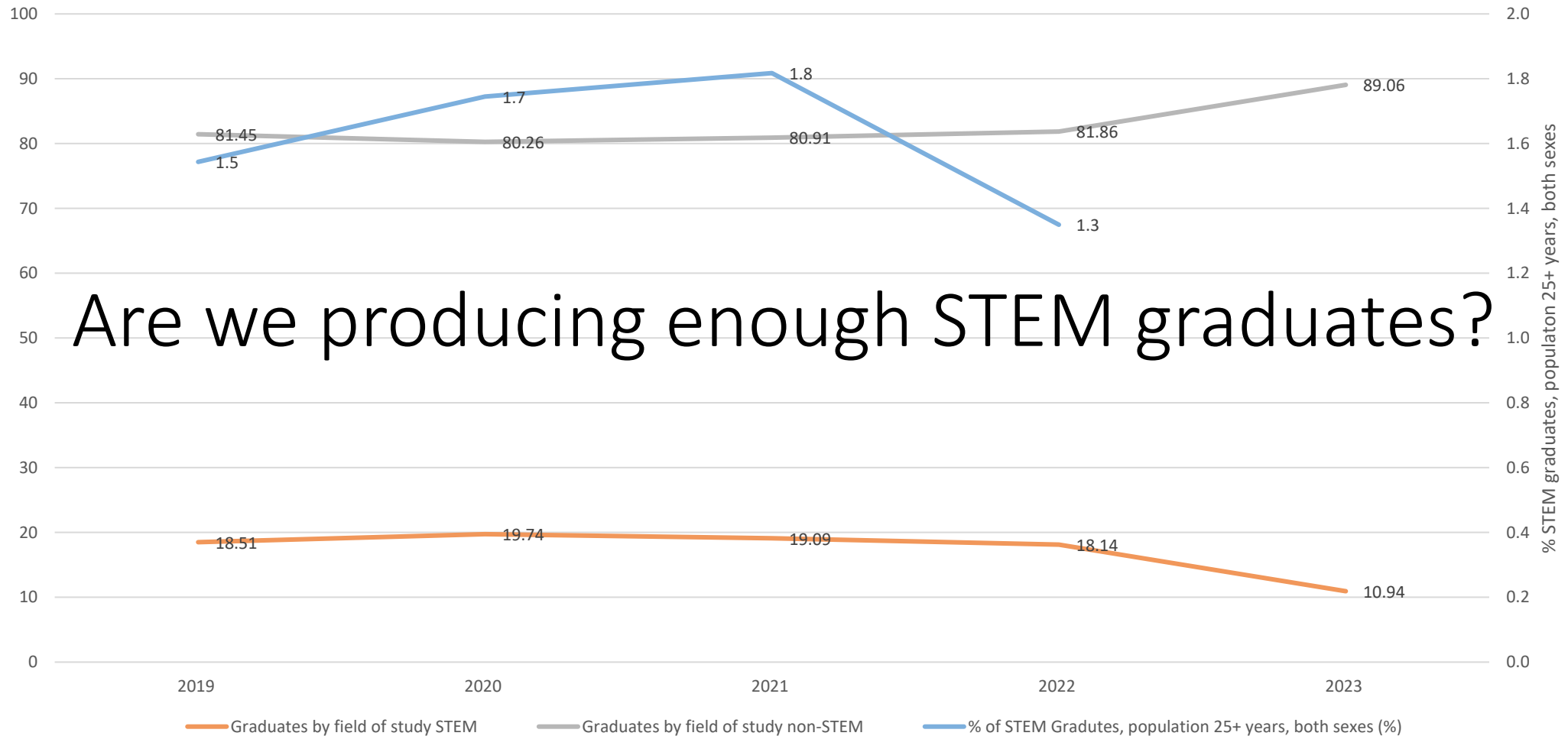
# Tertiary Graduate Orientation Botswana (2009-2018)



What economy is this graduate profile designed to create?

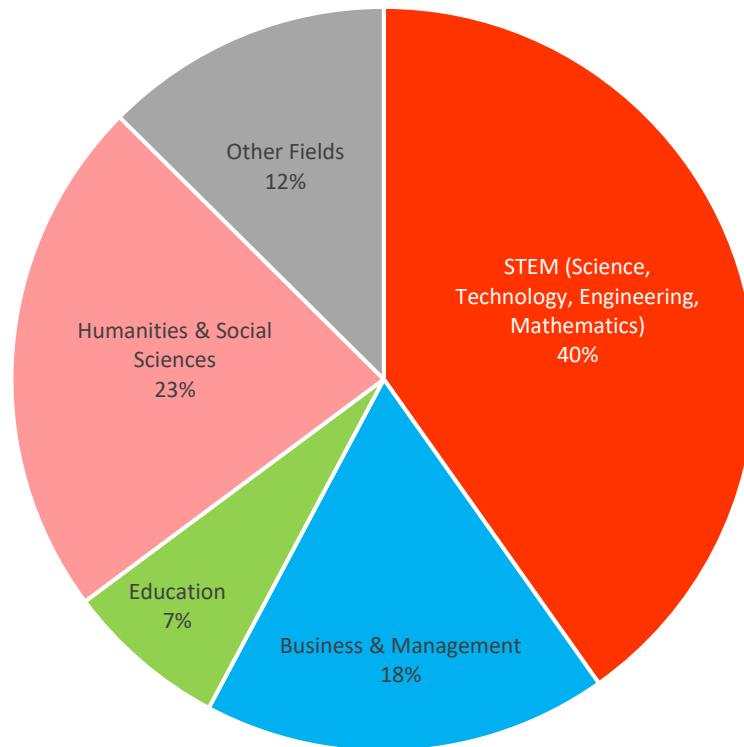


## STEM Pipeline Composition Relative to Adult Population, Botswana 2019–2023 Source: UNESCO

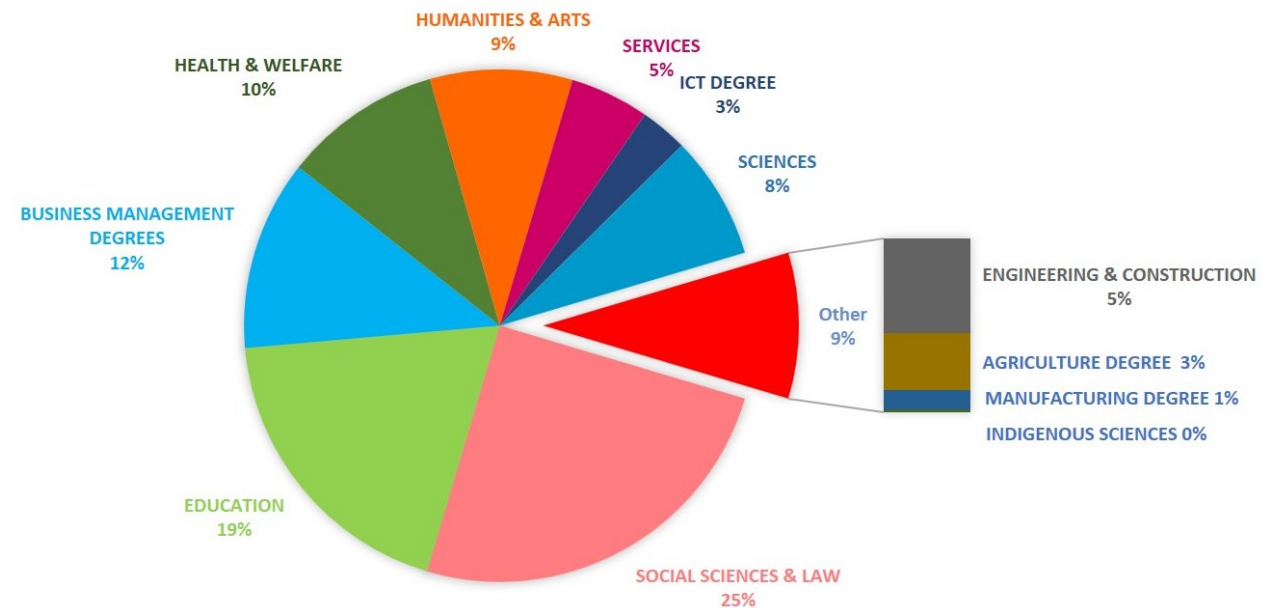


# Tertiary Graduate Orientation

**CHINA: Approximate Distribution Pattern (2020-2023)**



**BOTSWANA: Actual (2009-2018)**



# THE ISSUE IS NOT A LACK OF EDUCATION FUNDING

## Education Investment: Botswana Vs China

### Government Spending on Education

| Indicator                                | Botswana     | China             |
|------------------------------------------|--------------|-------------------|
| Education Spending (% GDP)               | ~8.1% (2020) | ~4.0% (2022–2023) |
| Education Spending (% Government Budget) | ~21.5%       | ~11%              |
| Education Spending Per Capita            | ~US\$509     | ~US\$508          |

Sources: World Bank, CEIC, CountryEconomy. [Trading Econom... +2](#) [Trading Econom... +1](#)

# SOMETHING IS NOT ADDING UP

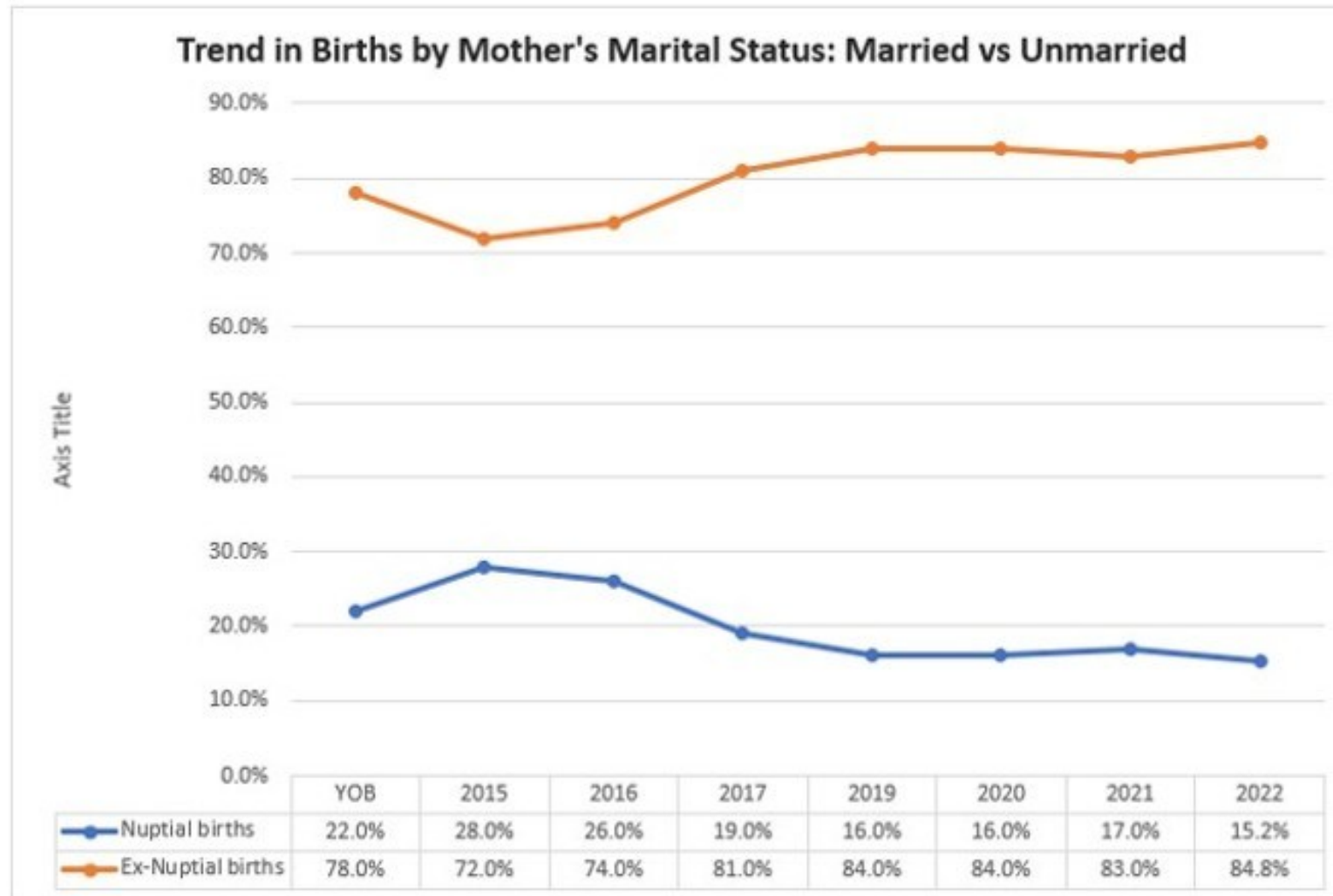
| Indicator                     | Botswana | China   |
|-------------------------------|----------|---------|
| Education Spending (% GDP)    | High     | Lower   |
| Education Spending Per Person | Similar  | Similar |
| Manufacturing GDP             | ~5%      | ~27%    |
| Graduate Unemployment         | High     | Lower   |

Question:

- If money is not the explanation, what is?

# WHY ARE THESE NOT ALREADY HAPPENING?

# Births & Family Structure



# BIRTHS & FAMILY STRUCTURE [StS & Esc]

- There is an **80% chance** a child is *born to an unmarried parent or to parents who, although married, do not cohabitate in the same household.*
- With the country's marriage rate at only **20%**, it is more likely that unmarried women, sometimes with children from different fathers, will be more successful in having children.
- Further, **six out of ten** times, the women are unemployed and rely on a combination of state support and financial contributions from the fathers of their children to provide for their families. This financial dependency, while helping them fulfil family and community obligations, leads to tensions and conflicts at both familial and community levels.

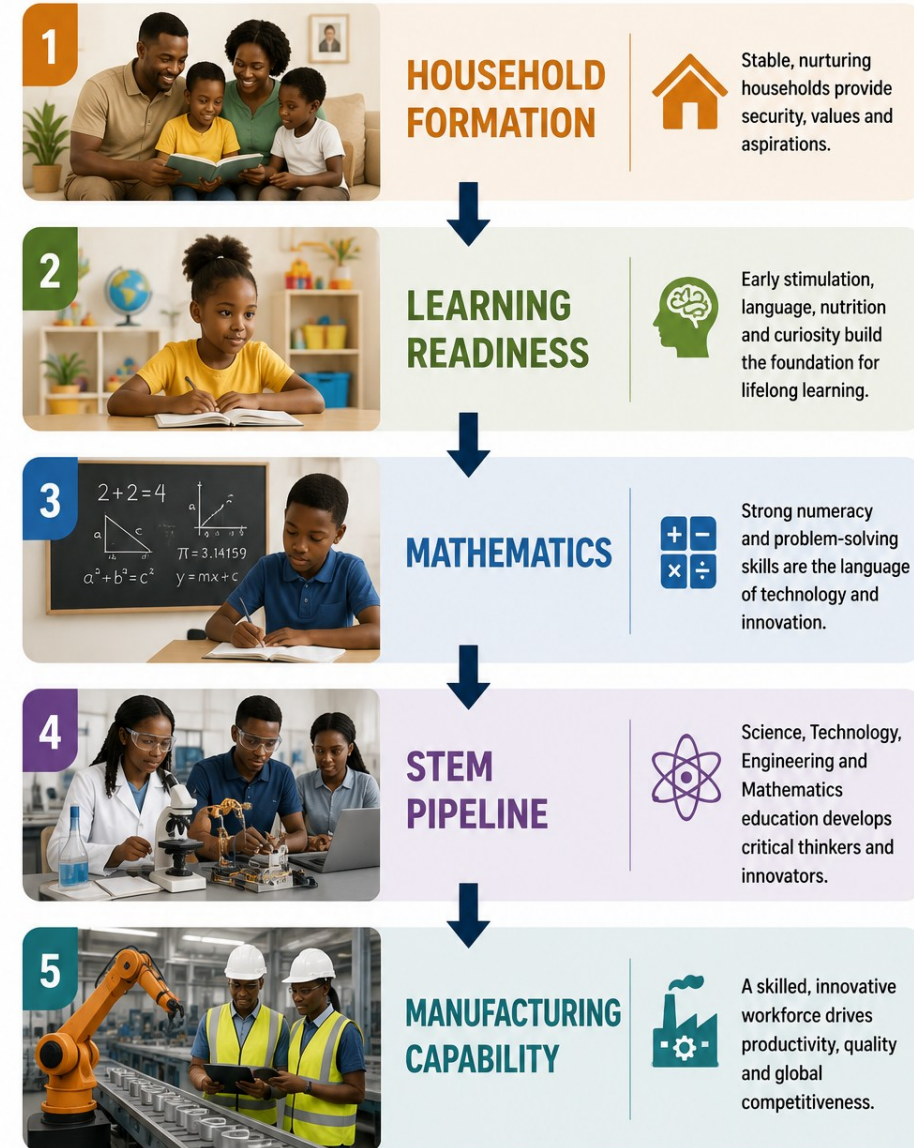


# HOUSEHOLD FORMATION IS A STEM ISSUE

## Headline:

- Children do not become engineers at university.
- They begin becoming engineers in childhood.

## BUILDING A MANUFACTURING NATION The Human Capability Pipeline



# PRODUCTIVE CAPABILITY INDEX (PCI)

Formula

$$PCI = (55\% \times STEM) + (45\% \times Household\ Formation)$$

## **STEM (55%)**

- Mathematics
- Science
- Engineering
- Technical Education
- Industrial Research

## **Household Formation (45%)**

- Stable child development
- Educational support
- Learning readiness
- Workforce preparation

Question:

Can a society reliably reproduce productive capability?

# PRODUCTIVE CAPABILITY STAGES

| Stage   | Developmental Function          |
|---------|---------------------------------|
| Stage A | Resource Extraction System      |
| Stage B | Manufacturing Operator System   |
| Stage C | Manufacturing Design System     |
| Stage D | Manufacturing Leadership System |

Question:

- Where are countries positioned?

# THE GLOBAL PRODUCTIVE CAPABILITY LADDER

## • Stage A

### **Resource Extraction**

Examples:

- Botswana
- Namibia
- Zambia

## • Stage B

### **Manufacturing Operator**

Examples:

- Malaysia
- Vietnam
- Thailand
- Mexico

## • Stage C

### **Manufacturing Design**

Examples:

- Germany
- Japan
- Taiwan
- South Korea

## • Stage D

### **Manufacturing Leadership**

Examples:

- United States
- China
- Germany
- South Korea

Question:

What distinguishes movement between stages?

# PRODUCTIVE CAPABILITY VS GDP PER CAPITA

| Country     | GDP per Capita | Stage |
|-------------|----------------|-------|
| China       | ~US\$13k       | D     |
| South Korea | ~US\$35k       | D     |
| Malaysia    | ~US\$13k       | B     |
| Botswana    | ~US\$8k        | A     |

Headline:

- **WEALTH DOES NOT DETERMINE THE STAGE**
- **CAPABILITY DOES**



# GLOBAL PRODUCTIVE CAPABILITY RANKING (PCI)

## Capability Reproduction Index

### TOP 20 COUNTRIES

| Rank | Country        | PCI Score (0-100) | Manufacturing Status*         |
|------|----------------|-------------------|-------------------------------|
| 1    | Switzerland    | 86.9              | Advanced Manufacturing        |
| 2    | Singapore      | 83.3              | Advanced Manufacturing        |
| 3    | United States  | 82.4              | Industrial Powerhouse         |
| 4    | Germany        | 81.0              | Industrial Powerhouse         |
| 5    | Japan          | 80.2              | Industrial Powerhouse         |
| 6    | South Korea    | 79.1              | Industrial Powerhouse         |
| 7    | Taiwan         | 78.3              | Industrial Powerhouse         |
| 8    | Netherlands    | 77.3              | Advanced Manufacturing        |
| 9    | Sweden         | 76.6              | Advanced Manufacturing        |
| 10   | Denmark        | 75.8              | Advanced Manufacturing        |
| 11   | Finland        | 75.0              | Advanced Manufacturing        |
| 12   | Austria        | 74.1              | Advanced Manufacturing        |
| 13   | Belgium        | 73.4              | Advanced Manufacturing        |
| 14   | United Kingdom | 72.5              | Advanced Manufacturing        |
| 15   | France         | 71.8              | Industrial Powerhouse         |
| 16   | Norway         | 71.2              | Advanced Manufacturing        |
| 17   | Canada         | 70.4              | Advanced Manufacturing        |
| 18   | Australia      | 69.7              | Moderate Manufacturing        |
| 19   | Israel         | 68.9              | High Technology Manufacturing |
| 20   | New Zealand    | 68.1              | Moderate Manufacturing        |

#### \*Manufacturing Status Classification

Derived from: UNIDO Competitive Industrial Performance (CIP) Index, Manufacturing Value Added (MVA), Economic Complexity Index (ECI), and Share of Manufacturing in GDP and Exports.

### BOTSWANA TODAY

Approximate PCI Position

**~100 / 190**  
Countries



Productive capability exists.  
Its reproduction remains inconsistent.

### NOTABLE OBSERVATION: CHINA

Manufacturing Rank:

**#1 GLOBALLY**

PCI Ranking:

**OUTSIDE TOP 20**

#### Why?

The PCI measures a nation's ability to reproduce productive capability across generations.

### WHY CHINA DOES NOT RANK IN THE TOP 20

#### EXCEPTIONALLY STRONG IN:

- Mathematics
- Science
- Engineering
- Technical Education
- Industrial Research
- Manufacturing Output

#### MODERATED BY LONG-TERM HOUSEHOLD & DEMOGRAPHIC FACTORS:

- Fertility Decline**  
Decades of one-child policy led to a dramatic reduction in births, shrinking future cohorts of learners and workers.
- Household Compression**  
Ageing grandparents, fewer working adults, fewer children and fewer siblings increase pressures on each productive adult and weaken developmental support.
- Educational Pressure vs Support**  
High academic achievement does not always reflect strong household developmental support and learning readiness.
- Workforce Reproduction**  
The challenge is not how many skilled workers exist today, but whether society can continuously reproduce them over future generations.

### WHAT DISTINGUISHES HIGH PCI NATIONS?



Households remain developmentally stable



Educational support is strong



Learning readiness is consistently reproduced



STEM pathways are well developed



Institutions reinforce rather than compensate for household formation



Productive capability is transmitted across generations



#### PCI MEASURES:

Can a nation continuously reproduce productive capability?



#### MANUFACTURING RANKINGS MEASURE:

How much productive capability is being expressed today?



*Productive capability drives prosperity.  
Building capability builds nations.*

The PCI looks beyond what nations produce today to what they can reliably reproduce tomorrow.

Manufacturing status validated using:  
UNIDO CIP Index • MVA • ECI

# THE GLOBAL PARADOX

| Indicator                  | Botswana            |
|----------------------------|---------------------|
| Education Spending         | High                |
| GDP Per Capita             | Upper Middle Income |
| Productive Capability Rank | ~100                |
| Manufacturing GDP          | ~5%                 |
| Manufacturing Graduates    | ~1%                 |

Headline:

- **WEALTHY ENOUGH TO EDUCATE**
- **NOT PRODUCTIVE ENOUGH TO INDUSTRIALISE**



# WHAT DOES MANUFACTURING REQUIRE?

| Requirement        | Typical Source        |
|--------------------|-----------------------|
| Engineers          | Engineering           |
| Automation         | Engineering + ICT     |
| Production Systems | Engineering           |
| Industrial Design  | Engineering + Science |
| Machinery          | Engineering           |
| Food Manufacturing | Agriculture + Science |

Headline:

- **FACTORIES RUN ON STEM**



# WHAT ECONOMY IS OUR EDUCATION SYSTEM REPRODUCING?

The direction of graduate output shapes the direction of our economy.

1. POPULATION



2.8  
MILLION

2. TERTIARY GRADUATES



~250,000  
(7-10% OF POPULATION)

3. PRODUCTIVE PIPELINE



~50,000  
(~20% OF GRADUATES)  
(~1-3% OF POPULATION)

4. ADMINISTRATIVE PIPELINE



~200,000  
(~80% OF GRADUATES)  
(~7-8% OF POPULATION)

Only ~1-3% of  
the population  
is in the productive  
STEM pipeline.

## PRODUCTIVE PIPELINE

~20% OF GRADUATES  
(~1-3% OF POPULATION)



Agriculture



Manufacturing



Engineering



ICT



Sciences



Farms



Factories



Industrial Parks



Exports



Jobs



UNIVERSITY

## ADMINISTRATIVE PIPELINE

~80% OF GRADUATES  
(~7-8% OF POPULATION)



Law



Business



Education



Social Sciences



Offices



Administration



Compliance



Services



Management

SMALL  
FOOTPRINT  
HIGH IMPACT

LARGE  
FOOTPRINT  
LOW IMPACT



THE SIZE OF THE INDUSTRIAL ECONOMY CANNOT EXCEED  
THE SIZE OF THE PIPELINE THAT FEEDS IT.



Botswana's future prosperity depends on expanding the productive pipeline,  
especially in **STE** and STEM and manufacturing.

MORE RIGHT TALENT. MORE CAPABILITY. MORE PROSPERITY.



# THE EDUCATION SYSTEM IS NOT PRODUCING A MANUFACTURING ECONOMY

# AFRICA'S UNTAPPED PRODUCTIVE OPPORTUNITY

## Moving from Stage A (Resource Extraction) to Stage B/C (Manufacturing)

| Indicator                     | Today               | Stage B/C                       |
|-------------------------------|---------------------|---------------------------------|
| Population                    | 1.5 Billion         | 1.5 Billion                     |
| Formal Employment             | ~15%                | 40–60%                          |
| Food Demand                   | 1.2 Billion Tonnes  | 1.4–1.8 Billion Tonnes          |
| Food Production               | 0.85 Billion Tonnes | 1.4–1.8 Billion Tonnes          |
| Food Gap                      | 350 Million Tonnes  | Potential: 1 Million Tonnes     |
| Manufactured Goods Production | Limited             | Large-scale Regional Production |
| Imports Required              | High                | Significantly Reduced           |

# WHO WILL PRODUCE FOR AFRICA?

## Additional Demand Created by Industrialisation

| Product Category     | Today    | Stage B | Stage C |
|----------------------|----------|---------|---------|
| Food                 | 1.2 Bt   | 1.4 Bt  | 1.8 Bt  |
| Steel                | 40 Mt    | 120 Mt  | 250 Mt  |
| Cement               | 250 Mt   | 500 Mt  | 800 Mt  |
| Plastics             | 20 Mt    | 70 Mt   | 150 Mt  |
| Vehicles             | Baseline | 5×      | 10×     |
| Industrial Machinery | Baseline | 5×      | 15×     |

### The Strategic Question

If Africa industrialises:

- Who will produce an additional 600 million tonnes of food?
- Who will produce an additional 210 million tonnes of steel?
- Who will produce an additional 550 million tonnes of cement?
- Who will build the machinery, vehicles, pumps, tractors and factories?

### The Opportunity

Africa's future growth challenge is not demand creation.  
Demand already exists.  
We meet it as we build productive capability to supply it.

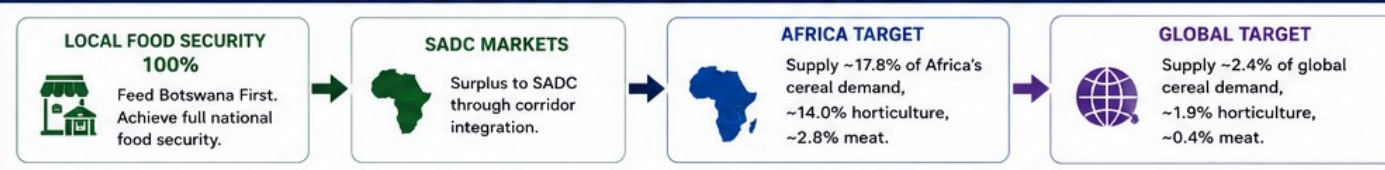
# AGRICULTURE CORRIDOR EXECUTION LATTICE 2.0

## SCENARIO 1: TRANSITION ECONOMY 2026–2035 (15 MILLION HA)

Feeding Botswana First. Supplying SADC. Powering Africa. Reaching the World.



### MARKET HIERARCHY & TARGETS – SCENARIO 1 (TRANSITION 2026–2035)



### ENABLERS OF THE CORRIDOR EXECUTION LATTICE

- Policy & Governance:** Enabling policies, streamlined regulations
- Infrastructure:** Roads, rail, energy, irrigation, storage
- Finance:** Affordable finance, risk guarantees, working capital
- Technology & Data:** Digital platforms, IoT, AI, market intelligence
- Skills & Extension:** Agri-advisory, business development, STEM
- Quality & Standards:** SPS, certification, traceability, compliance

### SCENARIO 1 (TRANSITION 2026–2035) – LAND, PRODUCTION, MARKET SHARES & FARMERS

| MARKET LEVEL                       | SCOPE                          | CEREALS             |           |              |              |         | HORTICULTURE        |           |              |              |         | MEAT (ALL TYPES)    |            |              |              |         | TOTAL      | FARMERS (TOTAL) | EMPLOYMENT (DIRECT + INDIRECT) |
|------------------------------------|--------------------------------|---------------------|-----------|--------------|--------------|---------|---------------------|-----------|--------------|--------------|---------|---------------------|------------|--------------|--------------|---------|------------|-----------------|--------------------------------|
|                                    |                                | PRODUCTION (TONNES) | LAND (HA) | AFRICA SHARE | GLOBAL SHARE | FARMERS | PRODUCTION (TONNES) | LAND (HA) | AFRICA SHARE | GLOBAL SHARE | FARMERS | PRODUCTION (TONNES) | LAND (HA)  | AFRICA SHARE | GLOBAL SHARE | FARMERS | LAND (HA)  |                 |                                |
| 1                                  | LOCAL FOOD SECURITY (Botswana) | 370,000             | 37,000    | 100%         | —            | 740     | 120,000             | 3,500     | 100%         | —            | 350     | 85,000              | 425,000    | 100%         | —            | 430     | 465,500    | 1,520           | 15,200                         |
| 2                                  | SADC MARKETS (Surplus)         | 2,030,000           | 203,000   | —            | —            | 4,060   | 880,000             | 25,000    | —            | —            | 2,500   | 340,000             | 1,700,000  | —            | —            | 1,700   | 1,928,000  | 8,260           | 49,600                         |
| 3                                  | AFRICA TARGET (Approx.)        | 42,600,000          | 4,260,000 | 17.8%        | —            | 85,200  | 16,500,000          | 471,000   | 14.0%        | —            | 47,100  | 1,700,000           | 8,500,000  | 2.8%         | —            | 8,500   | 13,231,000 | 140,800         | 845,000                        |
| 4                                  | GLOBAL TARGET (Approx.)        | 2,000,000           | 200,000   | —            | 2.4%         | 4,000   | 1,750,000           | 50,000    | —            | 1.9%         | 5,000   | 170,000             | 850,000    | —            | 0.4%         | 850     | 1,100,000  | 9,850           | 59,100                         |
| TOTAL – SCENARIO 1 (15 MILLION HA) |                                | 45,000,000          | 4,700,000 | 17.8%        | 2.4%         | 94,000  | 19,250,000          | 549,500   | 14.0%        | 1.9%         | 54,950  | 2,295,000           | 11,475,000 | 2.8%         | 0.4%         | 11,480  | 15,000,000 | 160,430         | 968,900                        |

#### SCENARIO 1 LAND ALLOCATION (15 MILLION HA)



#### KEY OUTCOMES

- Full national food security achieved
- Major supplier to SADC markets
- Meaningful contributor to Africa's food security
- Emerging player in global agricultural markets
- Strong foundation for 2045 scale-up to 25M ha

#### PRODUCTIVITY ASSUMPTIONS (SCENARIO 1)

- Cereals: 10 tonnes/ha
- Horticulture: 35 tonnes/ha
- Meat: 1 tonne per 5 ha (grazing + feedlot system)

Average farm sizes: Cereals 500 ha | Horticulture 10 ha  
Meat 1,000 ha

#### FARMERS & EMPLOYMENT (SCENARIO 1)

- Total Farmers (Direct) 160,430
- Direct Employment 322,000
- Indirect Employment 646,900

#### TOTAL DIRECT + INDIRECT EMPLOYMENT

968,900

#### THE VISION

A Botswana-led agricultural transformation that satisfies domestic needs, becomes the food basket of SADC, contributes meaningfully to Africa's food security, and participates in global agricultural markets.



#### ASSUMPTIONS

- Cereals yield: 10 tonnes/ha
- Cereals farmer size: 500 ha
- Horticulture farmer size: 10 ha
- Horticulture yield: 35 tonnes/ha
- Horticulture farmer size: 10 ha
- Meat output: 1 tonne per 5 ha
- Meat farmer size: 1,000 ha

#### NOTES

- Land includes production plus associated infrastructure, access, conservation buffers.
- Employment includes on-farm, processing, logistics, input supply, services and retail.
- Figures are indicative, based on 2026 baseline and medium-term productivity gains.

STRLDi

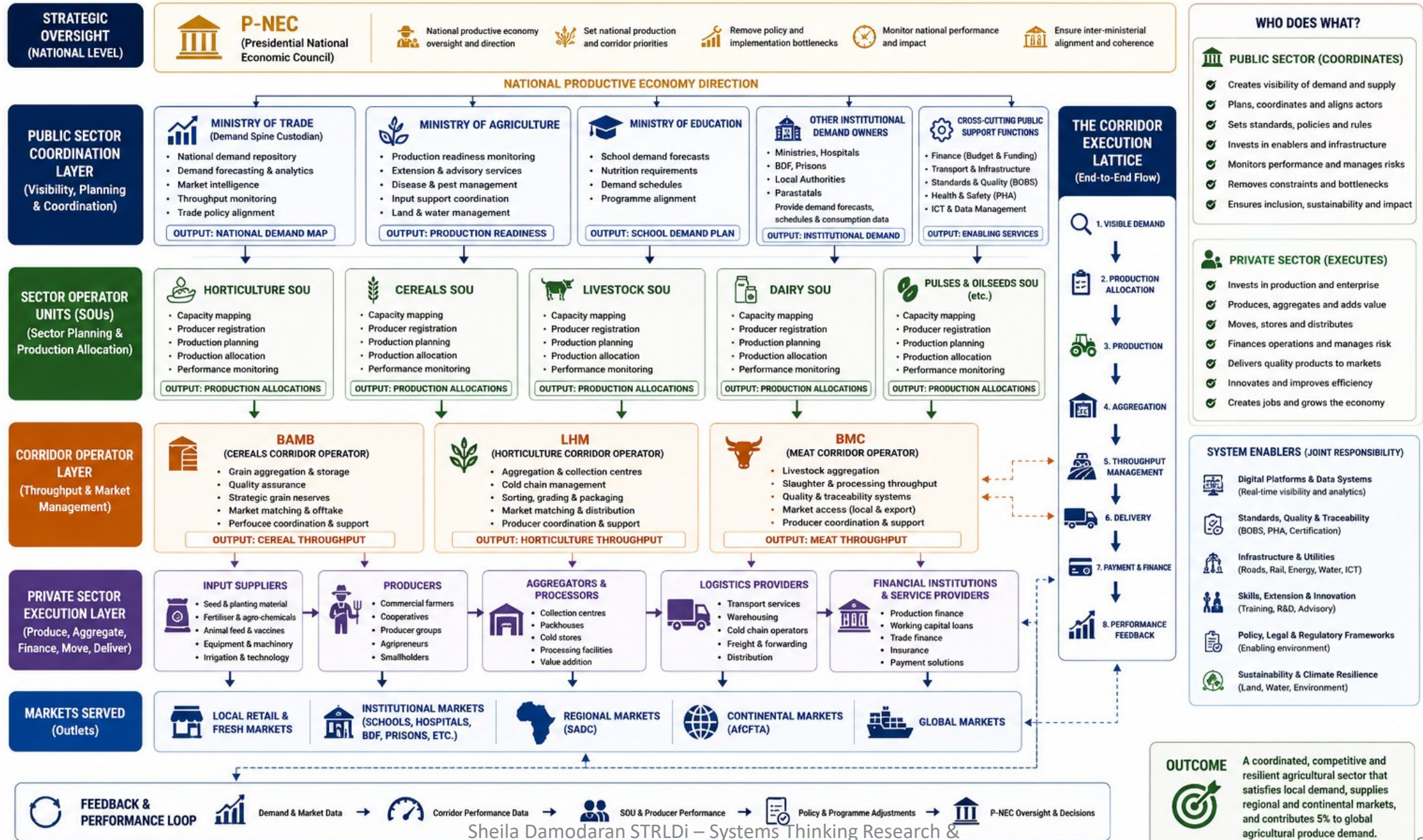
Building Botswana's Agriculture Corridors  
From Local to Continental and Global Markets





# AGRICULTURE CORRIDOR EXECUTION LATTICE- PUBLIC & PRIVATE ROLES AND RELATIONSHIPS

GOVERNMENT COORDINATES. PRIVATE SECTOR EXECUTES. MARKETS GROW. NATION PROSPERS.



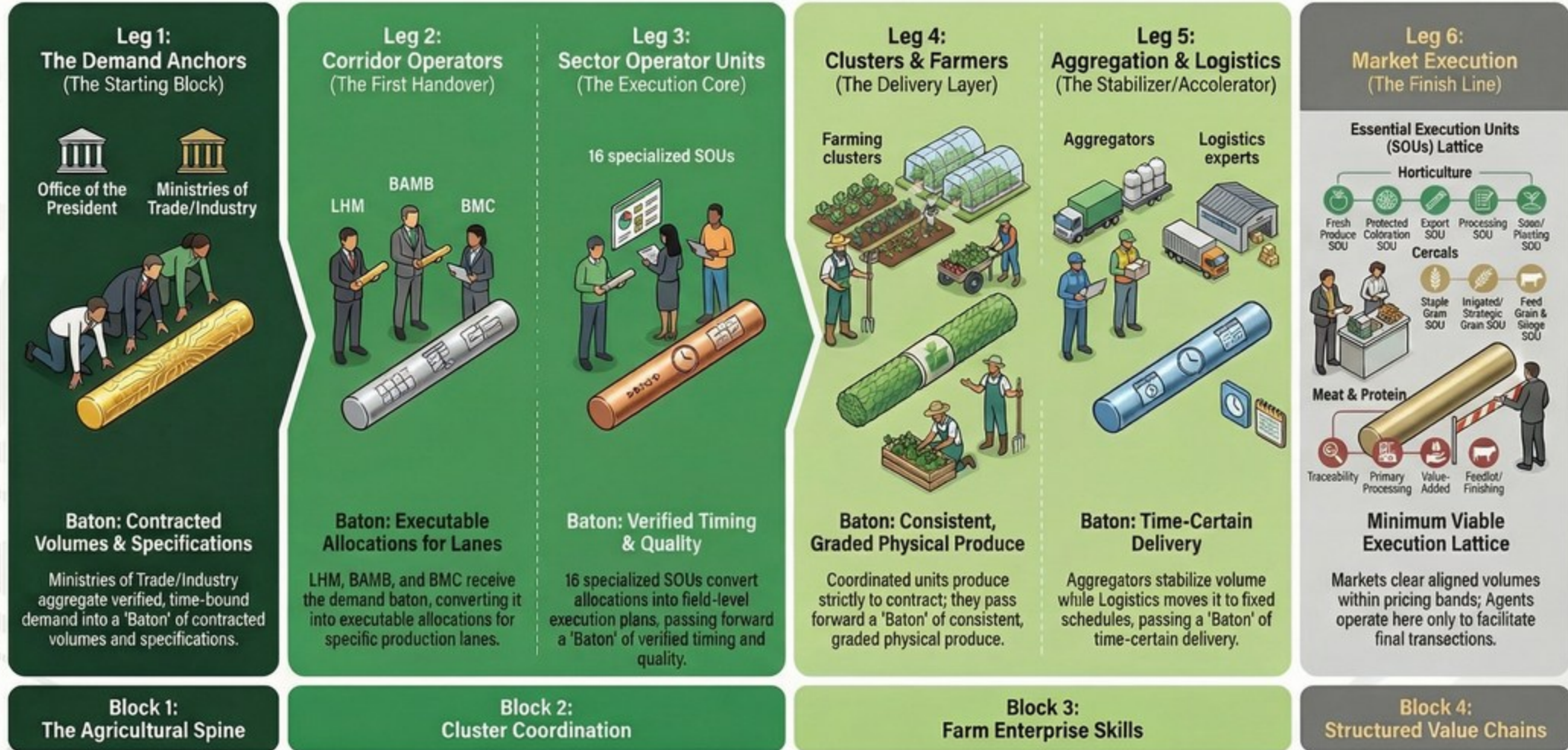
Sheila Damodaran STRLDi – Systems Thinking Research &

Leadership Development Institute

GOVERNMENT PROVIDES DIRECTION, VISIBILITY AND ENABLERS. PRIVATE SECTOR DRIVES PRODUCTION, INNOVATION AND GROWTH. TOGETHER WE BUILD A PRODUCTIVE BOTSWANA THAT FEEDS ITSELF, THE REGION AND THE WORLD.



# The Agricultural Relay: Passing the Baton for National Throughput



# THE NATIONAL QUESTION

Are we educating people  
to administer the economy  
or  
to build the economy?

# THE DECISION THAT CANNOT BE DELEGATED

## OPTION A

Continue reproducing:

- Administrators
- Managers
- Lawyers
- General graduates

while importing productive capability

## OPTION B

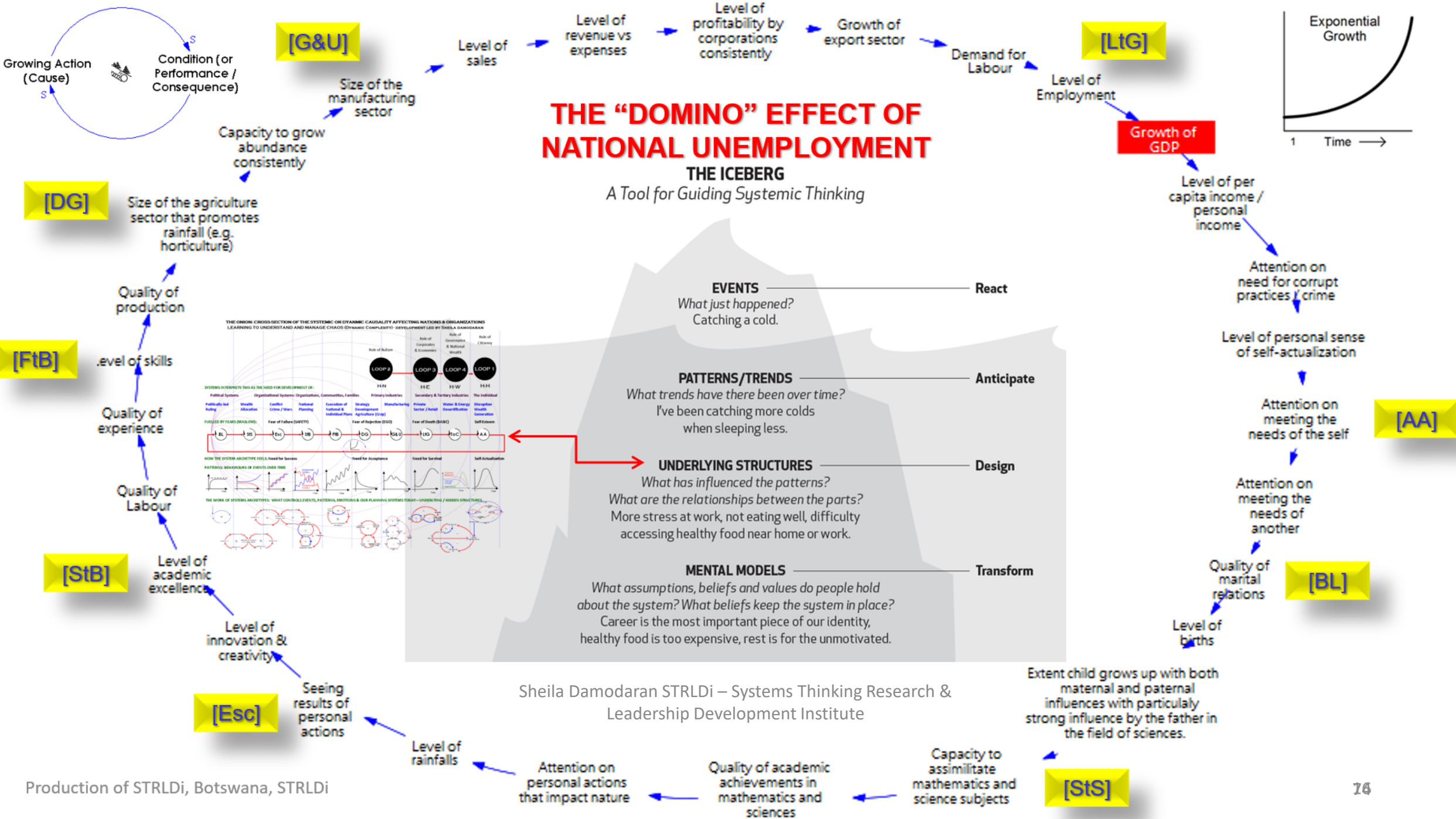
Deliberately reproduce:

- Engineers
- Scientists
- Technicians
- Manufacturing specialists
- and build the productive economy around them.

**THE QUESTION IS NOT WHETHER BOTSWANA WILL CHANGE**

**THE QUESTION IS WHETHER BOTSWANA WILL CHANGE BEFORE THE SYSTEM FORCES IT TO**

# THE DOMINO EFFECT OF NATIONAL UNEMPLOYMENT



# WHAT IS NEXT?

IMPLEMENTATION PATHWAY



# STEM AS ECONOMIC INFRASTRUCTURE

- Key shift:
  - STEM is no longer primarily an education agenda.
- It becomes:
  - productive infrastructure,
  - industrial capability,
  - corridor intelligence,
  - manufacturing discipline,
  - and throughput coordination capacity.

## Core insight:

- Industrial systems move at the speed of human coordination.
- Target: 60% of population STEM adept



# PRODUCTIVE ECONOMIES REQUIRE STEM CONFIDENCE

- **Productive sectors operate through technical reasoning.**
- Agriculture, manufacturing, mining, logistics, engineering, construction, and technology all depend upon people who are comfortable working with measurement, quantities, forecasting, causality, and uncertainty.
- The issue extends beyond technical specialists. Productive economies become possible when large numbers of citizens possess sufficient confidence to engage with mathematics, science, systems, and practical problem-solving.
- **Productive capability grows when technical confidence becomes widespread.**
- A nation becomes capable of sustaining complex productive systems when STEM adeptness is distributed throughout society rather than concentrated within small technical communities.

# THE SAME CHALLENGE MAY APPEAR IN THE PUBLIC SECTOR

- **Public-sector implementation also depends upon technical confidence.**
- Investment assessment, project evaluation, infrastructure planning, economic modelling, budgeting, industrial coordination, procurement, and programme review all require confidence in working with quantitative information and dynamic complexity.
- When technical confidence is limited, uncertainty often produces caution. Decisions take longer, approvals slow down, implementation becomes fragmented, and coordination becomes increasingly difficult.
- **Public-sector performance and productive-sector performance may therefore share common capability foundations.**
- The same capability constraints influencing productive sectors may also influence the institutions responsible for enabling them.

# FROM PRIVATE-SECTOR PERFORMANCE TO PUBLIC-SECTOR PERFORMANCE

The same pattern may be expressing itself through different parts of the system.

## **PRODUCTIVE SECTOR**

- Lower technical confidence
- Lower investment confidence
- Reduced productive expansion
- Reduced labour absorption
- Persistent unemployment

## **PUBLIC SECTOR**

- Lower technical confidence
- Lower implementation confidence
- Slower approvals
- Slower coordination
- Persistent implementation pressures

**Persistent issues often emerge across multiple parts of the same system.**

What appears as separate challenges may ultimately reflect a common structural condition expressing itself through different institutions and sectors.





# Two Sides. One Capability. One Nation.





# A NATIONAL CAPABILITY PROPOSITION

- **Botswana may wish to pursue a long-horizon objective of developing STEM adeptness across approximately 60% of the working-age population.**
- The objective is not to produce scientists and engineers exclusively.
- The objective is to develop a population increasingly comfortable with numbers, measurement, technical reasoning, systems thinking, forecasting, experimentation, and practical problem-solving.
- **The emergence of AI creates an opportunity previous generations did not possess.**
- AI-assisted but monitored learning can accelerate access to technical knowledge, reduce barriers to learning, and increase confidence in engaging with mathematics, science, and productive disciplines.
- **Early effects can emerge rapidly.**
- Within months, confidence levels begin changing.
- Within approximately three years, shifts begin appearing in productivity, implementation capability, entrepreneurship, innovation, and productive-sector participation.
- **Capability compounds over time.**
- Once technical confidence begins spreading through a population, the effects reinforce one another through households, schools, workplaces, institutions, and productive sectors.



# CAPABILITY COMPOUNDS. NATIONS TRANSFORM.

A 3-YEAR STEM ADEPTNESS ACCELERATION PATHWAY FOR BOTSWANA

## OUR NATIONAL TARGET

**60%**  
**STEM ADEPTNESS**  
of working-age population  
within 3 years



Comfort with  
• Numbers  
• Measurement  
• Causality



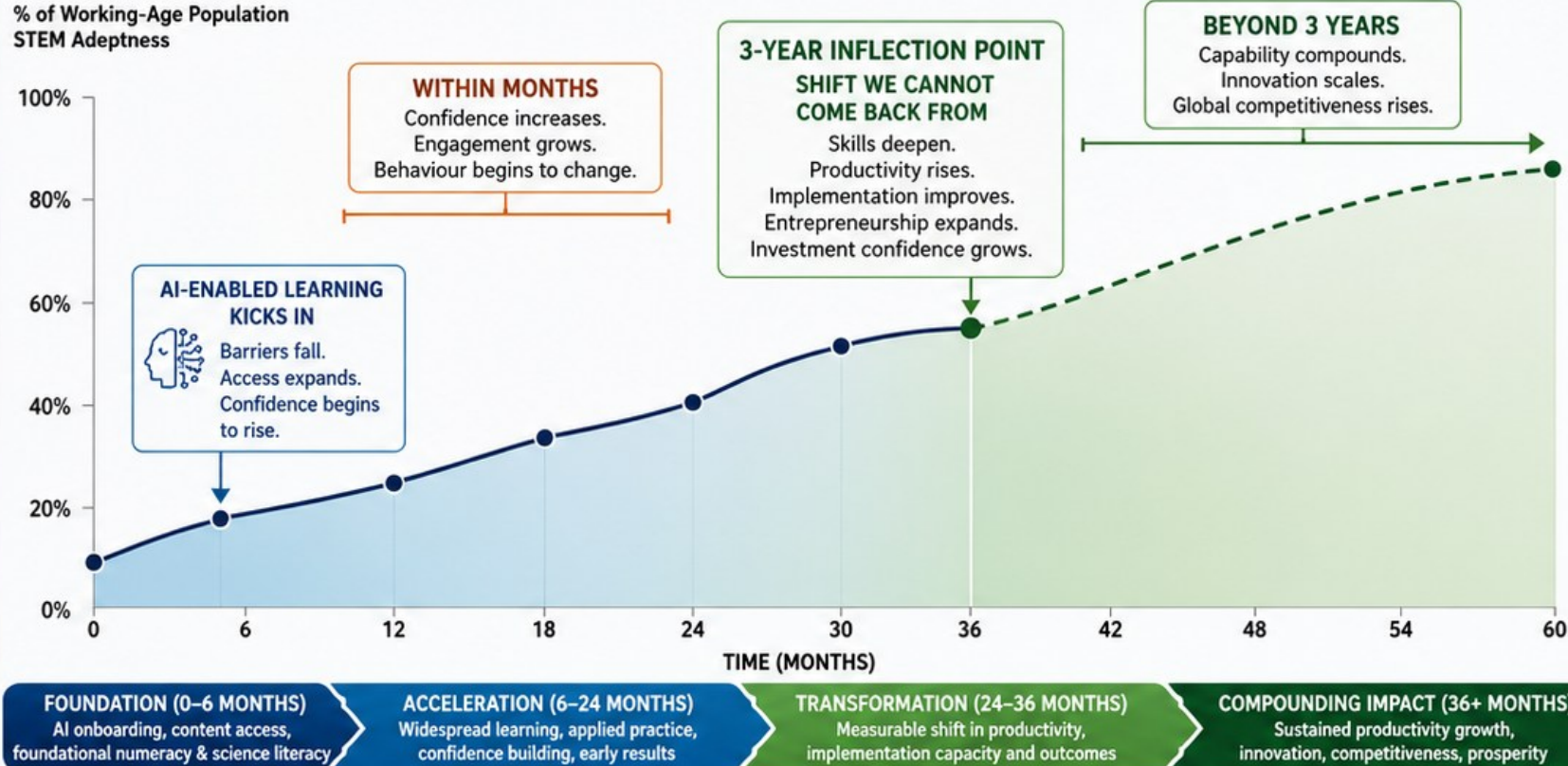
Technical Reasoning  
• Systems Thinking  
• Problem Solving  
• Experimentation



Applied Skills  
• Technology Use  
• Data Literacy  
• Innovation Mindset

NOT TO CREATE SCIENTISTS ALONE,  
BUT TO BUILD A NATION COMFORTABLE  
WITH COMPLEXITY AND CAPABLE OF  
SUSTAINING PRODUCTIVE SYSTEMS.

## BEHAVIOUR OVER TIME: STEM ADEPTNESS & NATIONAL IMPACT



## WHAT BEGINS TO CHANGE



**LABOUR PRODUCTIVITY**  
More output.  
Higher value.  
Better quality.



**IMPLEMENTATION CONFIDENCE**  
Faster decisions.  
Better planning.  
Stronger execution.



**ENTREPRENEURSHIP & INNOVATION**  
More start-ups.  
More solutions.  
More jobs.



**PRODUCTIVE SECTOR PARTICIPATION**  
More firms.  
More production.  
More exports.



**LABOUR ABSORPTION**  
More people in meaningful, productive work.

## THE SYSTEM CONNECTION: FROM STEM ADEPTNESS TO NATIONAL OUTCOMES



**OUR ASPIRATION: A NATION OF CONFIDENT, CAPABLE PEOPLE BUILDING A DIVERSE, PRODUCTIVE, PROSPEROUS BOTSWANA.**

*"Once capability begins to grow across a population, the trajectory becomes difficult to reverse — because capability compounds."*

# THE HUMAN OPERATING SYSTEM

- Different labour layers required:

- **Production Layer**

- growers,
  - irrigation operators,
  - livestock technicians.

- **Industrial Layer**

- machinists,
  - packhouse operators,
  - maintenance teams,
  - cold-chain technicians.

# THE HUMAN OPERATING SYSTEM

- Different labour layers required:

- **Coordination Layer**

- throughput planners,
- logistics coordinators,
- standards managers,
- export schedulers.

- **Intelligence Layer**

- data systems,
- forecasting,
- demand analytics,
- systems modelling.

## **Bottom reflection:**

- The future shortage may not be jobs.
- It may be coordinated capability.

# FROM UNEMPLOYMENT TO PRODUCTIVE ABSORPTION

- This is directly your unemployment work.
- Botswana's issue increasingly becomes:
  - not simply:
  - unemployment,
- but:
  - insufficient productive absorption systems.

## **Key insight:**

- Economies absorb labour through coordinated productive structures — not through intention alone.
- Then show:  
Demand → Production → Manufacturing → Logistics → Exports → Labour Absorption

# WHAT SETS THIS IMPLEMENTATION PATHWAY APART?

## TRADITIONAL APPROACH

Policies → Programmes → Budgets → Projects → Jobs

## STRLDI IMPLEMENTATION PATHWAY

Understanding → Alignment → Behaviour Change → Structural Change → Labour Absorption

### FROM SYMPTOM MANAGEMENT

- Unemployment Programmes
- Grants & Subsidies
- Incentives
- Public Sector Expansion
- Project-Based Interventions

### TO STRUCTURAL TRANSFORMATION

- Productive-Sector Deepening
- Labour Absorption Design
- Diversification Capability
- STEM Capability Formation
- Long-Term Economic Coordination



# PHASE 1: STRUCTURAL RECOGNITION

## Objective

- Build a shared understanding that persistent unemployment is not behaving as a labour-market issue alone, but as a structural national issue.
- **Focus Areas**
  - Behaviour Over Time (BOT) patterns
  - Labour absorption dynamics
  - Productive-sector performance
  - Diversification behaviour
  - Household and STEM linkages
  - Systems archetypes and structural causes
- **Key Outcome**
  - The national conversation shifts from:
    - **“What programme should we fund next?”**
  - to
  - **“What structures are reproducing unemployment?”**





# PHASE 1: STRUCTURAL RECOGNITION

## PURPOSE

- Build a shared understanding of the structural drivers underlying persistent unemployment and diversification challenges.
- **INITIAL REACH-OUTS**
  - **Presidencies**
  - **National Planning Commission (NPC)**
  - **Botswana Economic Transformation Programme (BETP)**
  - **Ministry of Finance**
  - **Productive Sector Leadership**
  - **Agriculture**
  - **Manufacturing**
  - **Trade**
  - **Education & Skills Development**
- **EVENUAL REACH-OUTS**
  - Southern Africa
  - Eastern Africa
  - Western Africa

## OUTPUT

- **Shared National Understanding**
- **Leadership Alignment**
- **Recognition of Structural Drivers**
- **Readiness for Coordinated Action**



# PHASE 2: POLITICS SPEAKS BACK TO ITS PEOPLE

- **Objective**
  - Create a new national dialogue around productive development and shared responsibility.
- **Focus Areas**
  - Productive economies
  - Labour absorption
  - Agriculture and manufacturing
  - STEM readiness
  - Long-term national competitiveness
- **Key Message**
  - **Government cannot solve unemployment alone.**
  - **Government and citizens must solve unemployment together.**
- **Key Outcome**
  - Citizens begin seeing themselves as participants in the solution rather than recipients of programmes.

# PHASE 3: HOUSEHOLD ONBOARDING

## Objective

- Strengthen the household's role in capability formation and long-term economic development.
- **Focus Areas**
  - Educational continuity
  - STEM readiness
  - Family stability
  - Learning environments
  - Intergenerational capability development
- **Key Insight**
  - **The household is not only a social institution.**
  - **The household is also an economic institution.**
- **Key Outcome**
  - Greater national alignment between family life, education, and productive-sector needs.

# PHASE 4: PRODUCTIVE-SECTOR REORIENTATION

## Objective

- Refocus national growth toward sectors capable of absorbing labour at scale.
- **Priority Sectors**
  - Agriculture
  - Manufacturing
  - Agro-processing
  - Logistics
  - Technical services
- **Key Questions**
  - Which sectors absorb labour?
  - Which sectors reproduce capability?
  - Which sectors create multiplier effects?
- **Key Outcome**
  - Labour absorption becomes a deliberate design objective.



# PHASE 5: DEMAND-SPINE & SUPPLY-SPINE COORDINATION

- **Objective**
  - Align production systems with regional and global demand opportunities.
- **Focus Areas**
  - Trade
  - Agriculture
  - Manufacturing
  - Education
  - Finance
  - Investment
- **Key Questions**
  - What does the market require?
  - What can Botswana competitively produce?
  - How should production systems be organised?
- **Key Outcome**
  - National coordination around productive growth and export competitiveness.

# The STRLDi Minimum Viable Execution Lattice: A Hierarchy of Discipline

## THE DISCIPLINE-TO-EMPLOYMENT ENGINE: SOLVING UNEMPLOYMENT IN SOUTHERN AFRICA

DISCIPLINE CREATES VALUE. VALUE CREATES JOBS. JOBS CREATE DIGNITY.



## ROLE DOCTRINE — WHO DOES WHAT

### 1. p-NEC (Provisional National Economic Command)

Composition: OP delegate, Finance, Trade, Private Sector (BB-nominated), Financiers, MoA (regulatory), Systems role.

p-NEC exists to govern permission, not performance. It does not operate the corridor. It licenses it, protects it, and withdraws authority when discipline erodes. Its mandate is narrow by design:

License corridor actors  
Protect execution from interference  
Judge outcomes  
Withdraw authority if discipline fails.

### 2. Corridor Operators (LHM, BAMB, BMC)

Their mandate is execution discipline in motion.  
Convert demand into allocatable work  
Allocate volumes into SOUs  
Enforce quality, time, and exclusion  
Report numbers, not stories

### 3. MoA (Post-Split Doctrine)

Two faces — permanently separated.

A. Sovereign Regulator (unchanged)▪ Law, standards, enforcement  
International credibility  
Sanctions authority

B. Corridor Service Units (CSUs)▪ Embedded execution support  
SLA-driven  
Time-bound  
Contract-prioritised

### 4. SOUs (Sector Operator Units)

SOUs exist to execute contracts — not to expand mandates.  
Execute assigned contracts  
Allocate work to clusters  
Replace underperformers  
Maintain delivery discipline.

### 5. Clusters

Clusters exist to reduce variance, not amplify complaints.  
Coordinate farmers  
Enforce peer discipline  
Deliver assigned volumes

### 6. Farmers

Farmers are paid for delivery — not intention.  
Deliver to spec  
Deliver on time  
Accept replacement risk

### 7. BOHOCO & Farmer Associations

Representation remains necessary — but it is structurally separate.  
Representation  
Readiness preparation  
Absorbing social pressure  
Learning & advocacy

### 8. Financiers

Capital is disciplined, or it destabilises the spine.  
Finance contracts  
Price risk explicitly  
Withdraw when discipline erodes

### 9. Donors

Donors support the ecosystem — not the engine.  
Fund readiness  
Fund learning  
Fund exit pathways

### 10. Media, Political Parties, Public Forums

They are not part of the execution spine.  
Not engaged during pilots  
Not briefed on execution detail  
Not answered reactively  
Corridors die in public before they fail in reality.  
Silence, at times, is policy.



# THE MISSING LAYER: THE NEXUS OPERATOR

- Not a new ministry.  
Not another committee.  
Not a regulator.
- But a neutral operating layer responsible for:
  - sequencing,
  - throughput,
  - corridor cadence,
  - infrastructure utilisation,
  - demand coordination,
  - manufacturing integration,
  - logistics timing,
  - production balancing,
  - and system learning.

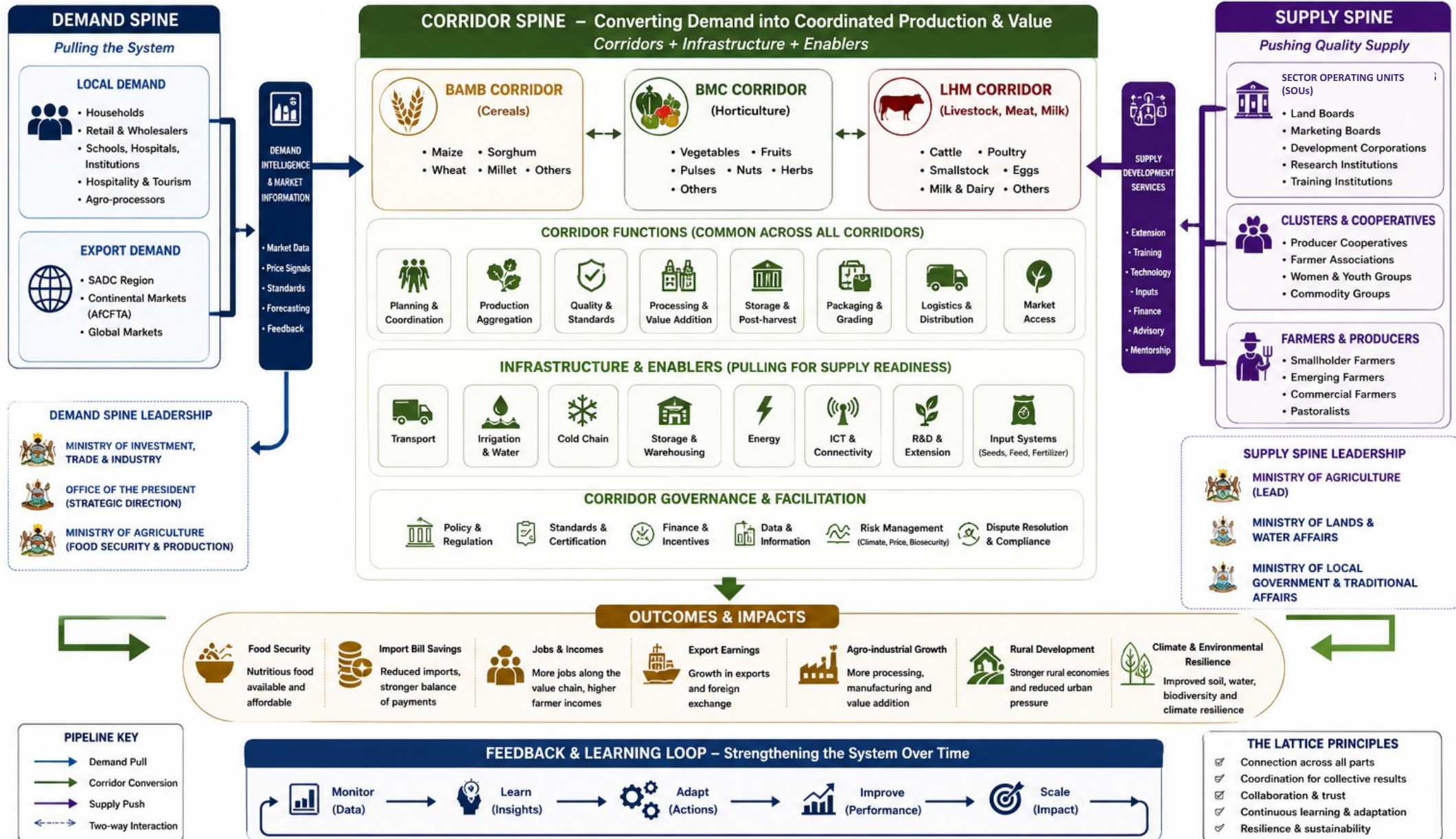
# THE MISSING LAYER

- **The Nexus Operator Holds:**
- Demand before production
- Contracts before planting
- Throughput before scaling
- Corridor utilisation before isolated projects
- Bottom reflection:
- Today, much of this work is happening informally through individuals.
- Industrial-scale systems cannot depend on informal coordination.

# BOTSWANA AGRICULTURE LATTICE

## Demand Spine → Corridors (including Infrastructure) → Supply Spine

*A coordinated system that turns demand into income, jobs and food security*



# THE REGIONAL ECONOMIC BELTS

- **Botswana does not scale alone.**
- **Economic Belt Logic**
- Botswana → SADC → Ports → Global Markets
- **Strategic Port & Corridor Integration**
  - Walvis Bay
  - Durban
  - Maputo
  - Beira
  - Lobito
  - AfCFTA trade corridors

# THE REGIONAL ECONOMIC BELTS

## **What Belts Stabilise**

- logistics continuity,
- export throughput,
- manufacturing scale,
- labour absorption,
- infrastructure utilisation,
- and regional trade rhythm.

## **Bottom reflection:**

- Corridors move products.
- Economic belts sustain industrial civilisation scale.

# WHAT THE SYSTEM IS ACTUALLY BUILDING

- **Not farms.**
- **Not projects.**
- **Not isolated interventions.**
- The system is increasingly building:
  - productive throughput,
  - labour absorption,
  - industrial coordination,
  - export capability,
  - manufacturing depth,
  - regional competitiveness,
  - institutional learning capacity,
  - and productive GDP.

## **Reflection:**

- Agriculture increasingly behaves less like a social support activity and more like productive infrastructure.



# WHAT CHANGES IF THE SYSTEM STRENGTHENS?

- **Possible Structural Effects**

- **Economy**

- Reduced import leakage
- Higher productive GDP
- Increased exports
- Stronger forex position
- Expanded industrial activity

- **Employment**

- Higher labour absorption
- Youth participation
- More stable income systems
- Technical capability growth



# WHAT CHANGES IF THE SYSTEM STRENGTHENS?

- **Institutions**

- Higher infrastructure utilisation
- Better corridor visibility
- Faster learning loops
- Stronger throughput discipline

- **Agriculture**

- Predictable demand visibility
- Reduced waste & gluts
- Improved planning
- More stable supply systems

## **Bottom reflection:**

- The issue may increasingly no longer be agricultural productivity alone.
- The issue may be national productive coordination capacity.



# THE REGIONAL ECONOMIC BELTS

- **Botswana does not scale alone.**
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# THE REGIONAL ECONOMIC BELTS

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## **Bottom reflection:**

- Corridors move products.
- Economic belts sustain industrial civilisation scale.

**THESE IMPLY:**

# WHAT SCALE MUST THE SYSTEM COORDINATE?

- **Indicative *National* Scaling Requirements**

## Key reflection:

- The issue may no longer simply be increasing production.
- The issue may increasingly be coordinating industrial-scale throughput across the entire production pipeline.

| SYSTEM REQUIREMENT           | INDICATIVE SCALE         |
|------------------------------|--------------------------|
| Farmers participating        | 230,000–390,000          |
| Labour throughput            | 850,000–1.5 million      |
| Productive hectares          | 12–17 million ha         |
| Irrigated hectares           | 300,000–500,000 ha       |
| Cluster aggregation systems  | Thousands                |
| Packhouses & storage nodes   | Hundreds                 |
| Cold-chain throughput        | National scale           |
| Logistics coordination       | Continuous               |
| Feed coordination            | Multi-corridor dependent |
| Processing throughput        | Industrial scale         |
| Demand visibility            | Daily/seasonal           |
| Agriculture GDP Contribution | ~6–10%+                  |





# PHASE 6: STEM DEEPENING

## Objective

- Build world-class technical and productive capability.
- **Focus Areas**
  - Science
  - Technology
  - Engineering
  - Mathematics
  - Agricultural sciences
  - Industrial skills
- **Key Insight**
  - Long-term diversification depends on sustained technical capability.
- **Key Outcome**
  - A growing pipeline of globally competitive STEM talent.

# PHASE 7: LABOUR ABSORPTION ACCELERATION

## Objective

- Enable employment growth through productive-sector expansion.
- **What Happens**
  - Firms expand
  - Suppliers emerge
  - Value chains deepen
  - Technical services grow
  - Export activity increases
- **Key Insight**
  - Employment becomes an outcome of productive growth rather than a target pursued independently.
- **Key Outcome**
  - Sustained increases in labour absorption across the economy.

# PHASE 8 (PARALLEL): NATIONAL LEARNING SYSTEM

## Objective

- Build the capability to identify and address future systemic challenges before they become crises.
- **Foundation**
  - The Five Disciplines
  - Systems Thinking
  - Personal Mastery
  - Mental Models
  - Shared Vision
  - Team Learning
- **Key Insight**
  - Nations that learn continuously adapt more effectively to change.
- **Key Outcome**
  - A learning society capable of sustaining productive development across generations.

# PHASE 9: NATIONAL SYSTEMIC INTEGRATION

- **Objective**

- Integrate insights from multiple persistent national issues into a coherent national development architecture.

- **INPUT STUDIES**

- Persistent Unemployment
- Economic Diversification
- STEM Capability Development
- Gendered Violence
- Household Stability
- Educational Outcomes
- Agricultural Productivity
- Public Sector Performance
- Health Outcomes
- Other Persistent National Challenges

<https://sheilasingapore.blog/2026/05/16/a-showcase-of-viewing-persistent-issues-through/>

- **PROCESS**

- Cross-study analysis
- Shared systemic structures
- Common causal patterns
- Interacting system archetypes
- National priority alignment
- Strategic integration

- **KEY QUESTION**

- **What structures are simultaneously influencing multiple national outcomes?**

- **OUTPUT**

- Integrated National Systems Strategy
- Cross-Ministry Coordination Framework
- National Learning Priorities
- Long-Term Structural Interventions
- Evidence-Based National Development Planning





# The Persistent Structural Issues Atlas: Mapping the Global Loop

Societal problems like unemployment and health crises are not isolated failures but "persistent structural pressures" generated by underlying systems. By mapping these into four interacting layers (KSLs), we can move from managing downstream symptoms to reshaping the structural generator that produce them.

## KSL 4: Institutional Allocation & Execution

Governance systems must prioritize long-term productive investment over short-term political distribution or "treating" symptoms.

**KSL 4: Stb, StS**

(Shifting the Burden, Success to the Successful)

## KSL 3: Productive Economic Capacity

The "real" economy transforms resources and labor into goods through manufacturing depth rather than just consumption.

**KSL 3: G&U, Esc, AA**  
(Growth & Underinvestment, Escalation, Accidental Adversaries)

## KSL 1: Human Formation

Societies must form disciplined, capable individuals whose technical competency—not just years of schooling—drives economic participation.

Capable Individuals & Technical Competency

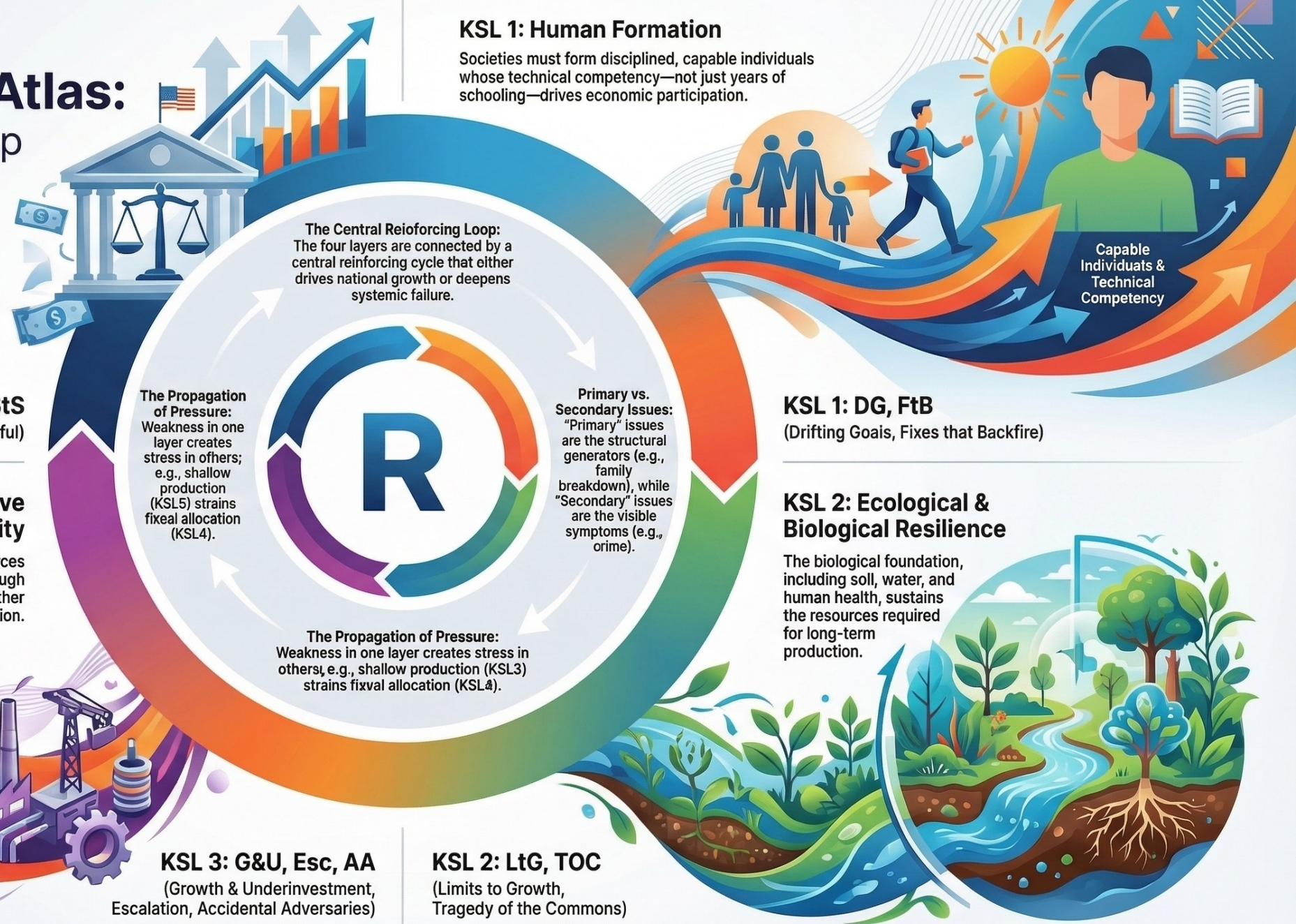
**KSL 1: DG, FtB**

(Drifting Goals, Fixes that Backfire)

## KSL 2: Ecological & Biological Resilience

The biological foundation, including soil, water, and human health, sustains the resources required for long-term production.

**KSL 2: LtG, TOC**  
(Limits to Growth, Tragedy of the Commons)





# ROLE OF NATIONAL DEVELOPMENT PLANS (NDPs)

- National Development Plans become:
  - **Less focused on isolated sector strategies**
  - and
  - **More focused on addressing the structural conditions influencing multiple national outcomes simultaneously.**
- **END STATE**
  - **A National Learning System capable of continuously studying, integrating, and responding to persistent issues through coherent long-term development strategies.**





# CLOSING SLIDE : THE STRLDI TRANSITION PATHWAY

- **Phase 1** – Structural Recognition
- **Phase 2** – Politics Speaks Back to Its People
- **Phase 3** – Household Onboarding
- **Phase 4** – Productive-Sector Reorientation
- **Phase 5** – Demand-Spine & Supply-Spine Coordination
- **Phase 6** – STEM Deepening
- **Phase 7** – Labour Absorption Acceleration
- **Phase 8** – National Learning System
- **Phase 9** – National Systemic Integration & NDP Alignment

## **End Goal**

A productive, labour-absorbing economy supported by capable households, strong institutions, and a continuously learning society.



# WHAT IS DIFFERENT?

- **Addresses the structures producing unemployment, not only the symptoms.**
- **Recognises households as part of the economic system.**
- **Positions citizens alongside government as co-creators of solutions.**
- **Places labour absorption at the centre of economic design.**
- **Builds productive sectors before chasing employment numbers.**
- **Develops national learning capacity to prevent future crises.**

# END GOAL

## A PRODUCTIVE, LABOUR-ABSORBING ECONOMY

- Supported by:
  - **Capable Households**
  - **Strong Productive Sectors**
  - **Coordinated Institutions**
  - **STEM Capability**
  - **Continuous National Learning**

# HOW THE WORK WITH STRLDI UNFOLDS

## Stage 1:

### LEADERSHIP DEVELOPMENT

#### Learning to Work with Structure

- Systems Thinking Capability Building
- Five Disciplines Practice
- Assumption Testing
- Feedback Loop Analysis
- Leverage Point Discovery

*Output: Leaders capable of seeing and working with systemic causes rather than symptom*

## Stage 2:

### SYSTEMIC RESEARCH

#### Seeing the System Whole

- Behaviour Over Time Analysis
- Persistent Issue Mapping
- System Archetype Identification
- Structural Diagnosis
- Shared Understanding of the Issue

*Output: A visible picture of the structures generating the persistent outcome.*

## Stage 3:

### SYSTEMS STEWARDSHIP & STRATEGY RENEWAL LABS

#### Translating Insight into Action

- Cross-Sector Learning
- Strategy Testing
- Intervention Sequencing
- Implementation Alignment
- Continuous Learning

*Output: Coordinated action capable of shifting Behaviour Over Time patterns.*

## RESULT

Persistent Issue → Structural Understanding → Leadership Capability → Coordinated Action → Behaviour Change Over Time





# HOW THE WORK UNFOLDS

Three interconnected modes of practice.  
All three are engaged, depending on the system and the stage of readiness.



“ We do not just provide answers. We build the capability to ask better questions, see deeper, learn together, and steward what matters. ”

# DISTINCTIONS TO “SYSTEMS”

## SYSTEM MANAGEMENT / ANALYSIS

### DETAILED COMPLEXITY

- Exists because of a defined purpose, mandate, target, or objective.
- Boundaries are known, visible, and often formally defined.
- The parts are generally visible and can be mapped directly.
- Management focuses on improving performance within the system.
- Most organisational "systems" discussions fall into this category.
- Problems are often solved through process improvements, resource allocation, compliance, and management intervention.

## SYSTEMIC STRUCTURES

### DYNAMIC COMPLEXITY

- Exists whether or not anyone recognises it.
- Boundaries are not predefined and must be discovered.
- The causal relationships are often hidden and revealed through inquiry.
- Learning focuses on revealing and changing the structure producing behaviour.
- Most persistent national and societal issues fall into this category.
- Problems require understanding feedback loops, delays, system archetypes, and underlying structures.



# DISTINCTIONS TO “SYSTEMS”

## EXAMPLES OF SYSTEM MANAGEMENT / ANALYSIS

- Organisation and its divisions
- Industry and its organisations
- A vehicle and its components
- The human body and its organs
- Supervisor–supervisee relationships
- Employer–employee relationships
- Government ministries and departments
- Corporate operating systems

### KEY DISTINCTION

SYSTEM MANAGEMENT ASKS:

"How do we improve the performance of the system we can already see?"

SYSTEMIC STRUCTURE INQUIRY ASKS:

"What hidden structure is producing the behaviour we keep observing over time?"

## EXAMPLES OF SYSTEMIC STRUCTURES

- Persistent unemployment
- Economic diversification challenges
- Low labour absorption
- Weak manufacturing growth
- Declining STEM capability
- Educational performance patterns
- Poverty traps
- Wildlife–human conflict
- Gendered violence
- Organisational decline and attrition
- Public sector performance patterns
- Climate change

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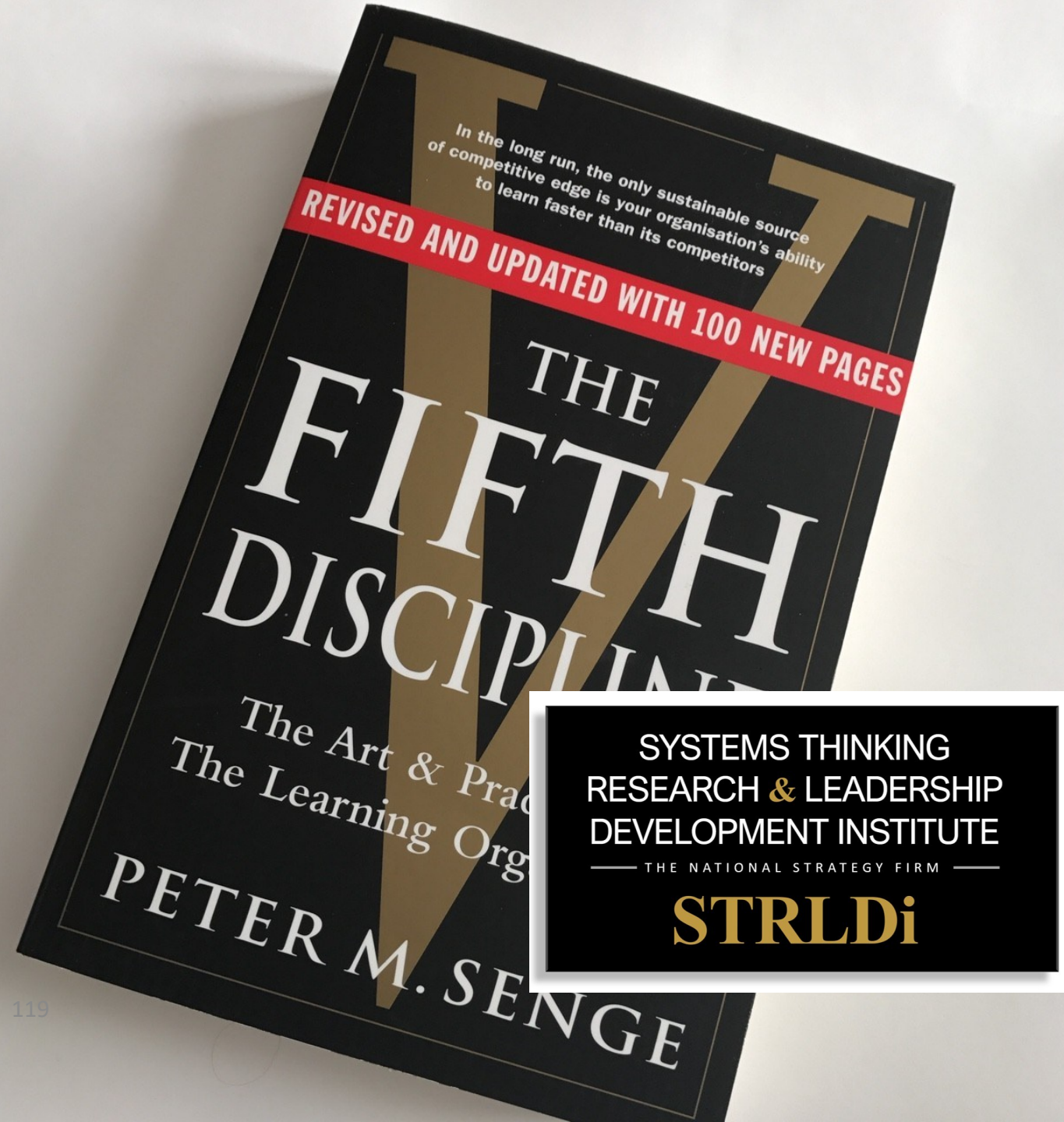
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