Overarching Intent:

Pre-conference participants gain both a conceptual and practical understanding of Systems Thinking and how they can apply it in their domains.
1) Pre-conference participants will learn basic systems thinking concepts, principles, methods and tools

2) Apply these tools to their particular contexts in order to better understand what is currently enabling success and what is, or may in the future, inhibit success

3) As a result of the above work, participants will come away appreciating the value of a holistic view, more clearly understanding cause and effect and where the highest leverage action might be taken in their systems

Retreat Flow:

I. Introduction, experience with Systems Thinking methods and tools, Goals and flow of the session

II. Purpose and value of a systems perspective

III. Systems Thinking terminology and mechanics

IV. Reinforcing process, Balancing processes, practice

V. Systems Archetypes, “Shifting the Burden”, “Limits to Success”

VI. Mapping your system

VII. Leverage, Discussion

VIII. Check-out, close
Systems Thinking is…

• A language to help us understand more deeply how our organizations and complex systems really operate.

• The tools, processes, and principles enabling us to focus on the relationships among the parts, not just the parts.

Purposes of Systems Thinking

• Discover the system structure behind problems.
• Tell compelling stories that describe how the system works.
• Describe mental models.
• Foster team learning.
• Identify higher leverage interventions.
### Problems and Solutions

<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing errors</td>
<td>Rewrite billing manuals and retrain</td>
</tr>
<tr>
<td>Late Deliveries</td>
<td>Install automated delivery routing system</td>
</tr>
<tr>
<td>Excessive sales time on new accounts</td>
<td>Create new account policies</td>
</tr>
<tr>
<td>Systems poorly used</td>
<td>Develop new systems and documentation</td>
</tr>
</tbody>
</table>

### ACME Company

- **Sales**
- **Efforts on New Accounts**
- **Billing Errors and Delivery Problems**
- **Profitability**

### Time Trends

#### ACME Company

- Poor Service (billing & delivery problems)
- Burden on Service
- Pledges & Promises
- Efforts on New Accounts
- Lost Customers (and Sales)
- Sales Targets
**First View**

<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing errors</td>
<td>Rewrite billing manuals and retrain</td>
</tr>
<tr>
<td>Late Deliveries</td>
<td>Install automated delivery routing system</td>
</tr>
<tr>
<td>Excessive sales time on new accounts</td>
<td>Create new account policies</td>
</tr>
<tr>
<td>Systems poorly used</td>
<td>Develop new systems and documentation</td>
</tr>
</tbody>
</table>

**Systems View**

- Poor Service
- Burden on Service
- Lost Customers (and Sales)
- Pledges & Promises
- Efforts on New Accounts

**How we Tend to Think**

| The connection between problems and their causes is obvious and easy to trace. |
| Others, either within or outside our organization, are to blame for our problems and must be the ones to change. |
| A policy designed to achieve short-term success will also assure long-term success. |
| In order to optimize the whole, we must optimize the parts. |
| The best way to implement change is to aggressively tackle many independent initiatives simultaneously. |

**Principles of Complex Systems**

| The relationship between problems and their causes is indirect and not obvious. |
| We contribute to our own problems. Everyone is acting reasonably and responsibly and no one is to blame. |
| Most quick fixes either make no long-term difference or actually make matters worse in the long run. |
| In order to optimize the whole, we must improve relationships among the parts. |
| Only a few high leverage interventions are required for large systems change. |
Increased Leverage and Opportunity for Learning and Change

Most visible

The "Water Line"

Least visible

**Variables** - Noun or noun phrases that can be measured

- **Links (Arrows)**
  - S’s and O’s
  - S = same direction
  - O = opposite direction

**Wait Time**

**Impatience & Frustration**

**Impatience & Frustration**

**Demand**
Variable

- Is an element in a situation which may act or be acted upon.
- Is not an event.
- Is something you can discuss as “the level of...”
- Its value can vary up or down over time.
- Key test--it’s a variable if you can make a time plot of it.

Variable Names

- Short.
- Neutral.
- Should be nouns or noun phrases.
- NOT action words (don’t use increasing, decreasing, higher, etc.).
- Fit into a phrase starting with “the level of...,” “the quantity of...”
Virtuous cycles that generate growth and change.
Vicious treadmills that create disaster.

<table>
<thead>
<tr>
<th>Time</th>
<th>Quality of Service</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reinforcing Loop

Growing Action \( R \) Condition or Performance

Reinforces
A Reinforcing Process:
Virtuous Cycle

Investments in Products and Services → Customers → Revenues

A High-Tech Growth Story

Pile Up

Problems pile up → Too many things on team’s agenda
Decisions that get made don’t stay made → Tending not to focus
Actions and follow-through don’t occur → Superficial treatment of problems
True consensus is never really developed → Lack of thorough understanding of all concerned
Reinforcing Process: Summary

- Persistent, accelerating trend, easy to understand.
- Change may be fast, or slow (e.g., population).
- Focus on the links.
- Vicious cycle – break a link.
- Virtuous cycle – look for the balancing loops. Nothing grows forever!
- Before the trend is obvious, the reinforcing loop is well-developed.

Can you identify the Engine for Success in your particular organizational context?
Balancing Process: Driving Your Car

- Speed
- Pressure on Gas Pedal

Fixing our costs to help our finances

- Financial Pressure
- Cost Cutting Efforts
- Costs
A Balancing Process responds when performance deviates from the goal. 

- Reduce or eliminate delays.
- If there are delays, it's easy to over-control.
- When actions are driven from a Balancing Process, when performance improves, the pressure comes off.
- Any element of the Balancing Process can break down.
Why Study System Archetypes?

- Makes systems thinking visible.
- Well understood--recur frequently.
- Easily transferable.
- Naturally promotes systems thinking and acting in a team.
- Can have high “ah ha” value.
- Shifts focus from blaming to inquiry.

Mastering the Archetypes Means...

- Knowing the story lines.
- Recognizing them operating.
- Mapping out stories visually.
- Going deeper and enriching.
- Communicating effectively.
- Drawing out implications for leveraged interventions.
Shifting the Burden

The Story of Unanticipated Dependency

- Continuing to do what was a temporary fix in the short term may commit you into repeating it at higher and higher cost.

- We often find ourselves solving and resolving the same problem over and over again and each time diverting attention from the real cause.
Shifting the Burden Template

Longer Term Fix
(Balances)

Short-Term Fix
(Balances)

May Only Address
Symptoms

May Be More
Fundamental

Quick Fix:
Works in the short run
and is quicker and/or
easier to do than the
long-term solution

Long-term Solution:
Harder to do and/or
takes longer but would
be effective in long run

Problem Symptom
or Pressure

Side Effect:
Makes it even
harder to do the
long-term solution

Rewards for
Heroism

Unintended
(Reinforces)

Effectiveness of
Production/Distribution System

Improvement and Redesign Efforts

Customer Delivery Problems

Quality/Service

Short-term Fix

Heroic “11th-
Hour” Crisis
Efforts

Longer Term Fix

27

28
Micromanagement
Managers
Interventions
Short-term Fix
Employees’ opportunities to develop critical problem-solving skills
Employees’ willingness to tackle crises
Empowerment of Employees to tackle crises
Employees’ Crisis Management Experience and Effectiveness
Business Crises (or non-routine matters)
Pressure to Act
Unintended Consequences

Quick Fix:
Works in the short run and is quicker and/or easier to do than the long-term solution

Problem Symptom or Pressure

Side Effect:
Makes it even harder to do the long-term solution

Long-term Solution:
Harder and/or takes longer, but would be more effective in the long run
Delay
Shifting the Burden: Summary

- Short term is easy. Long term is hard.
- If overall vision or goals are missing, short-term focus takes over.
- Short-term solutions can erode long-term capability.
- Focus on the long-term solution.
- Sometimes the best approach is to support only the long-term solution to "go cold turkey."
- Pay attention to dependency on the short-term fix as you strengthen long-term capability.
- Look for mental models that tend to perpetuate the dependence on the Quick Fix.

Limits to Success Archetype

- Growing Action
- Condition or Performance
- Constraining Action
- Virtuous Cycle
- Limiting Process
- Delay

Limits or Constraint on Performance
Engine for Success for X Department

- Collaborative Leadership from Department Chair
- Transparency of operations and decision making
- Bright, empowered new faculty
- Collegiality and respect between and among faculty groups
- Anthropology Department reputation
- Cross-cutting research themes
- Smart, capable students
- World Class research and teaching

Inhibitors to Success Engine- X Department

- Collaborative Leadership from Department Chair
- Transparency of operations and decision making
- Bright, empowered new faculty
- Collegiality and respect between and among faculty groups
- Anthropology Department reputation
- Cross-cutting research themes
- Smart, capable students
- World Class research and teaching
- UCSD bureaucratic interdisciplinary disincentives
- Physical place for intellectual discussions
- Siloed faculty groups
- Lack of clarity and alignment regarding future of the department
- Salary discrepancies
- Negative judgments (Demonizing) among Anthropology Groups
- Past, perceived transgressions
- Lack of confidentiality
- Continued mistrust
- Intimidation and misinformation
- Dominance of Senior faculty
- Interpersonal conflicts
Limits to Success: Summary

• The archetype of the classic life cycle curve—growth and maturation.
• Nothing grows forever.
• In any situation, there are multiple limiting forces; some visible, and some not.
• Doing more of what worked in the past can make the crash worse.
• The leverage is in managing the limiting forces. There is rarely leverage in pushing harder on the growth loop.
• Anticipate the slowing forces and address them early; before they are felt.

Causal Loop Diagrams
January, 2017
<table>
<thead>
<tr>
<th>Learning Approach</th>
<th>Collaborative Culture</th>
<th>Collaborative Structure</th>
<th>Inspirational, Shared Mission</th>
<th>Operations and Program Excellence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respectful, appreciative interactions</td>
<td>Articulated and practiced values</td>
<td>PDAC</td>
<td>Focused mission</td>
<td>Quality financial management</td>
</tr>
<tr>
<td>Sharing of vulnerabilities</td>
<td>Overarching commitment to welfare of NESA</td>
<td>Membership criteria</td>
<td>Member organization alignment</td>
<td>Board engagement</td>
</tr>
<tr>
<td>Openness</td>
<td>Professional generosity</td>
<td>Quality operational staff</td>
<td>Service mentality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valuing diversity</td>
<td></td>
<td></td>
<td>Quality staff-presenter relationships</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Research based programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quality educational programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Recognized, credible researchers</td>
</tr>
</tbody>
</table>

- **Collaborative Structure**
- **Inspirational, Shared Mission**
- **Operations and Program Excellence**
- **Learning Approach**
- **Collaborative Culture**
NESA Focus
Moving Forward

- Get inputs from NESA Operational Staff, Board, others? Incorporate into the diagrams

- Get to a point of common perspective re: what is currently enabling NESA's Success and what is in the way

- Use data as a disciplined download in the U Theory Planning Process

- Determine what are the key issues to be addressed which will have the greatest leverage for enabling NESA's success both long and short term
1. Tell the story
2. Identify the Variables
3. Determine causal relationship
4. Draw the loops
5. Determine highest leverage points in the systems