

MASTERCLASS SERIES

in Systems Thinking



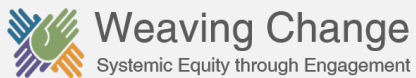
Mapping Causal Loops and Leverage Points within Early Childhood Development Systems to Guide Strategy Design

24 APRIL 2024

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The Systems Thinking for Early Childhood Development (ECD) Initiative is a partnership between ECDAN and Harvard University and supported by Porticus.



HARVARD T.H. CHAN
SCHOOL OF PUBLIC HEALTH



What went
wrong in their
problem-solving
process?





What is causing this goal to “squeak” in your region?



GOAL

Quality, accessible early childhood education and care (ECEC) programs



IMPACT

Every young child is safe, well nourished, healthy, happy and learning

Understand

Test

Design



GOAL

Quality, accessible
early childhood
education and care
(ECEC) programs

IMPACT

Every young child is safe,
well nourished, healthy,
happy and learning

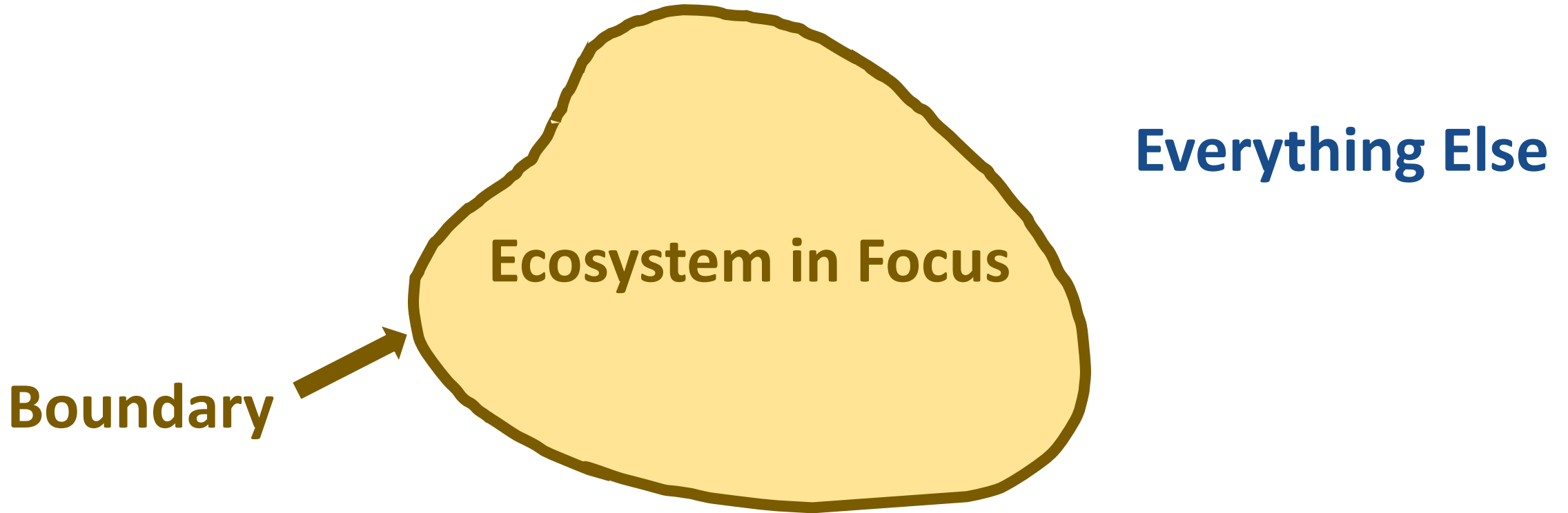
Understand



Understand



What are boundaries – and why are they important?



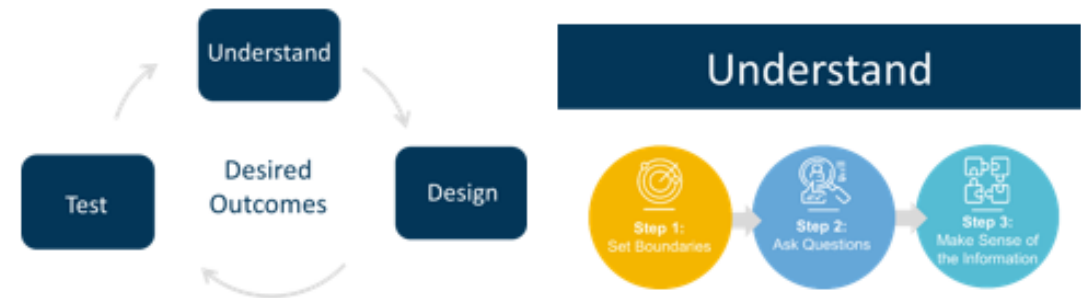
Planning Tool

Ecosystem Mapping Planning Worksheet

ECDAN Masterclass Session 4

Erin Watson, Ph.D. | [Weaving Change](#)

This worksheet helps you plan out the 3 steps for mapping out leverage points within the early childhood development ecosystem to prioritize for change. This mapping is part of an ongoing “understand-design-test” cycle informing learning and action.



	Planning Questions
 Step 1: Set boundaries Set boundaries around the outcomes, locations, populations, and goals you want to focus on.	a) What ultimate outcome(s) are you trying to improve for children and families? (e.g., children are safe, well nourished, etc.) b) Which groups of children/families are currently experiencing the greatest inequities related to this outcome(s)? c) Which geographic location should you focus on? d) What goal(s) should you try to advance that these families think are most important for improving the outcome(s)? (e.g., quality, accessible early childhood education and care; healthy, accessible food and nutrition; household resources to help children grow and develop; etc.)

Understand





Overall Question

What in the ecosystem is
helping and **hindering** [our desired
outcome(s)] for children and families?

Ecosystem Leverage Points

Erin Watson, PhD

Sources: Watson & Collins, 2022; Foster-Fishman & Watson, 2017; Meadows, 1999; Stroh, 2015

Paradigms

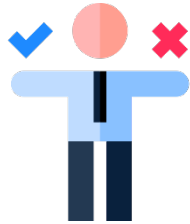


Mindsets

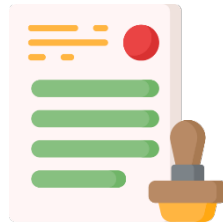


Goals

Structures



Decision-
Making



Policies &
Practices



Connections

Elements



Human
Resources



Financial
Resources



Programs &
Opportunities



Environment



Artifacts

Cheat Sheet

Ecosystem Leverage Points Cheat Sheet

Erin Watson, PhD | [Weaving Change, LLC](https://www.weavingchange.org/)

What leverage points at organizational, community, regional, state, and national levels of the ecosystem are helping and hindering your outcomes? Consider the examples below. **More powerful leverage points are listed towards the top of this table.**

	Leverage Point Conditions	Examples	Keywords
PARADIGMS	 Mindsets: Beliefs, values, narratives, assumptions, and attitudes that create a way of viewing reality for people who share them	Many in the region do not value the role early care and education plays in child development and the local economy.	- Value - Attitude - Culture - Narrative - Feel
	 Goals: Stated and unstated aims, targeted outcomes, and purpose of organizations, initiatives, and systems - including accountability mechanisms	Local organizations have prioritized outcomes around reducing disparities in child and family outcomes	- Perception - Believe - Trust - Assume - Priority
STRUCTURES	 Decision-Making: How decisions are made, and who is included/excluded	Few families have influence in local decisions about how programs and policies are designed	- Impact - Mission - Benchmarks - Measurement - Accountability
	 Policies and Practices: Formal and informal policies, practices, protocols, procedures, laws, standards, and norms	Some quality rating standards are not responsive to home-based and/or culturally diverse child care settings	- Goals - Outcomes - Targets - Aims - Purpose
	 Connections: Exchanges of information, referrals, learning, and resources between people and organizations	Data/information is being shared between cross-sector partners and with local families	- Decisions - Power - Input - Influence
	 Programs and Opportunities: The array, accessibility, and quality of programs (e.g., home visiting), services (e.g., healthcare), and opportunities (e.g., jobs)	Not enough high-quality, affordable child care slots are available to meet the needs of local families	- Membership - Family voice - Behind closed doors "Never listens to __"
ELEMENTS	 Human Resources: People and their skills and knowledge	Cross-sector staff have skills in trauma-informed practices	- Policies - Standards - Practices - Procedures - Eligibility - Legislation
	 Financial Resources: Money and capital	Lack of funds to address the market failure within child care business models	- Exchanges - Referrals - Network - Coordination - Co-location
	 Natural and Built Environment: Aspects of the natural (e.g., land, water) and built (e.g., buildings, roads, internet) environment	Broadband internet is unavailable within some rural areas of the region	- Slots/openings - Quality - Cultural responsiveness - Curriculum
	 Socio-Cultural Artifacts: Information and images embedded throughout the system	Many early educational materials underrepresent diverse children	- Available staff - Volunteers - Credentials
			- Hard to get to "__ is at the wrong times" - In some places but not others

Adapted from: [Watson & Collins \(2022\)](#), [Foster-Fishman & Watson \(2017\)](#), [Meadows \(1999\)](#), [Stroh \(2015\)](#).

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Ecosystem Leverage Point Questions

Use these questions to explore ecosystem leverage points affecting your outcomes.

Leverage Point Conditions	Example Questions
 Mindsets	What shared beliefs, attitudes, values, or assumptions are helping and hindering <i>[insert your outcome]</i> - and in what ways? What new mindsets are needed?
 Goals	How are the goals driving the work within regional organizations, agencies, and initiatives helping and/or hindering <i>[insert your outcome]</i> ? What new goals are needed?
 Decision-Making	How are decisions made about <i>[insert your outcome]</i> within organizations, agencies, and communities? Who is engaged in/excluded from these decision-making processes? How is this situation helping and/or hindering <i>[insert your outcome]</i> ? What new decision-making processes are needed?
 Policies and Practices	How are current policies, practices, procedures, regulations, and/or laws (and the state of their implementation) within local organizations and regions helping and hindering <i>[insert your outcome]</i> ? What new policies and practices are needed?
 Connections	How are the current flows and exchanges of information, resources, and referrals between people and organizations helping and hindering <i>[insert your outcome]</i> ? What new flows and exchanges are needed?
 Programs and Opportunities	How is the current array, accessibility, character, and/or quality of programs (e.g., home visiting, early care and education), services (e.g., healthcare, public transit), and opportunities (e.g., jobs) helping and hindering <i>[insert your outcome]</i> ? What is still needed?
 Human Resources	How is the current availability of people (e.g., staff, family leaders, etc.) and their skills and knowledge helping and hindering <i>[insert your outcome]</i> ? What additional types of people, skills, and knowledge are needed?
 Financial Resources	How is the current allocation of funding and capital helping and hindering <i>[insert your outcome]</i> ? What is still needed?
 Natural and Built Environment	How is the current condition of the natural and built environment (e.g., land, water, housing, roads, technology/ internet, etc.) helping and hindering <i>[insert your outcome]</i> ? What is still needed?
Socio-Cultural Artifacts	How is the information and images embedded in documents, media, social media, research reports, and public art helping and hindering <i>[insert your outcome]</i> ? What new types of information and images are needed?



Who/what can answer your questions?



Parents and
Caregivers



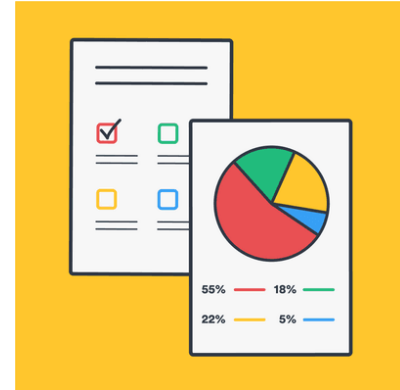
Direct Service
Providers



Leaders,
Funders, NGOs



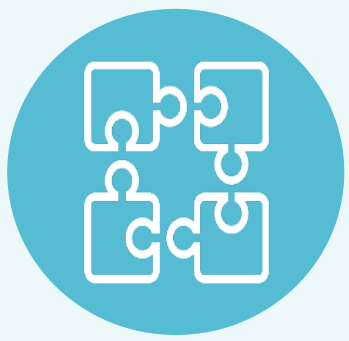
Community
Members



Databases,
Reports,
Records

Understand



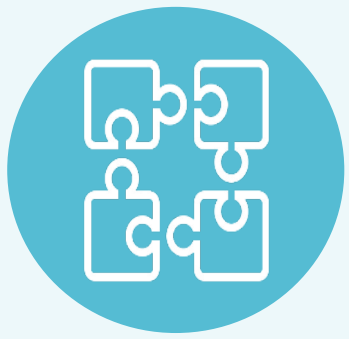


Who will you engage – and how – in theming the information?



Image from Barbrook-Johnson & Penn (2022).
Systems Mapping: How to build and use causal models of systems.





Who will you engage – and how - in mapping out the themes?

Mapping:

Identifying relationships between your ecosystem themes and how they work together to affect your outcomes



Image from Barbrook-Johnson & Penn (2022). *Systems Mapping: How to build and use causal models of systems*.

Different Mapping Approaches

Causal Loop Diagrams

Can be participatory – but often rely on a modeler/researcher

Maps focus primarily on feedback loops

Often center on a “core engine” of variables affecting a situation

Participatory System Mapping

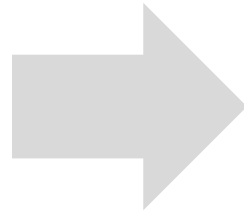
Always participatory – limited control by modeler

Maps can include lots of connections and can become HUGE – sub-maps often used

Draws on network analysis principles

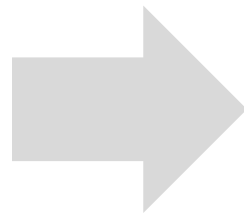
Turn themes into “variables”

Theme



Variable

Massive shortage of qualified ECEC staff in field – at least 1,300 needed to meet demand



Number of qualified ECEC staff in field

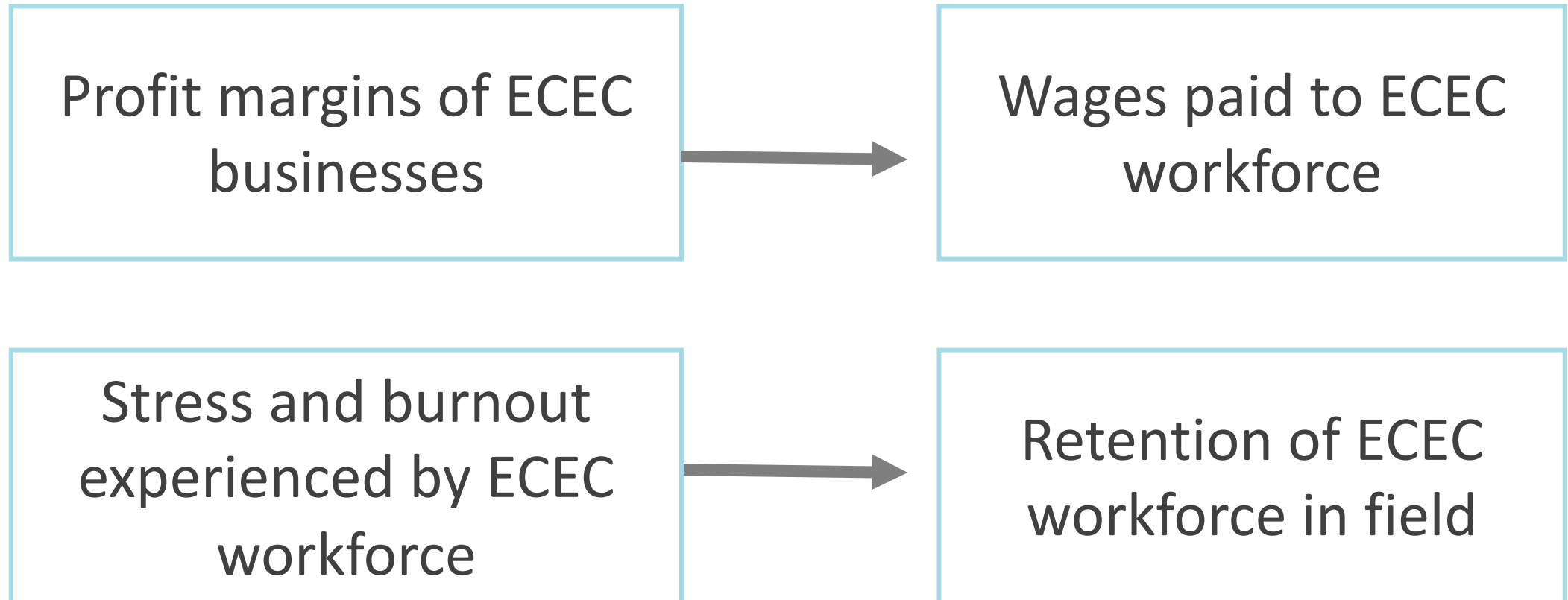


TIPS

Variables are nouns

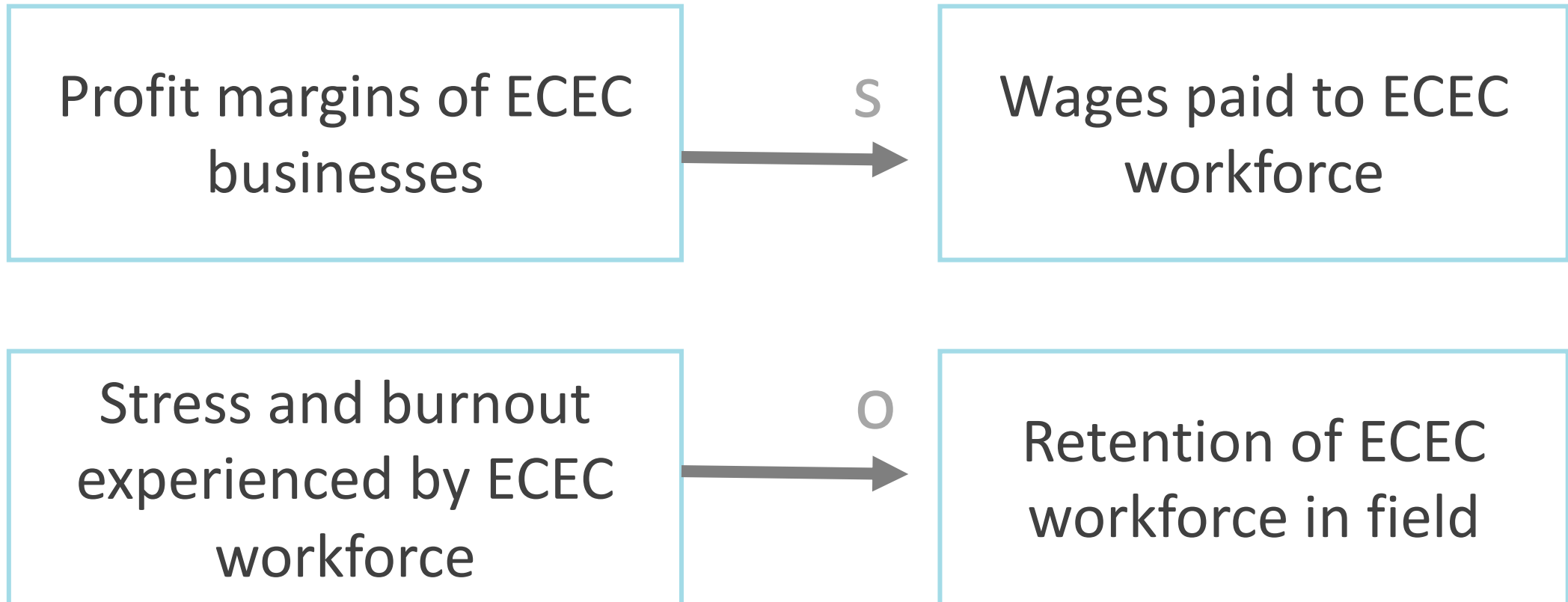
Variables can increase and decrease over time

Consider variable relationships



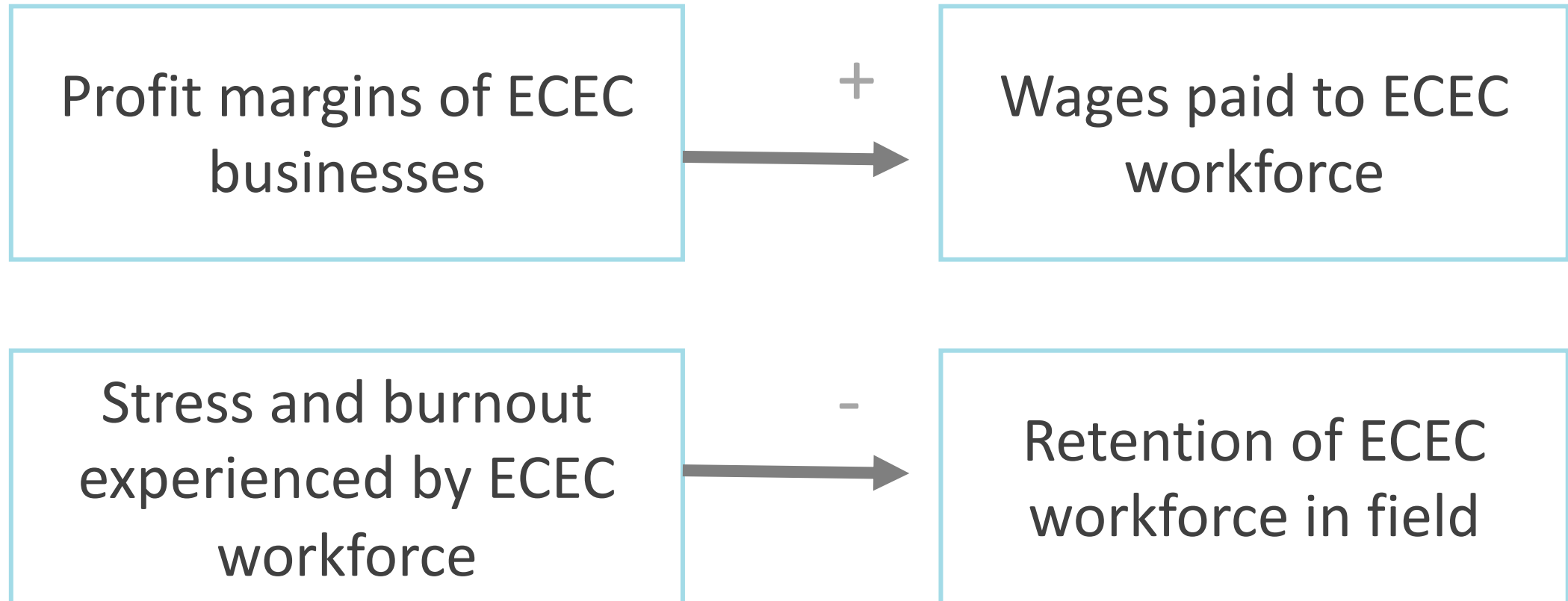
Consider variable relationships

Option 1



Consider variable relationships

Option 2





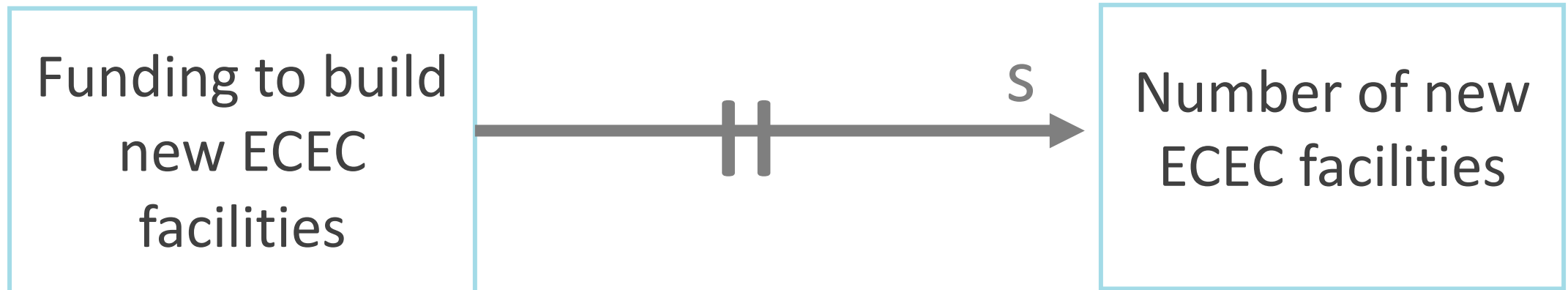
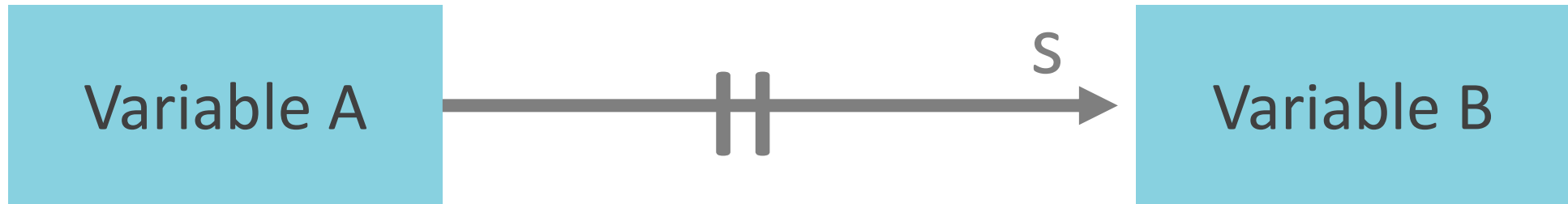
Is this relationship “s” or “o” ?

Amount of additional profits
ECEC businesses can gain
from charging out-of-pocket
rates compared to subsidized
rates



Density of quality ECEC
settings in low-income
neighborhoods where
families primarily rely
on subsidies

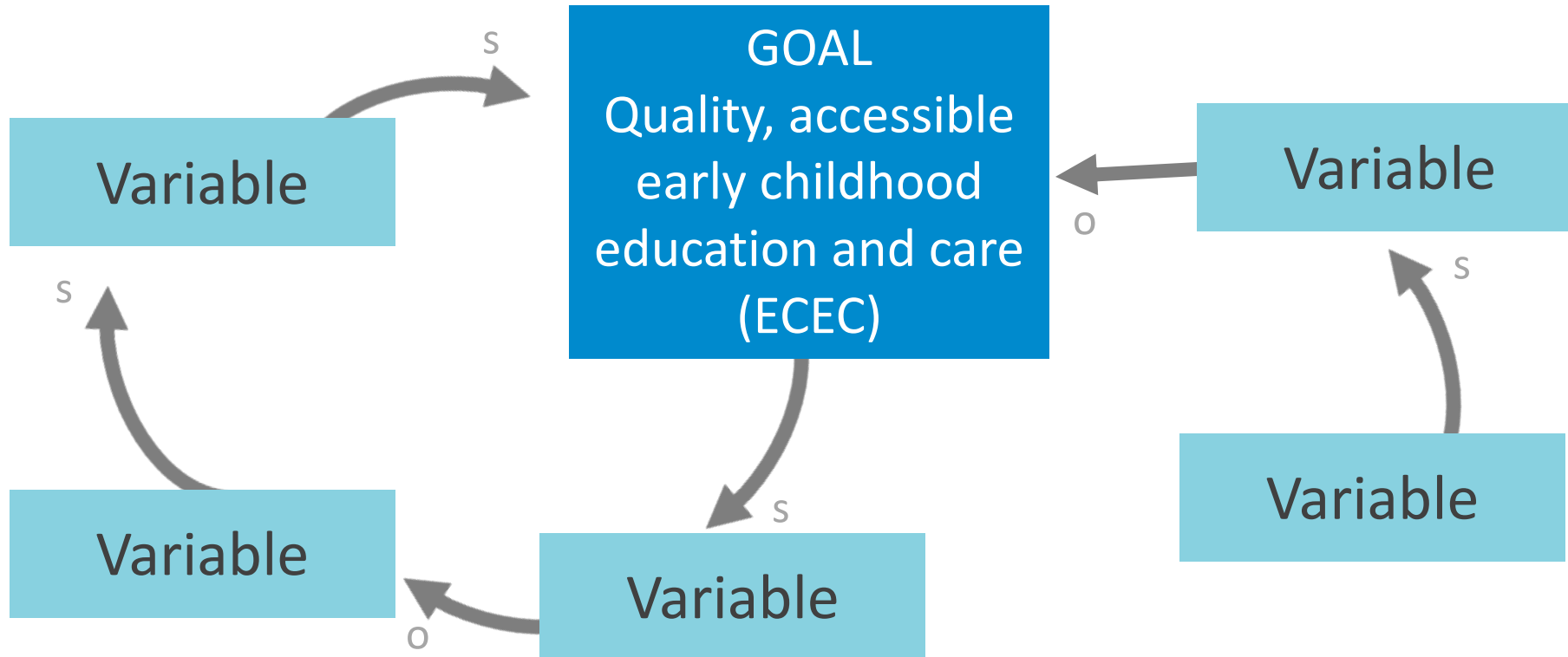
Consider Time Delays



Start by mapping variables directly influencing your focal goal or outcome



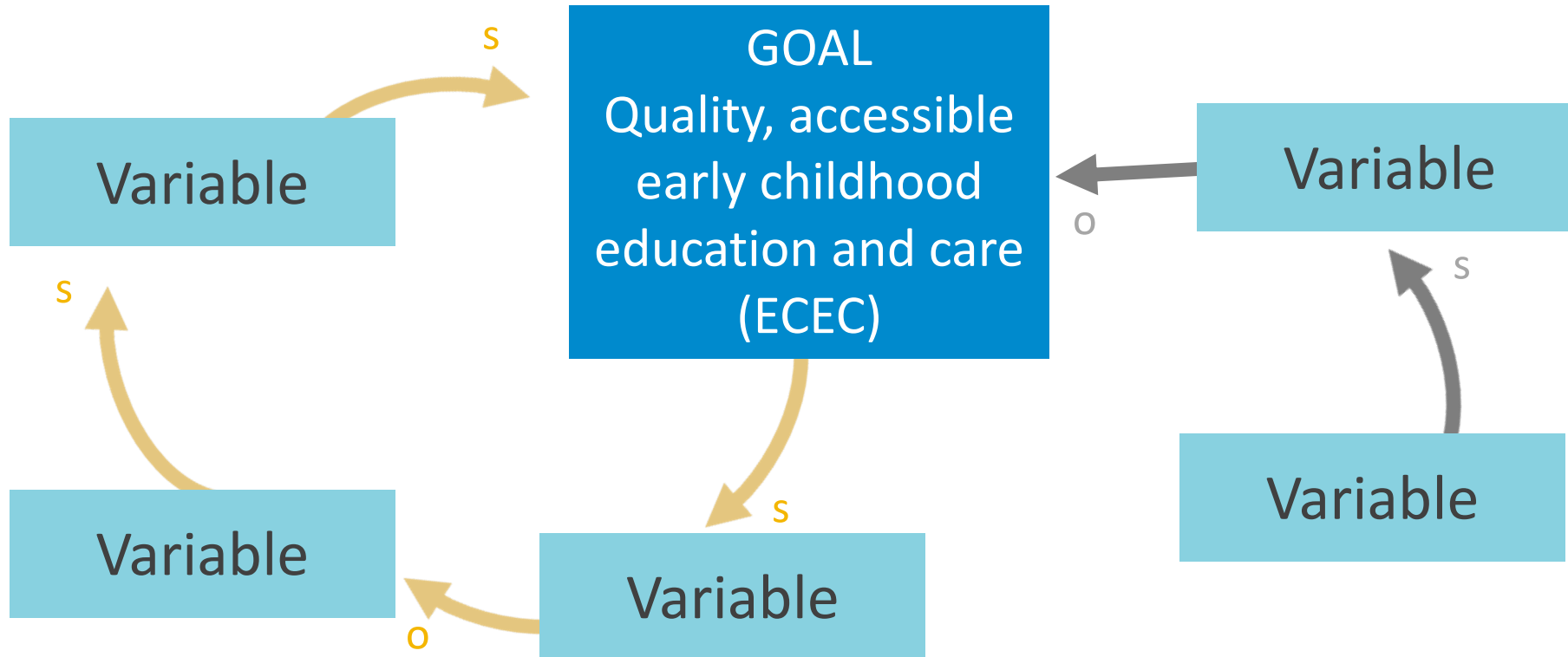
...then map other causally connected variables



TIP

To keep process manageable, start by just mapping the 20 most important variables

...then map other causally connected variables



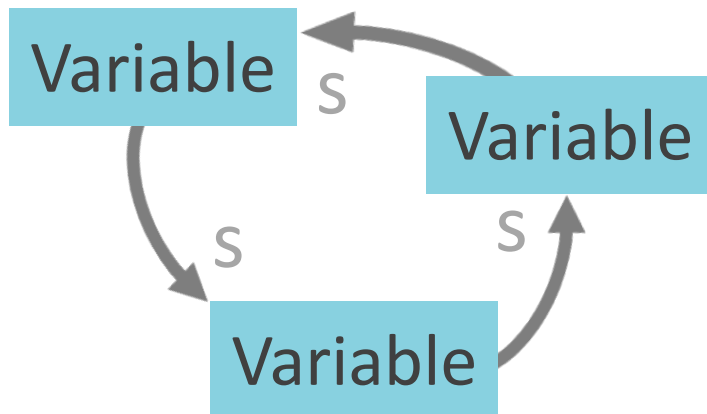
TIP

To keep process manageable, start by just mapping the 20 most important variables

Identify Causal Feedback Loops

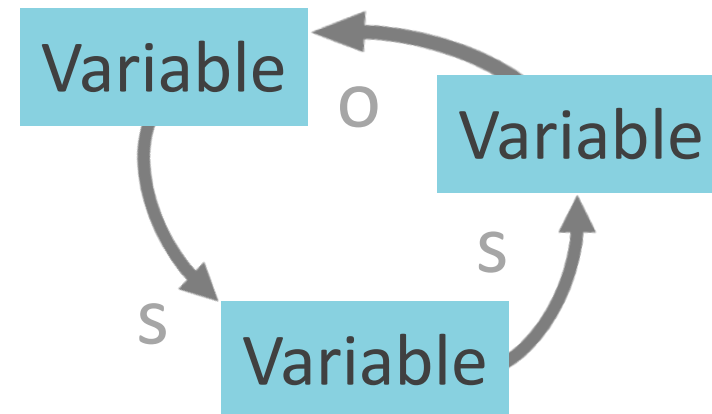
Reinforcing Loops

Even number (or absence) of “o’s”



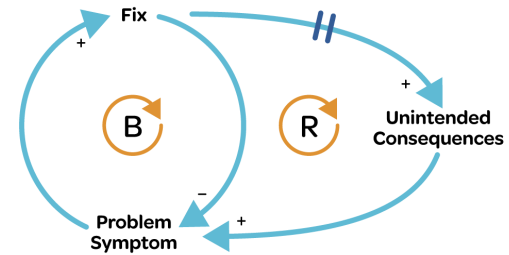
Balancing Loops

Odd number of “o’s”

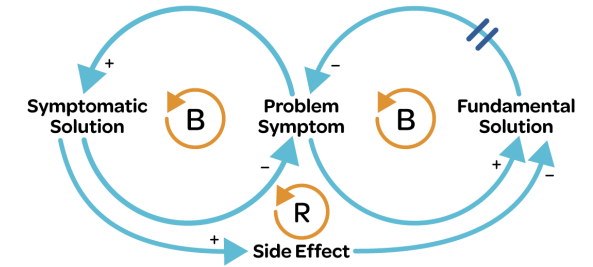


Refer to common system archetypes to help guide your mapping process

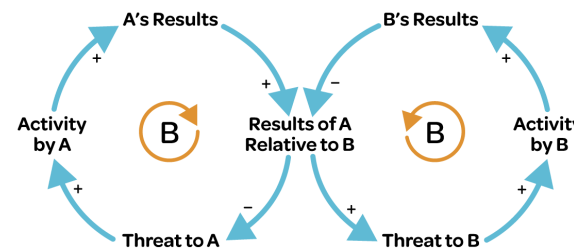
Fixes that Backfire



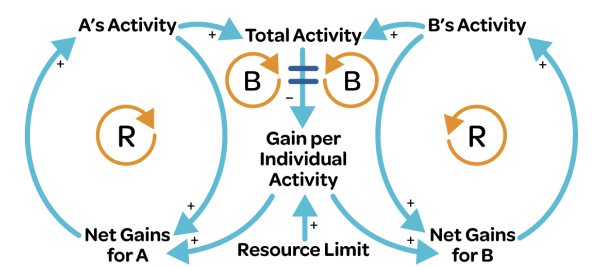
Shifting the Burden



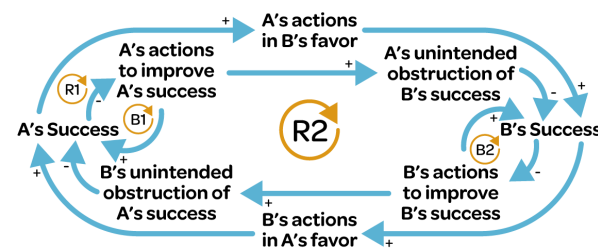
Escalation



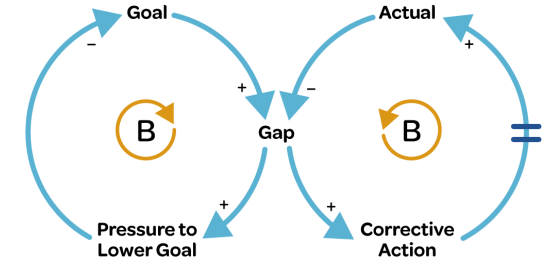
Tragedy of the Commons



Accidental Adversaries



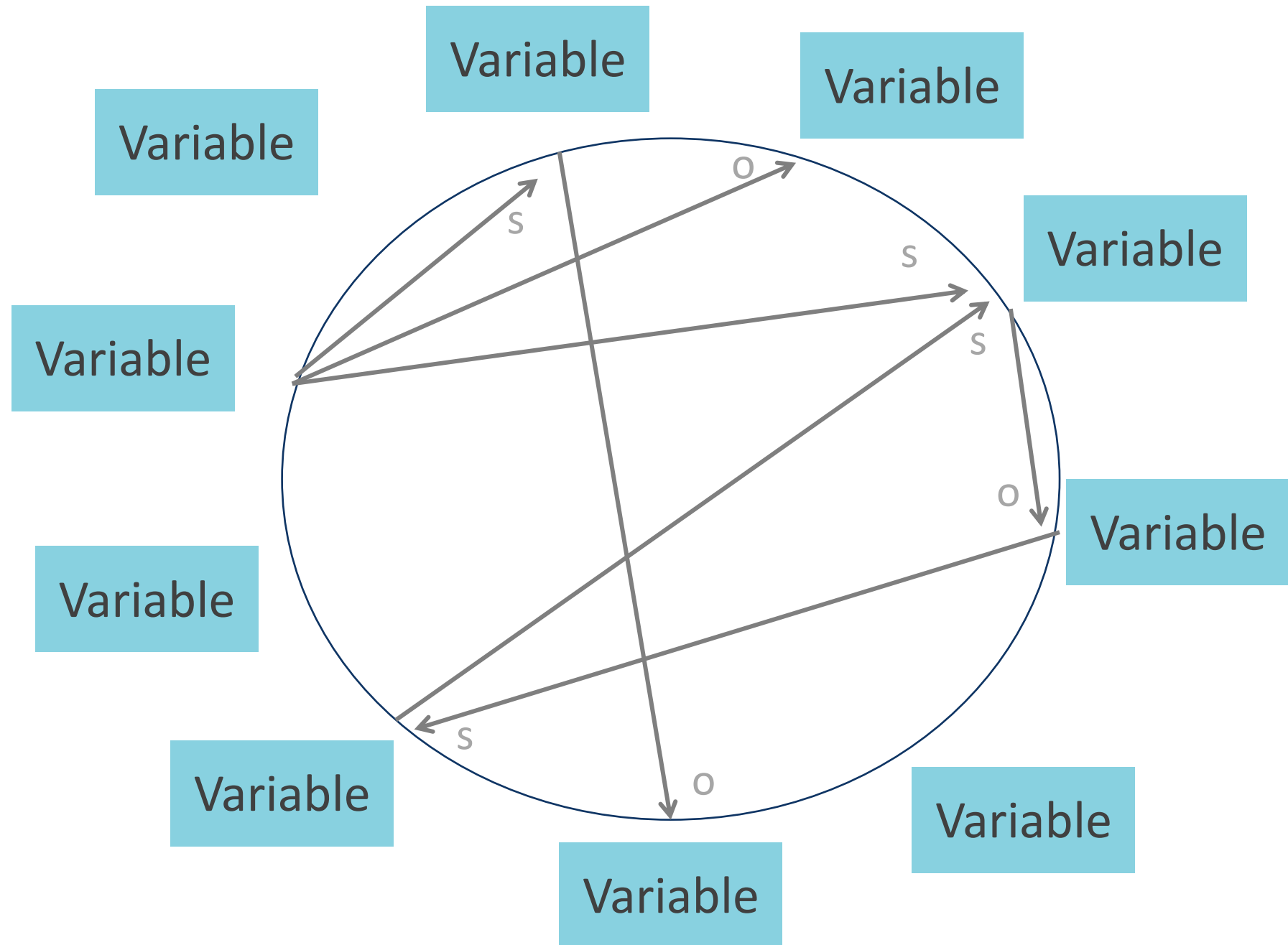
Drifting Goals



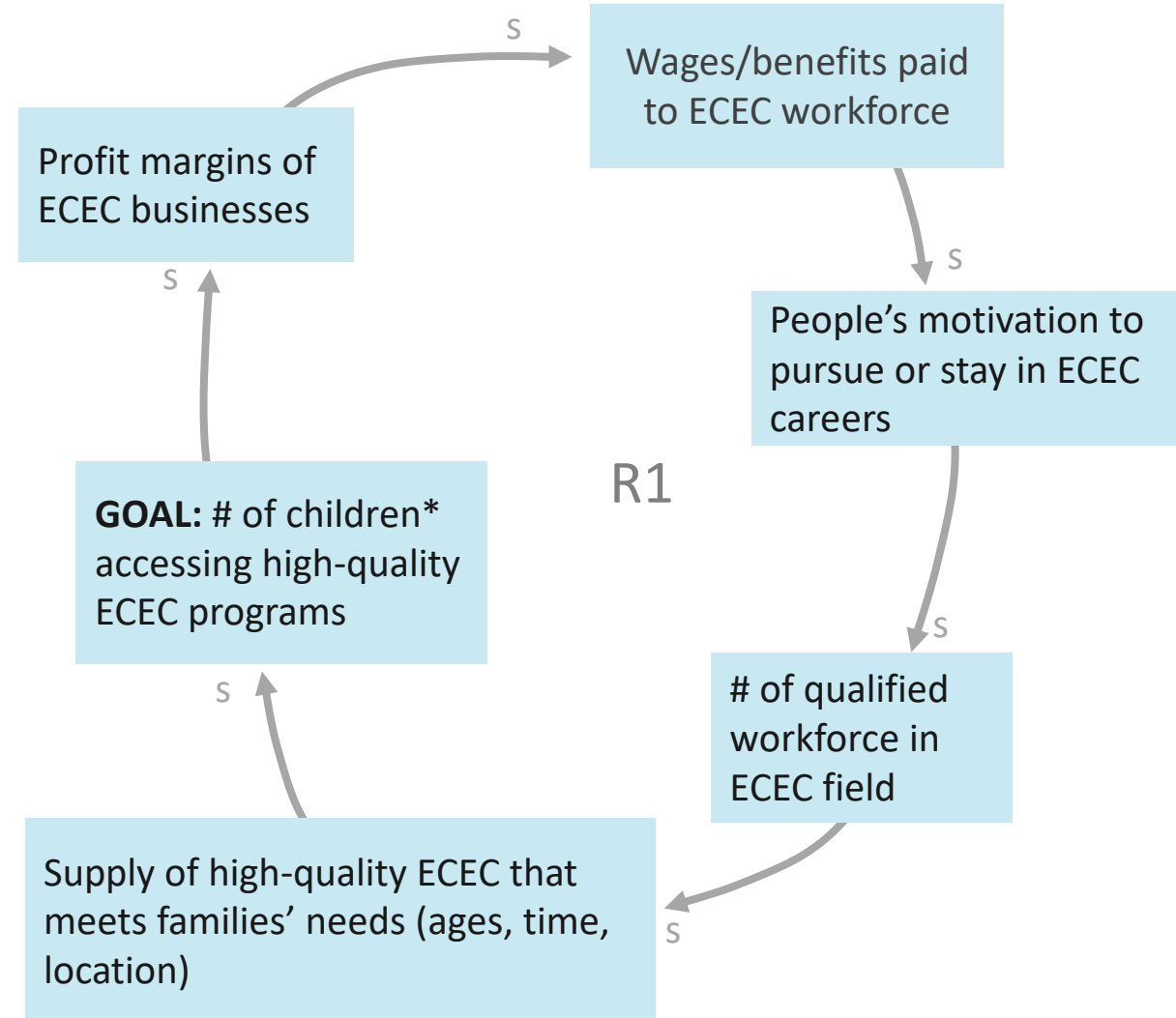


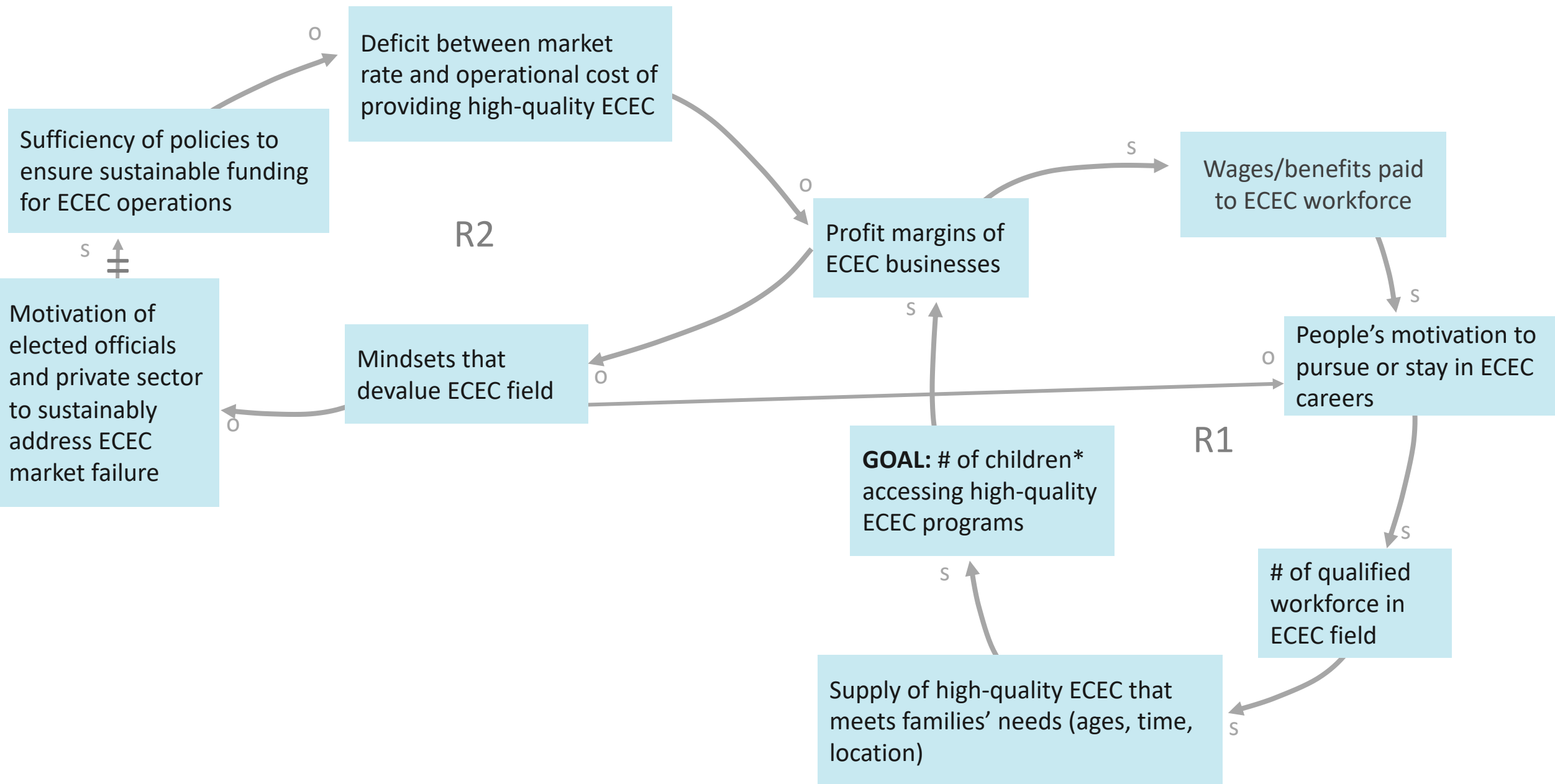
TIP:

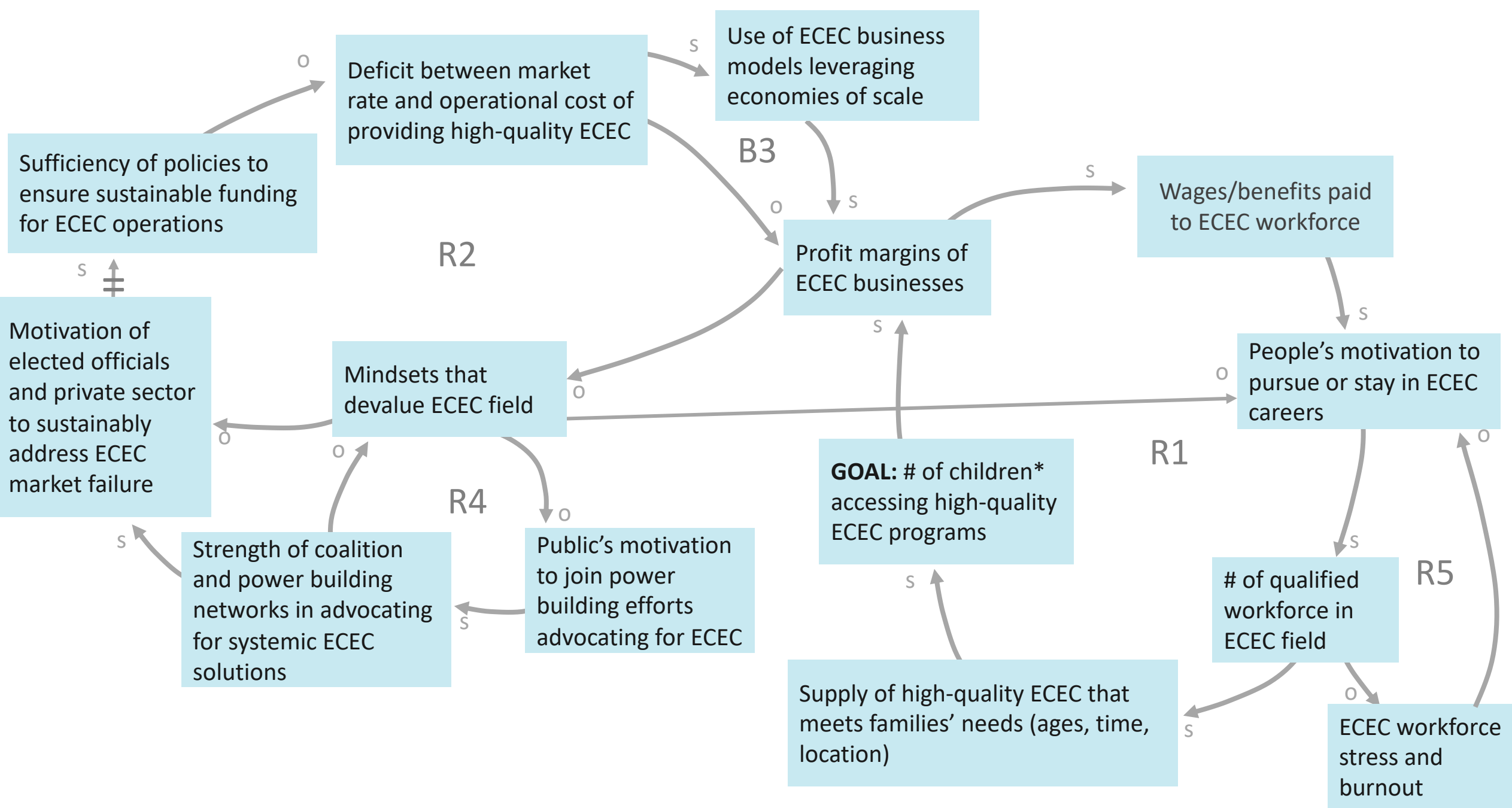
Can use a
“Connection Circle”
to explore
relationships
between variables



Example Causal Loop Diagram/Map







Lots of advice on how to analyze system archetypes and prioritize leverage points

See Stroh (2015), Meadows (2008), and Pegasus Communications

SYSTEMS ARCHETYPES AT A GLANCE

ARCHETYPE	DESCRIPTION	GUIDELINES
Drifting Goals	In a "Drifting Goals" archetype, a gap between the goal and current reality can be resolved by taking corrective action (B1) or lowering the goal (B2). The critical difference is that lowering the goal immediately closes the gap, whereas corrective actions usually take time. (See <i>Toolbox</i>, October 1990).	• Drifting performance figures are usually indicators that the "Drifting Goals" archetype is at work and that real corrective actions are not being taken. • A critical aspect of avoiding a potential "Drifting Goals" scenario is to determine what drives the setting of the goals. • Goals located outside the system will be less susceptible to drifting goals pressures.
Escalation	In the "Escalation" archetype, one party (A) takes actions that are perceived by the other as a threat. The other party (B) responds in a similar manner, increasing the threat to A and resulting in more threatening actions by A. The reinforcing loop is traced out by following the outline of the figure-8 produced by the two balancing loops. (See <i>Toolbox</i>, November 1991.)	To break and escalation structure, ask the following questions: • What is the relative measure that pits one party against the other and can you change it? • What are the significant delays in the system that may distort the true nature of the threat? • What are the deep-rooted assumptions that lie beneath the actions taken in response to the threat?
Fixes That Fail	In a "Fixes That Fail" situation, a problem symptom cries out for resolution. A solution is quickly implemented that alleviates the symptom (B1), but the unintended consequences of the "fix" exacerbate the problem (R1). Over time (right), the problem symptom returns to its previous level or becomes worse. (See <i>Toolbox</i>, November 1990).	• Breaking a "Fixes that Fail" cycle usually requires acknowledging that the fix is merely alleviating a symptom, and making a commitment to solve the real problem now. • A two-pronged attack of applying solution will help ensure that you don't get caught in a perpetual cycle of solving yesterdays "solutions."
Growth and Underinvestment	In a "Growth and Underinvestment" archetype, growth approaches a limit that can be eliminated or pushed into the future if capacity investments are made. Instead, performance standards are lowered to justify underinvestment, leading to lower performance which further justifies underinvestment. (See <i>Toolbox</i>, June/July 1992.)	• Dig into the assumptions which drive capacity investment decisions. If past performance dominates as a consideration, try to balance that perspective with a fresh look at demand and the factors that drive its growth. • If there is potential for growth, build capacity in anticipation of future demand.

Participatory System Mapping Analysis Ideas

Look at variables up and down the causal chain from a focal point

Find variables that have a lot of relevant outgoing connections

Variables “upstream” from these highly influential variables can provide sources of change

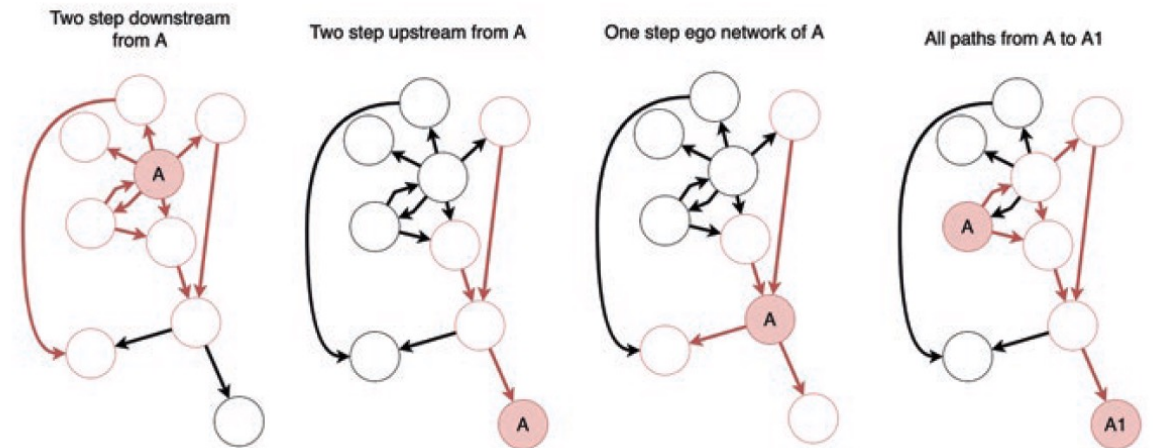


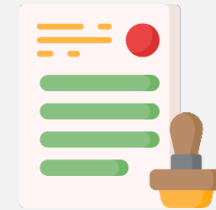
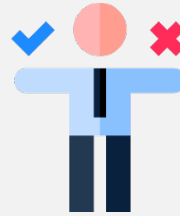
Image: Barbrook-Johnson & Penn (2022). *Systems Mapping: How to build and use causal models of systems*.

More
leverage

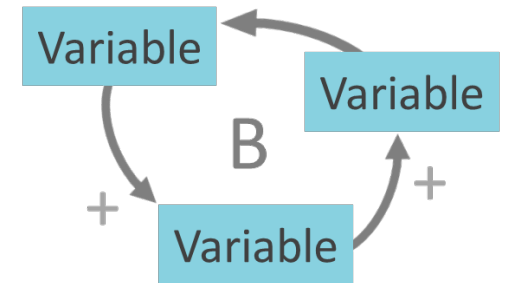
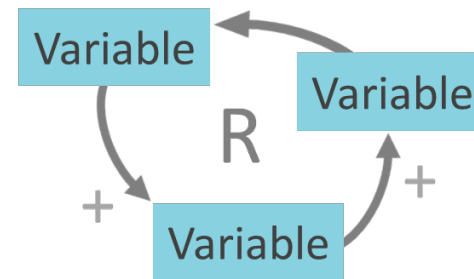
Paradigms



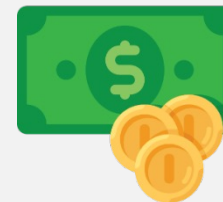
Structures

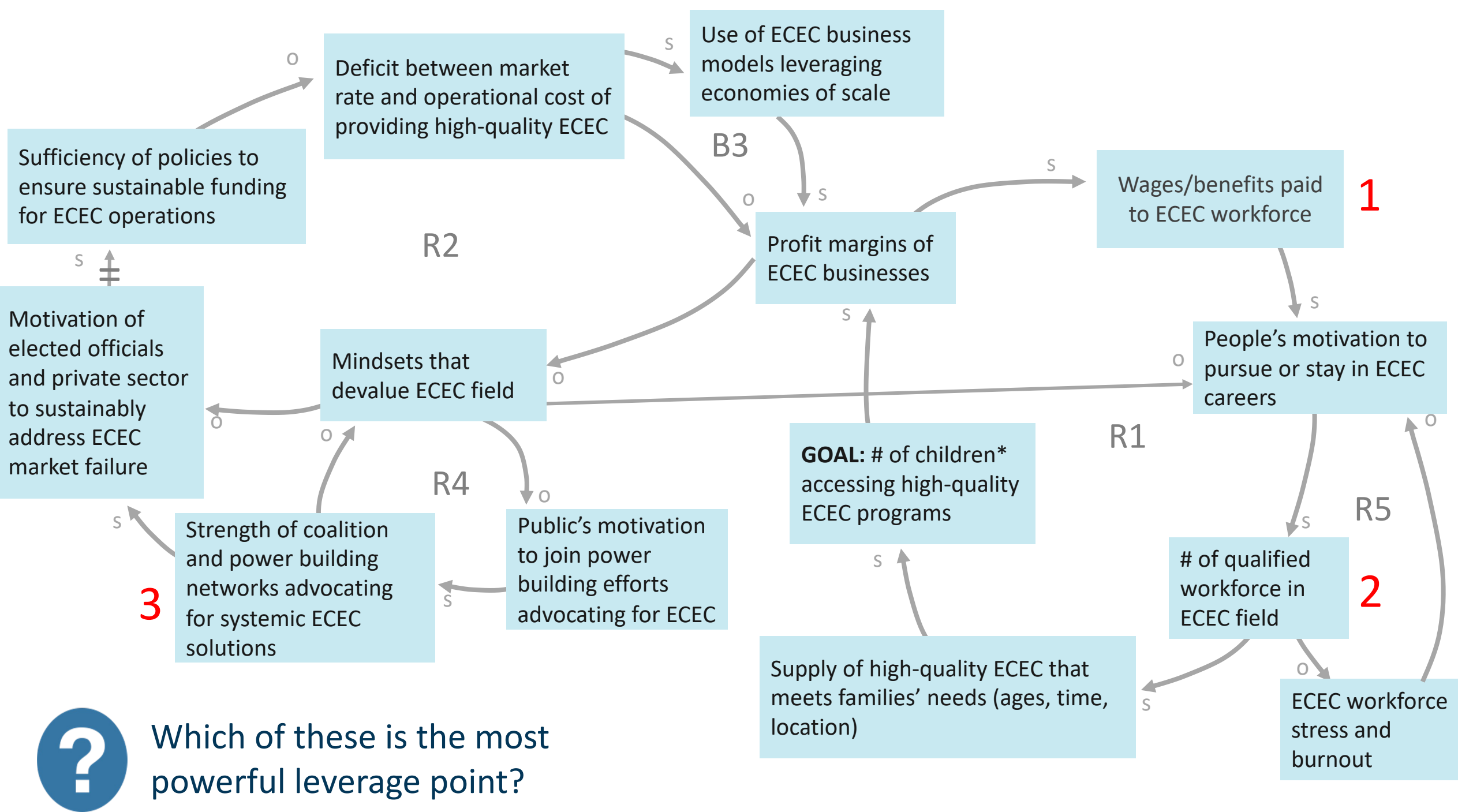


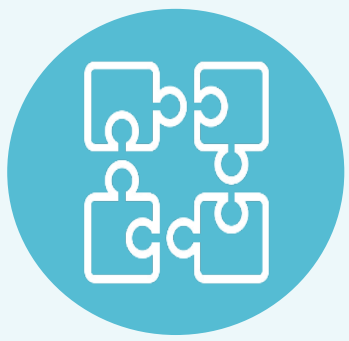
Feedback Loops



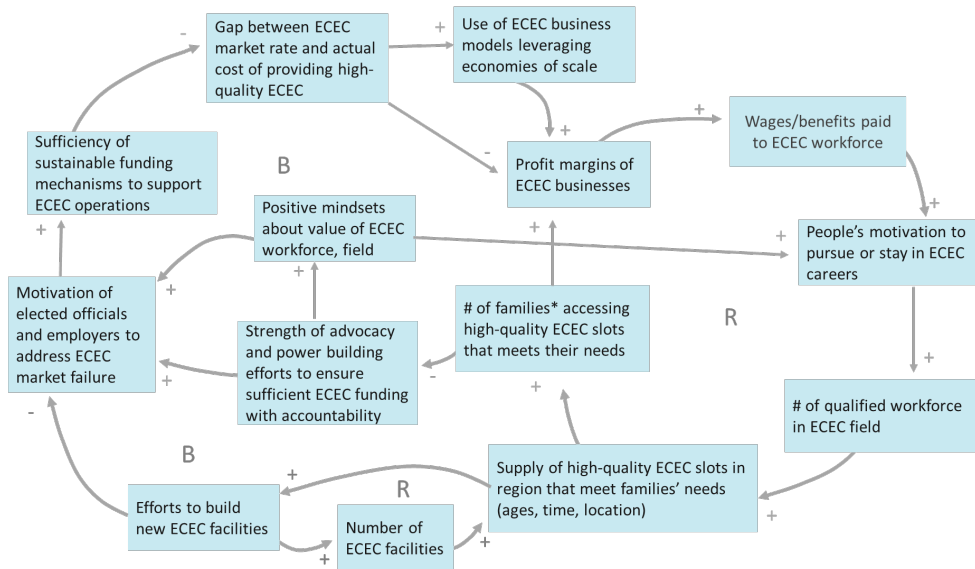
Elements



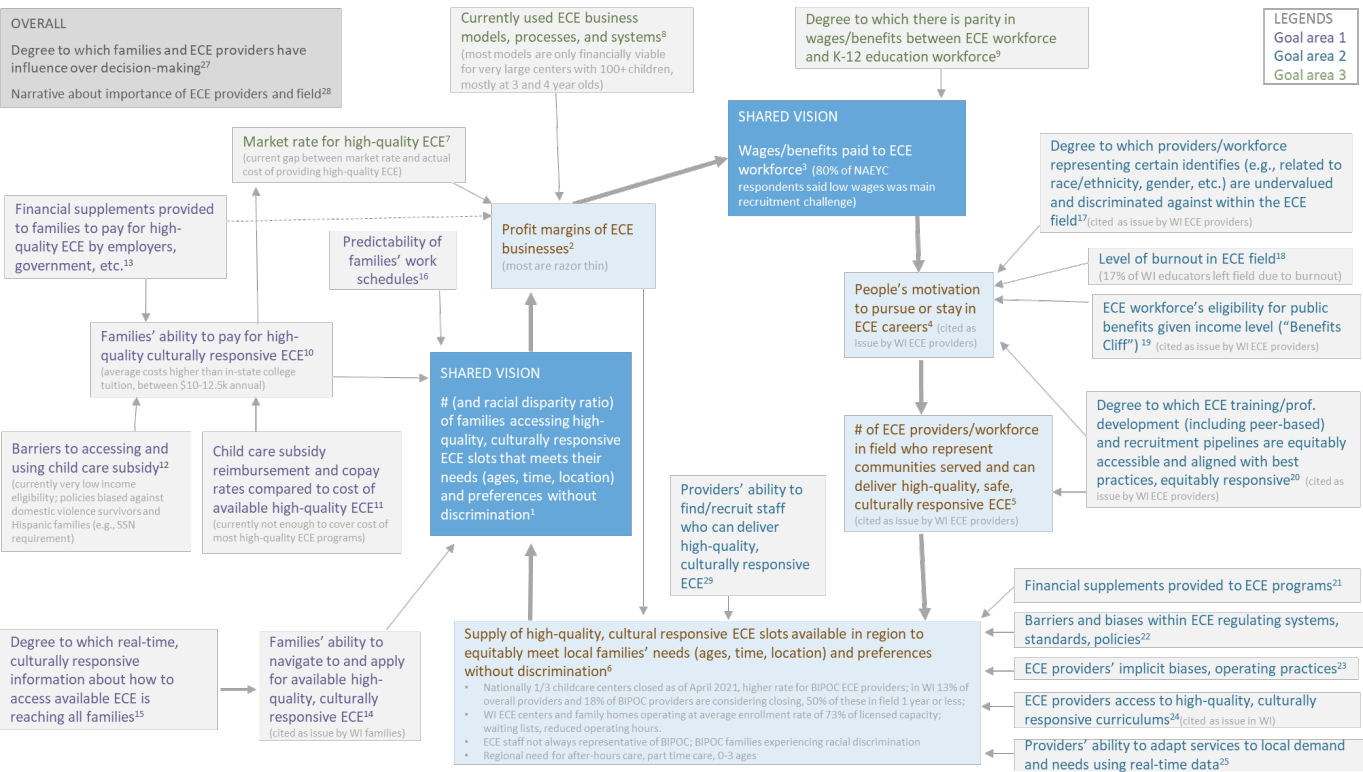




How will you communicate your map to relevant audiences?

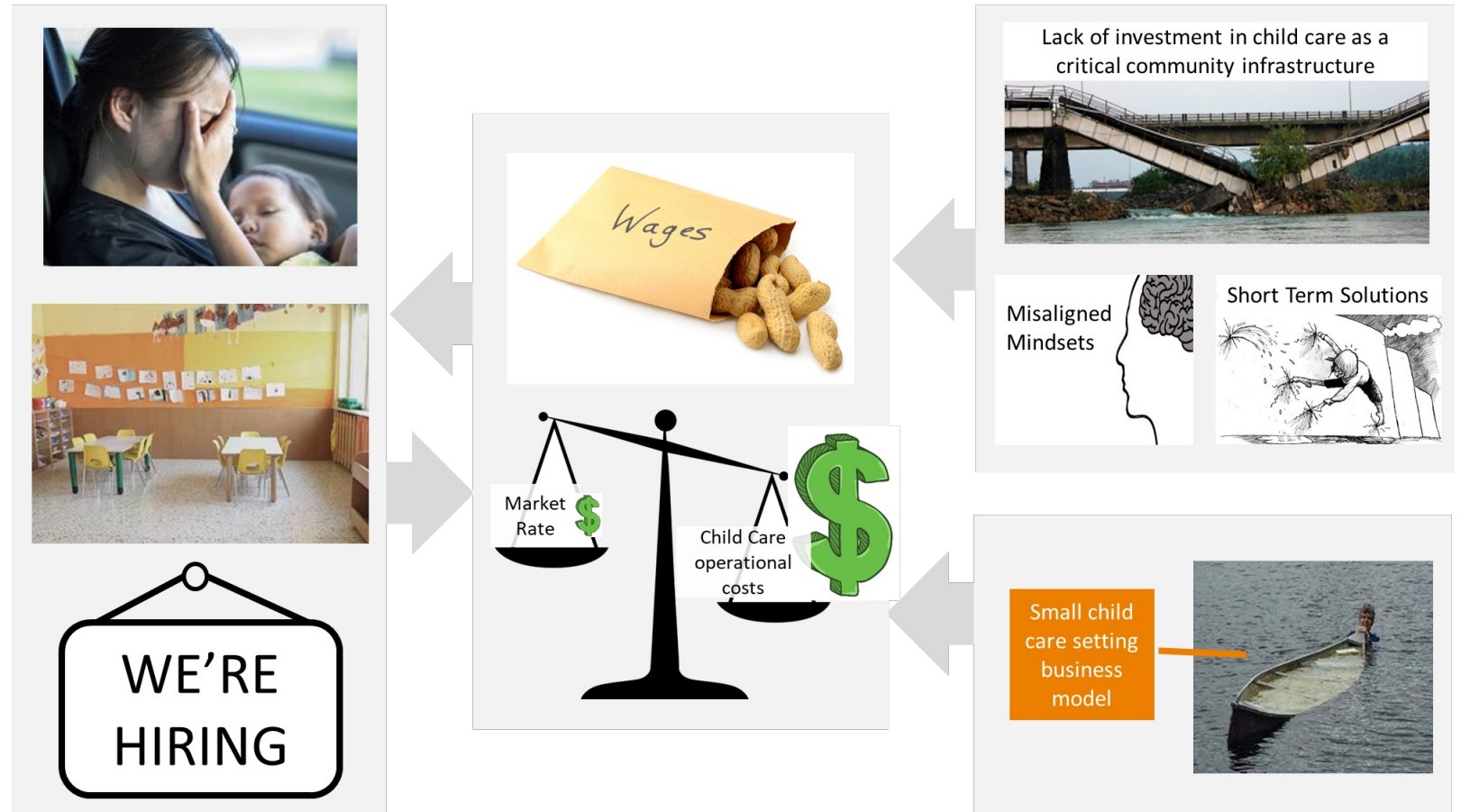


Show the full map to
your internal team
using an animated
story



Higher-level zoomed in versions for more general audiences

Use to get people interested and engaged in action, and then build their capacity to think more systemically



RECAP

Understand

Test

Design



GOAL
Quality, accessible
early childhood
education and care
(ECEC) programs

IMPACT
Every young child is safe,
well nourished, healthy,
happy and learning

Understand



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