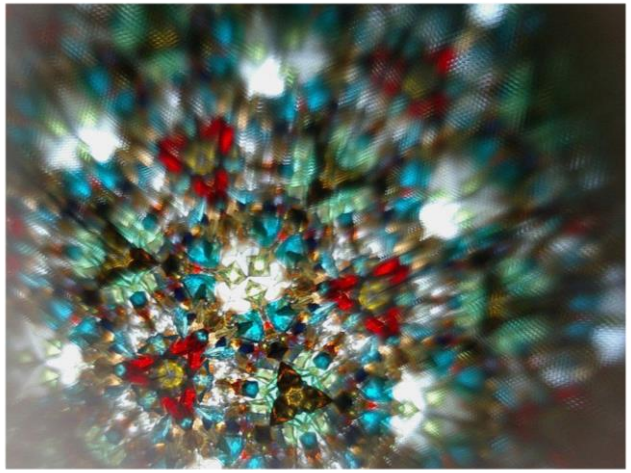
# The Critical Importance of Systems Thinking and Mental Models to Achieving the Sustainable Development Goals

***Systems, Networks, and SDGs***



***In a kaleidoscope world***

Linda M. Kelley, William G. Russell, & Nalini Kumaran
Transitioning to Green, LLC

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

Welcome: Introductions

# *Meet your presenters*

**Linda Morris Kelley**
**Principal,**
**Transitioning to Green, LLC.**

- Using a systems approach to develop the capacity, mindset, and presence to lead effective collaborations
- Using 3D virtual technologies and geospaces for collaborative problem-solving, and immersive learning
- Co-Chair, Berkshire Bridges Working Cities

**William Russell, MBA**
**Principal,**
**Transitioning to Green, LLC.**

- Implements sustainability- aligned strategies & management and reporting systems
- Carbon accounting, mitigation and offsets through Agendi
- Former US environmental practice leader of PwC

**Nalini M Kumaran**
**Consultant,**
**Transitioning to Green, LLC.**

- Seasoned HR professional, provides consulting in all areas of Human Resources Management
- Designed and developed this Living Fieldbook online resource

## Using Systems Thinking & Integrated Thinking to "Identify paradoxes vs. problems"

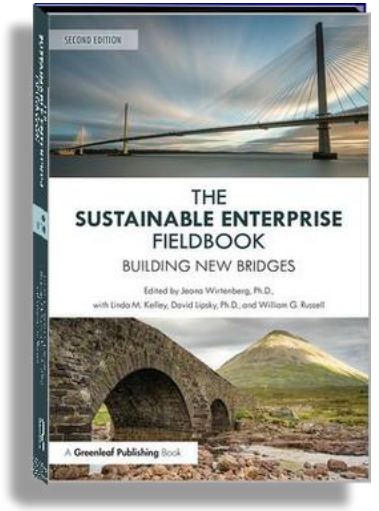
**Teaching Affiliations**

COLUMBIA UNIVERSITY

FORDHAM
THE JESUIT UNIVERSITY OF NEW YORK

FAIRLEIGH DICKINSON UNIVERSITY

**Co-Authors Sustainability Reference Texts**




**Living Fieldbook & Learning Guides**

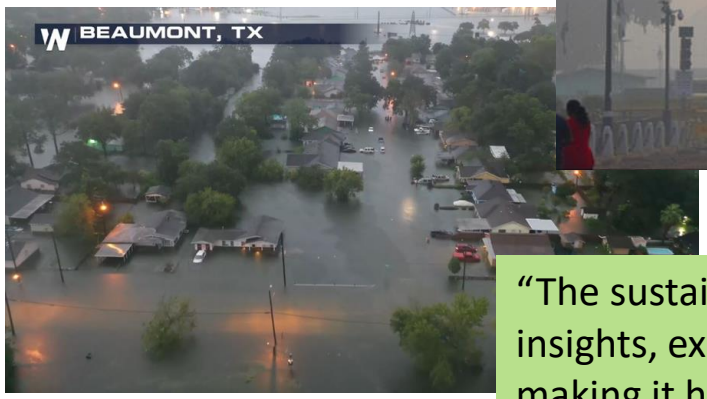
www.thesustainableenterprisefieldbook.com/about.html

PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

Welcome: Context

# *We are living through unprecedented times in history. "Normal" will never be the same.*



"The sustainability revolution will be organic. It will arise from the visions, insights, experiments and actions of billions of people. The burden of making it happen is not on the shoulders of any one person or group. No one will get the credit, but everyone can contribute."

Donnella Meadows

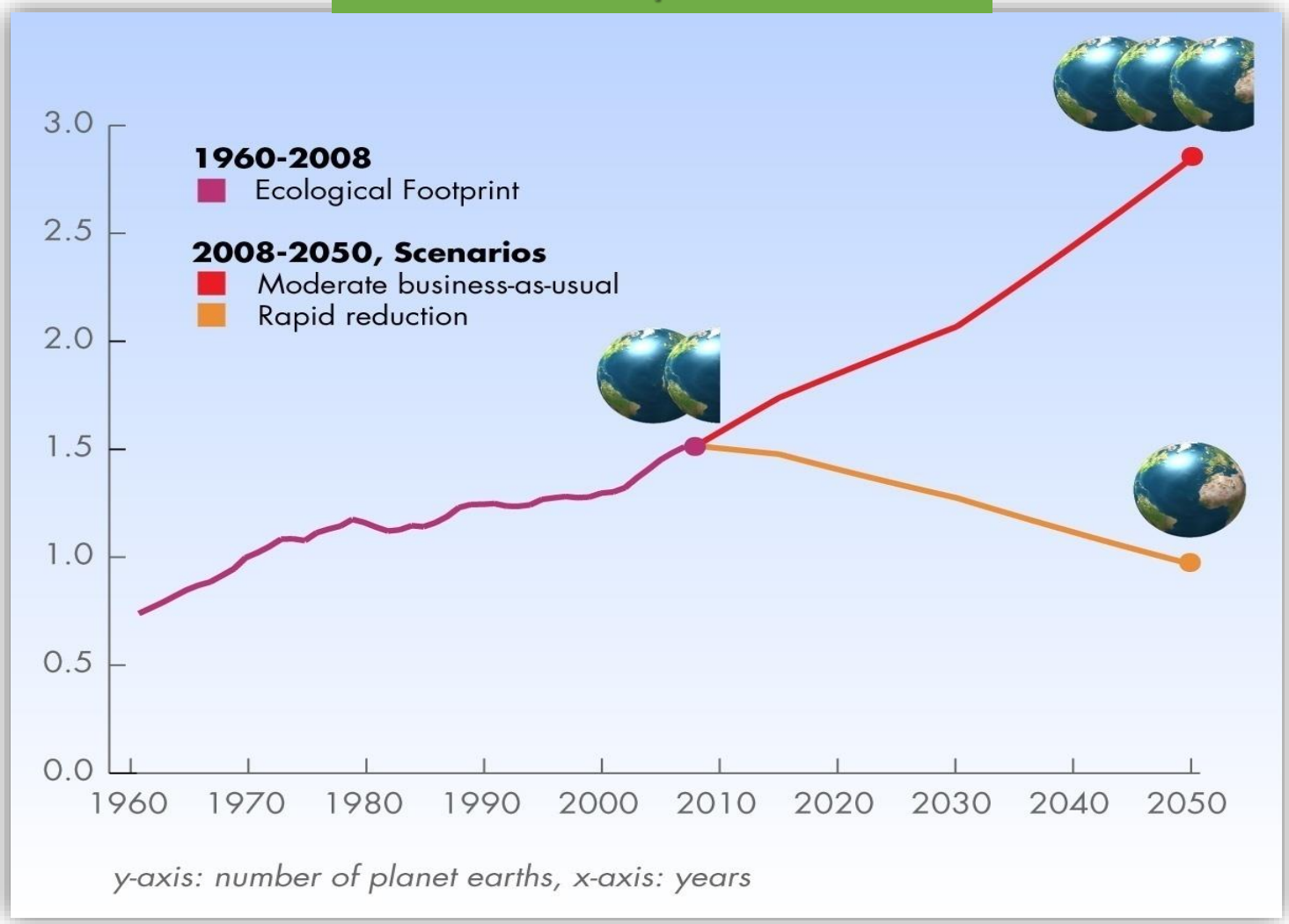
PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

Context: Ecological Footprint

# *We have ONLY 1 Earth! Human consumption has thrown Earth's whole system into decline*

## Global Consumption Overshoot




"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

# *Agenda*

- **Welcome and context**

- **Systems**
  - a common understanding of systems and systems thinking for accelerating the achievement of SDGs.
  - a more effective way of addressing sustainability challenges and opportunities

- **Systems approach to progressing the SDGs**
  - Recognizing “the tragedy of the commons” helps to align personal interests with global interests
  - Aligning SDGs using an interconnected nested systems approach

- **New Bridges website preview** – resources for shared learning, education, and collaboration

# *We invite and value your input*

Put questions and comments into the **Q & A** at any time.
We'll address them during the presentation or afterwards via email.

# *Coffee, cows, and Honda*

# Poll

- What was your morning beverage?
  - Coffee?
  - Tea?
  - Fruit juice?
  - Water?
  - Other?

# Poll results

# *Coffee, cows, and Honda*

# Systems and systems thinking

What is a system?

System constructs

Nested systems for sustainability

Mental models and systems change: human operating systems

Life Cycle thinking as a tool for systems assessment

## Aligning: Systems Thinking

***We must learn to solve complex problems by leveraging system synergies and interconnections and shifting mindsets to embrace diversity, rebuild trust and foster collaboration.***

- **System:** A set of elements or components that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of functions and all together comprise a whole. This whole organization is greater than it's components and is different in "function" or "purpose" than any of its components are alone. Living systems are dynamic and self-organizing.

- **Systems thinking** is the process of understanding how components influence one another within a whole. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or perish.

*"The world is a complex, interconnected, finite, ecological - social - psychological - economic system. We treat it as if it were not, as if it were divisible, separable, simple, and infinite. Our persistent, intractable global problems arise directly from this mismatch."*

Donella Meadows

Aligning: Systems Thinking

*Sustainability-aligned organizations examine the assumptions, priorities, relevance, and performance expectations.*

## System Constructs

- **Functions or its purpose:** Why does it exist? For the sake of what? What role do its products and services contribute to its stakeholder's wellbeing? Organizing frameworks and business models (Ultimate Ends)
- **Mental models:** System behavior expectations and rules. Mental models and archetypes; beliefs, systems change, and feedback loops.
- **Resources and inputs, Multi-capital system elements:** Stocks, flows and thresholds for capitals
- **Strategic Goals, Outputs, Impacts and Outcomes, and Resiliency**
- **Boundaries, edge zones, and interconnections**
- **Time horizons:** Critical, resilient, thresholds for capital flows with particular focus on constraining resources that might cause the system to fail.
- **Networks & Collaborations:** How might the enterprise system and its strategy be different if it were able to acquire, merge or develop strategic partnerships and collaborate with other stakeholders? What might be gained through sharing perspectives, resources, information and insights to collectively travel farther, more successfully and resiliently to pursue common purposes together?

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

# *Basic nesting of pivotal systems for human sustainability*

Everything we do, everything we are, depend on the supportive environment of Planet Earth.


"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

# *Nested systems, lenses, and focus shifts*

## Business Impacts Everything

"Corporate sustainability starts with a company's value system and a principles-based approach to doing business."

~ UN Global Compact


PRME Principles for Responsible Management Education

# *Inventing sustainability is in our hands*

Without use of the resources of this supportive planet, humanity would not exist.


Sustainability is:

- ✓ Personal
- ✓ Local
- ✓ Regional
- ✓ Global

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

*If sustainability is in our hands…*

# What do we do?

# *What we can do depends on what we believe to be possible*

**Your beliefs become your thoughts,**

**Your thoughts become your words,**

**Your words become your actions,**

**Your actions become your habits,**

**Your habits become your values,**

**Your values become your destiny.**

**~ Mahatma Gandhi ~**

# *Mental models comprise…*

**Our mental models drive all our**

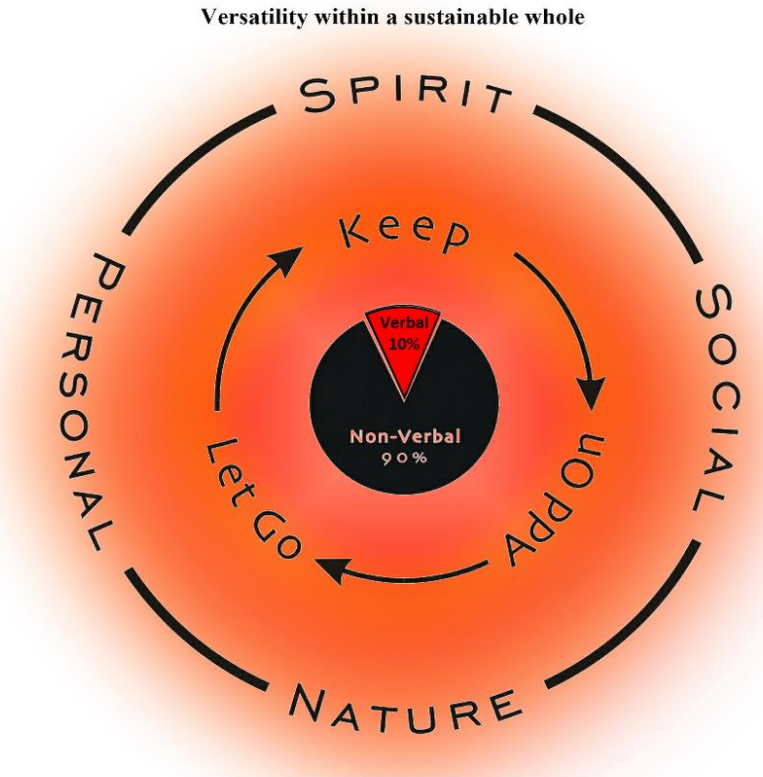
- **feeling**
- **thinking**
- **acting**


**Mental models are human operating systems.**

# *Mental models are complex, interacting operating systems.*

## Mental models are:

- Personal, social, cultural simultaneously
- Home for our habits
- Instructions for assessing what is true or false, right or wrong, real or unreal for us
- Determinants of what we believe about ourselves and how we assess other people – “I am…” “You are…” “They are…” “I am not…” “You are not…” “They are not…”
- Dynamic and iterative learning systems with feedback loops that are critical to updating, modifying, and changing the models: “Building the bridge as we walk on it”
- Interacting links and networks of instructions where some ties are stronger than others
- Resistant to change



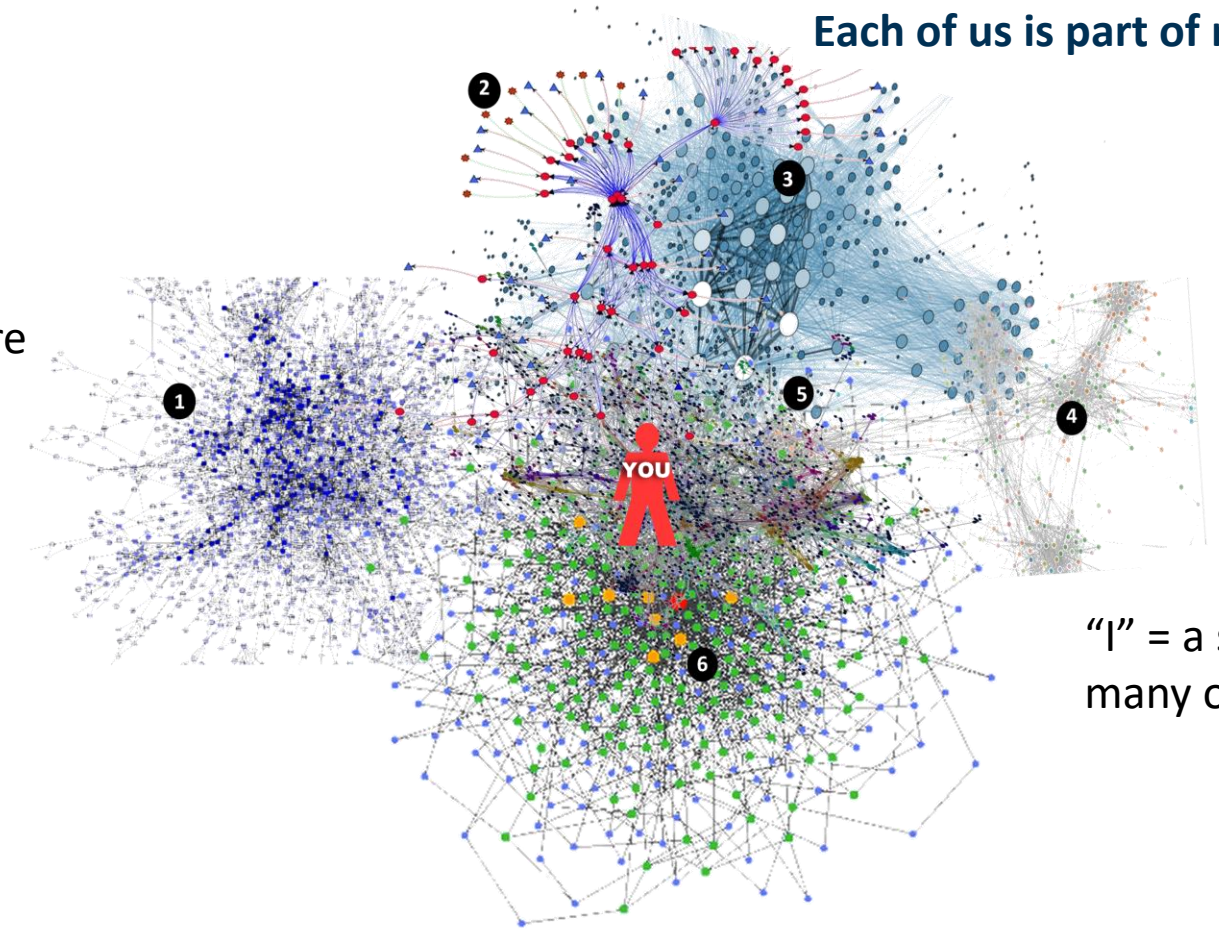



***Chapter 2. Mental models for a sustainable enterprise***
The Sustainable Enterprise Fieldbook

# *Mental models and networked systems*

**Each of us is part of many networks**

Which of your networks are most influential on you?




In which of your networks are you most influential?

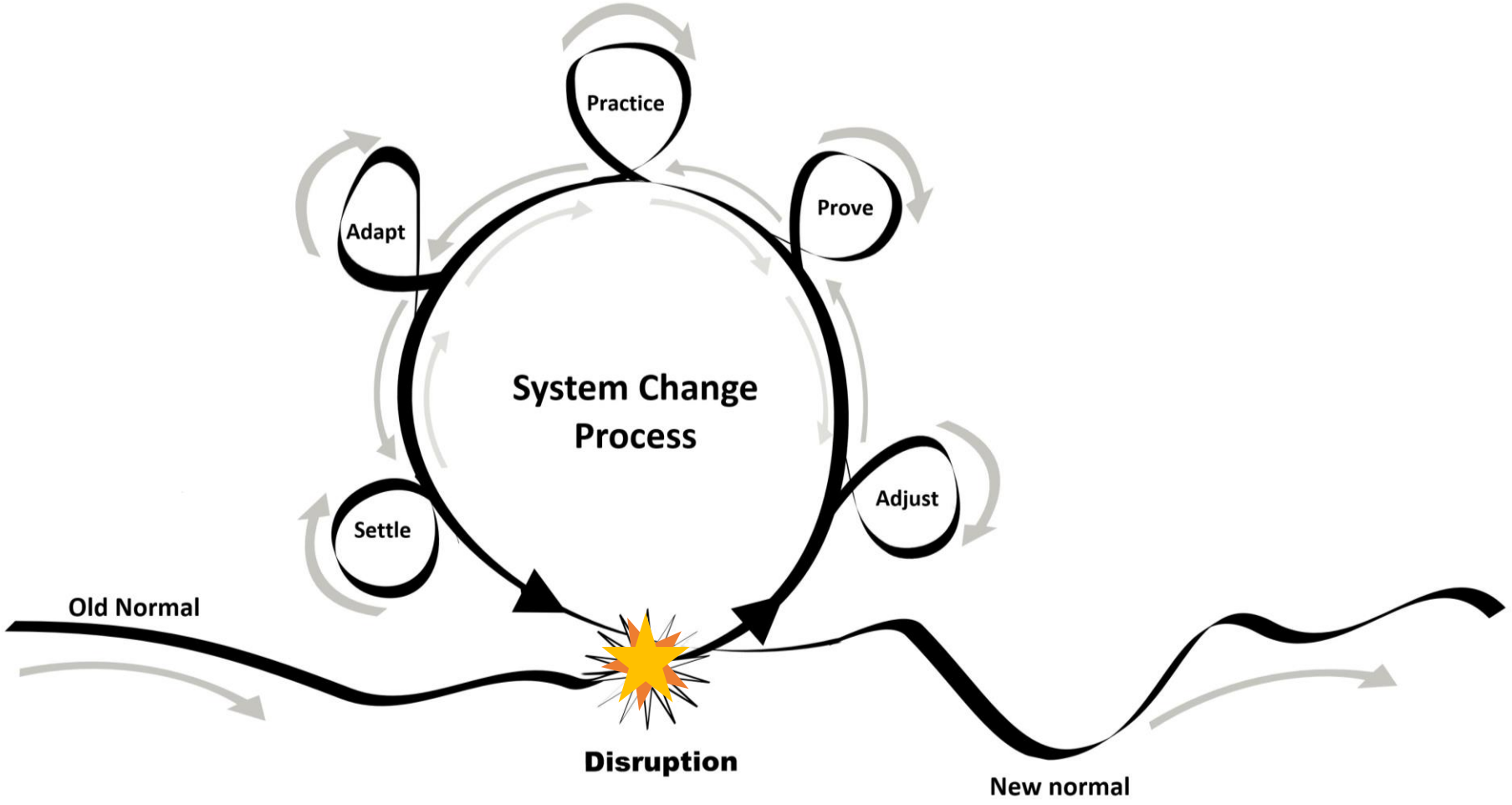
"I" = a system embedded in many other systems



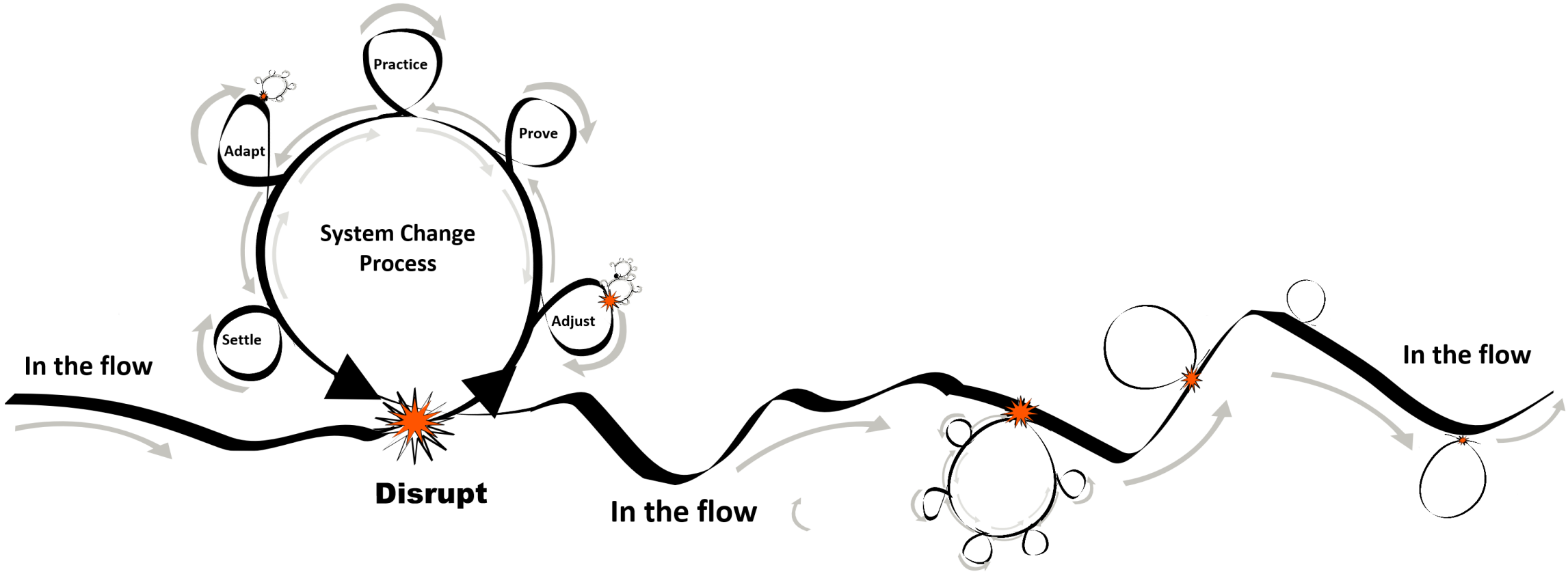


PRME Principles for Responsible Management Education

# *Process of systems change*

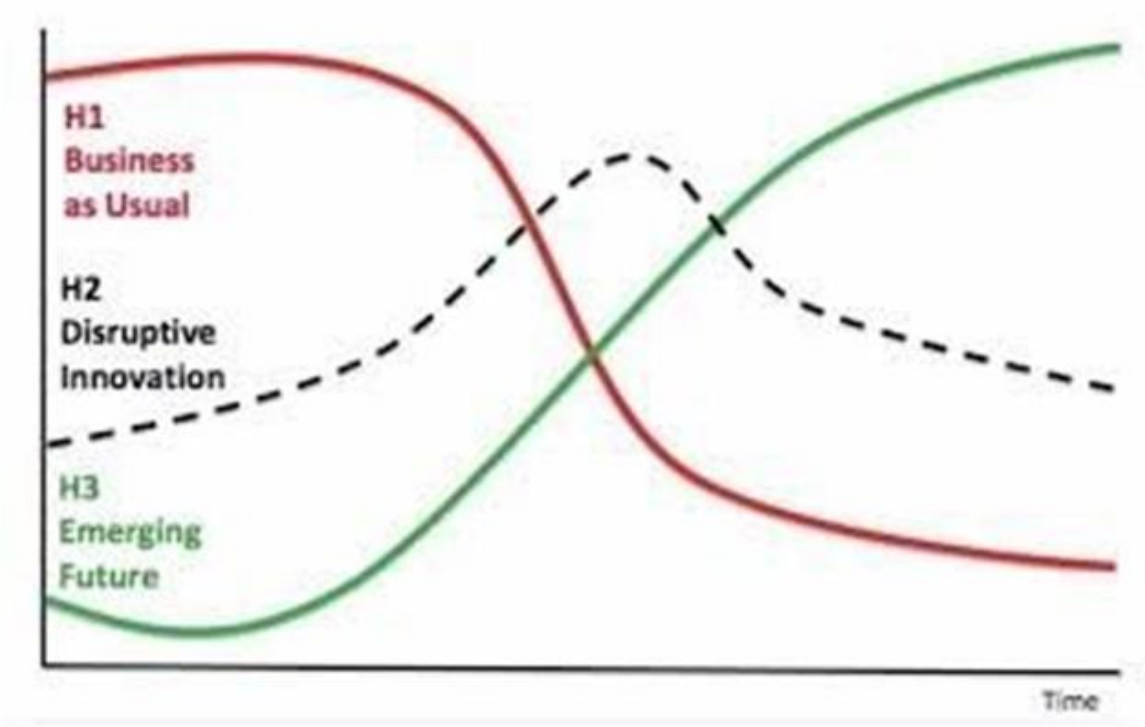


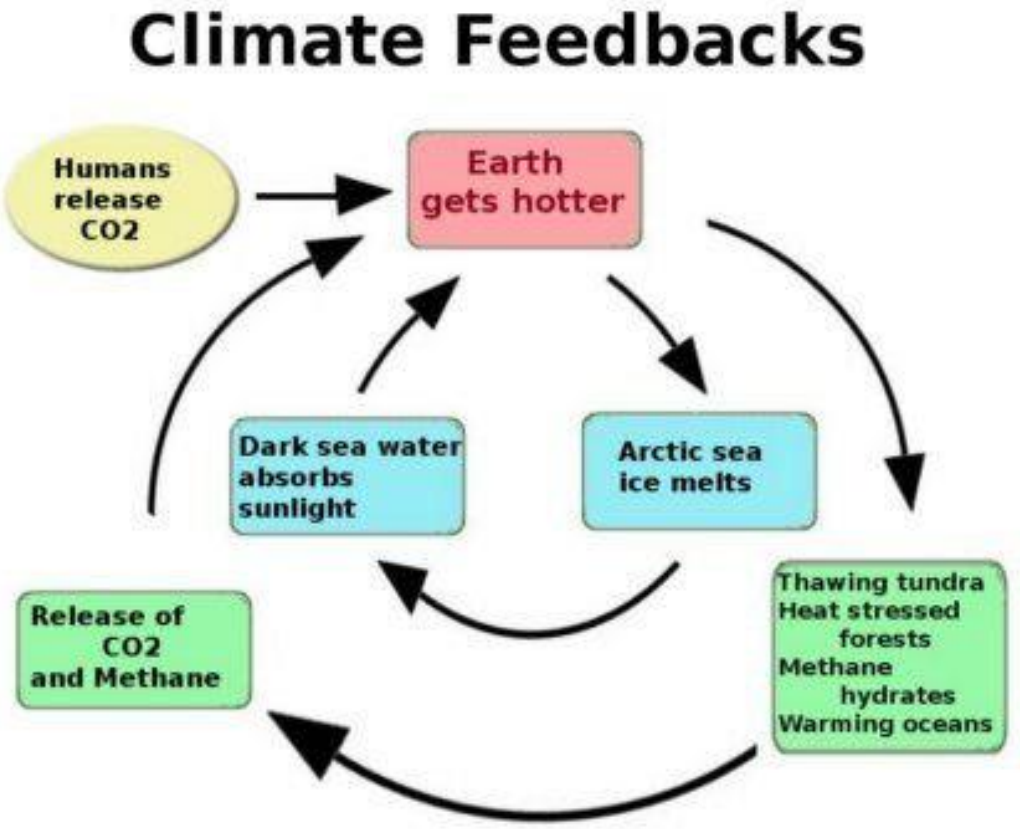
# *Significant systems change is complex and wrenching*



# *Resource flows, change and feedback loops*

## Three Horizons Framework for Transformational Change

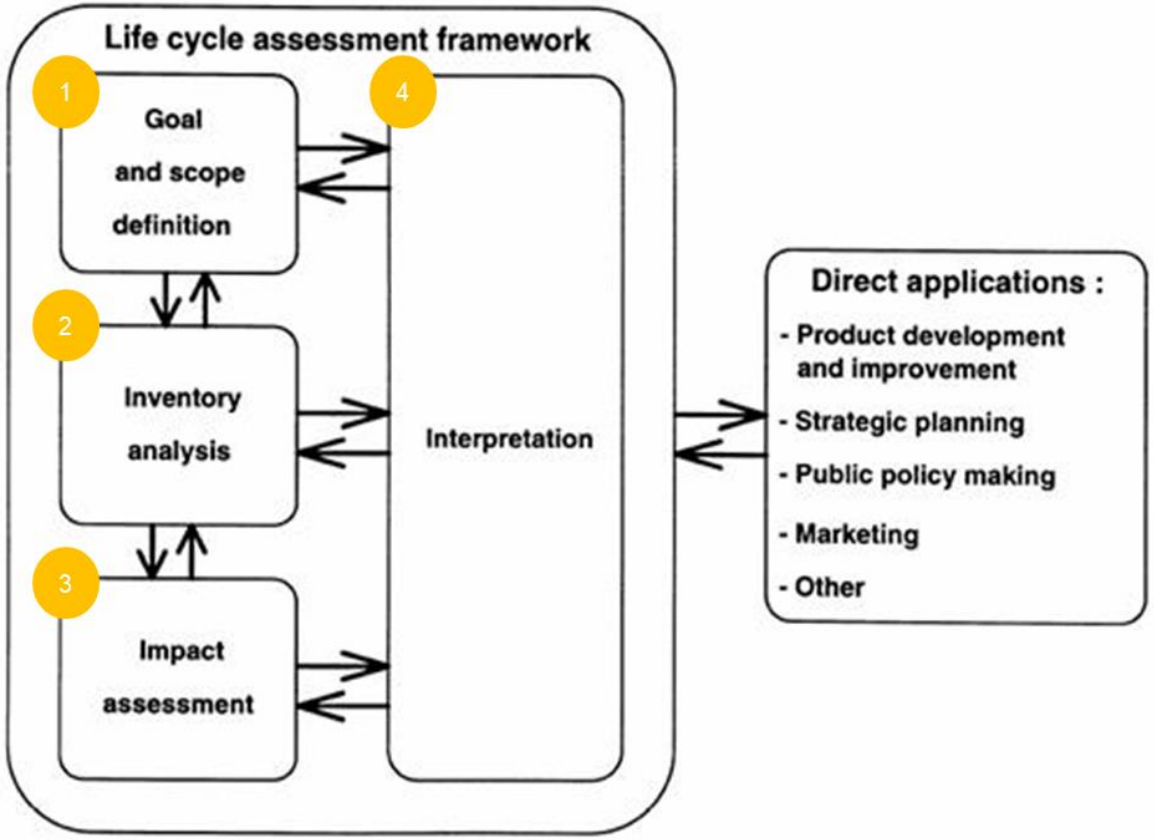


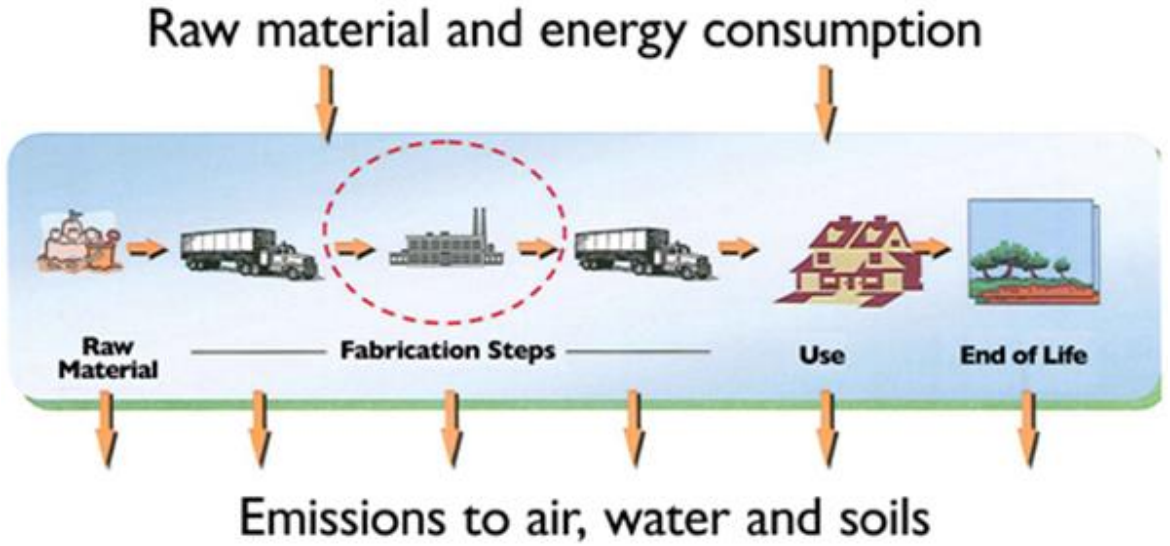



## Aligning: Systems Thinking - LCA

***LCA is a framework methodology that allows for more standardization and scaling of complex systems***

**ISO 14040 and 14044 describe the four main phases of an LCA:**



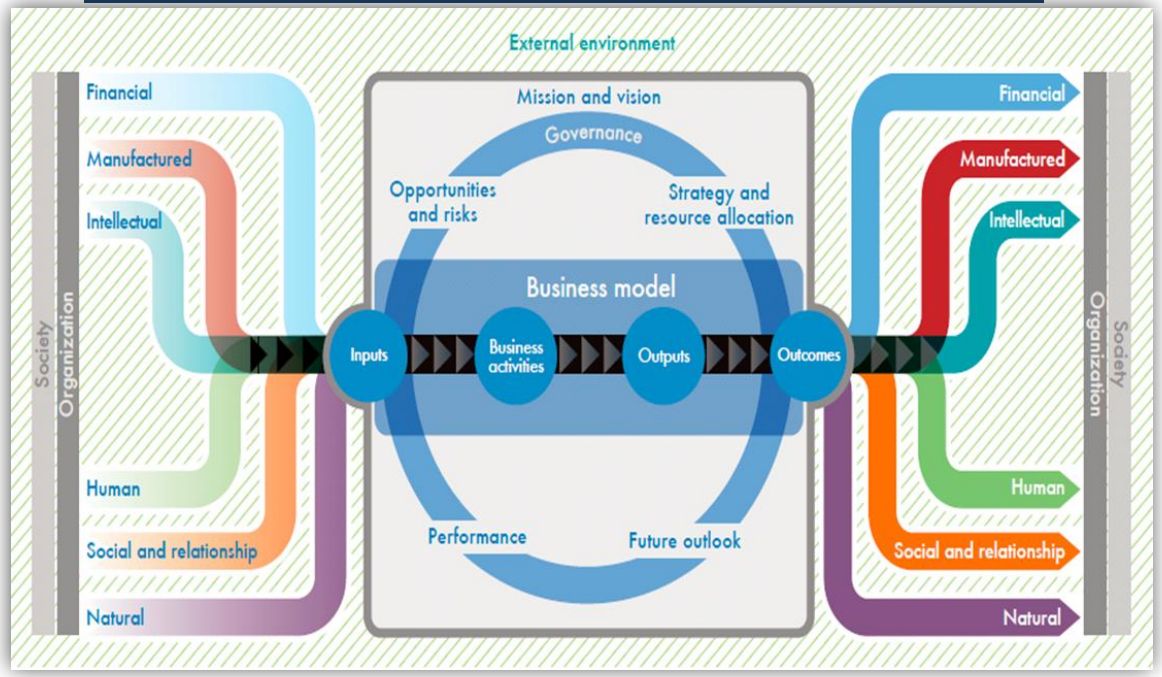




**Insights: LCA is an iterative process.**

# *Life Cycle perspective aligns system goals, boundaries, and categorizations*

- Classification schemes place things into "like" groups and enables better understanding of the inter-relationships among diverse groups
- LCA studies are grouped by purpose, scopes and impacts

**Integrated Reporting includes major value chain stages**




**Classification schemes exist for value chain stages and purposes**

## Input Classifications:

- GHS: The Globally Harmonized System of Classification and Labeling of Chemicals
- LCI: Life cycle resource inventories (i.e. Materials Energy, Labor, Land)
- IR: Multi-capital resource accounting (i.e. Natural, Built, Social, Human, Intellectual)
- Bar codes – International Bar Code of Life (iBOL)

## Business Activity Classification:

- **ISIC:** International Standard Industrial Classification of All Economic Activities

## Outputs - Products and Services Classification:

- **CPC:** Central Product Classification
- HD: Harmonized Commodity Descriptions and Coding
- SITC: Aggregated classification of transportable goods for international trade statistics
- **PCR:** Product Category Rules – LCA System boundaries; data quality and other attributes

## Outcomes – Impact and Outcome Classification:

- GHS: Hazard classifications of chemicals
- **LCI :** Life cycle impact categories (i.e. Carbon Footprint)
- SDG: Sustainable Development Goals
- PB: Planetary boundaries (resilient ecosystems)

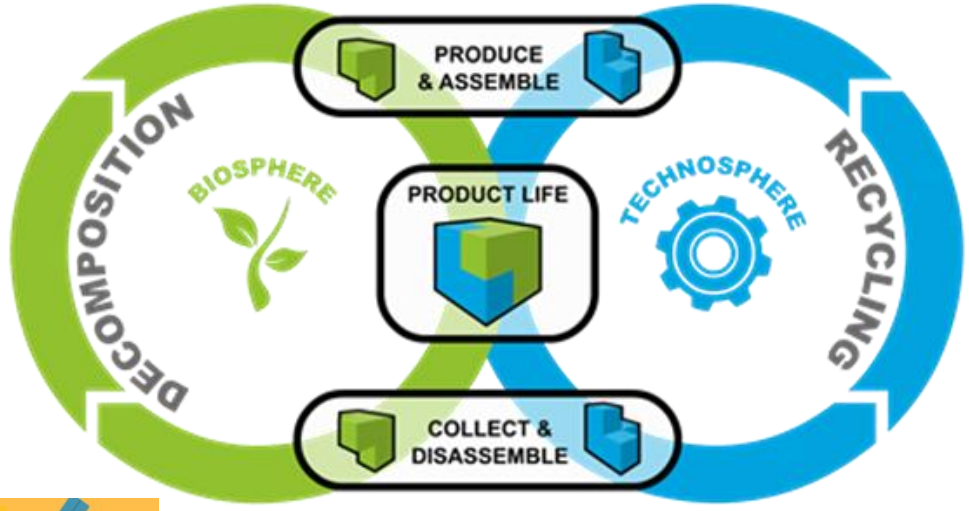
PRME Principles for Responsible Management Education

Aligning: Systems Thinking - LCA

# *LCA and Related Assessment Frameworks align system resource inputs and inventories to system impacts.*

## LCA Related Assessment Frameworks

- **Input – Output models** are quantitative economic models that represents the interdependencies between different sectors of a national economy or different regional economies.
- **Circular Economy** is a framework building upon cradle to cradle material flows to create an economy that is restorative and regenerative by design.




## Related Assessment Frameworks

- **Actuarial Risk analysis** such as those used by the insurance industry to model flooding, agricultural crop, hurricane or forest fire risks among others.
- **Environmental impact assessments** or environmental management systems.
- **Human health risk assessments** tracing virus spreads and toxic chemical inputs, exposure pathways and potential health impacts such as cancer and other illness risks.
- **Benefit-cost analysis**, Activity Based Costing and Economic Value Added (EVA) methods of assessing financial risks and returns.

LCA and related resource flow models alone are not sufficient assessment solutions to monitor and solve complex economic, social and environmental problems.

PRME Principles for Responsible Management Education

Aligning: Systems Thinking - LCA

# *Physical and transitional risk assessments integrate science-based and values-based impacts to align financial resource allocations.*

**Physical risks** are external environmental risks caused by climate change that impact the company.

**Transition risks** are the risks associated with evolving from the current system to a new future system.

## Physical Risk Examples

**Acute Risks – Event driven:**

- More than 160 companies in Thailand's textile industry harmed by 2011 **floods**, stopping about a quarter of the country's garment production.
- Constellation Energy experiencing reduced quarterly earnings of about $0.16 per share due to the record-setting 2011 **heat wave** in Texas that forced it to buy incremental power at peak prices.

**Chronic Risk – Long term changes:**

- Agribusiness and food company Bunge reporting a $56 million quarterly loss in its sugar and bioenergy segments, driven primarily by **droughts** in 2010 in its main growing areas.

## Transition Risk Examples

- **Transition risks** include policy changes, reputational impacts, shifts in market preferences, norms and technology.
- **Transition risks** are extremely interconnected with physical risks and so those impact assessment models should align to some common outcome.
- In practice governments and businesses have not yet been able to overcome their self interests to optimize mitigation responses and avoid tragic existential risks to humans.

PRME Principles for Responsible Management Education

Aligning: Systems Thinking - LCA

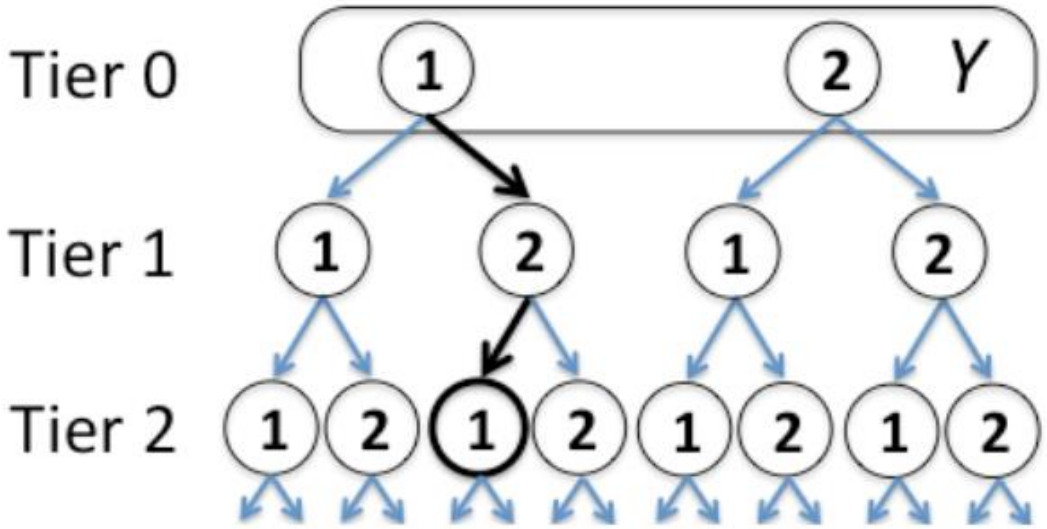
# *Heat Map Risk and Opportunity Assessments identify emergent risk mitigation and innovation opportunity paths to optimize resources and outcomes.*

**Heat maps** are tools to present the results of a risk assessment process ***visually*** and in a meaningful and ***concise*** way. ... It involves evaluating the ***likelihood*** and ***potential impact*** of ***identified risks***.

## Heat Map Insights align risk mitigation and innovation opportunities

- LCA methods consider all potential paths of a modeled system as separate entities, instead of summarizing aggregated results.
- Network analysis follows LCA process matrix-based methods.
- Structural Path Analysis follows IO-based methods.
- Hybrid methods model parameter changes to estimate effects of alternative designs, use of processes, or other assumptions.

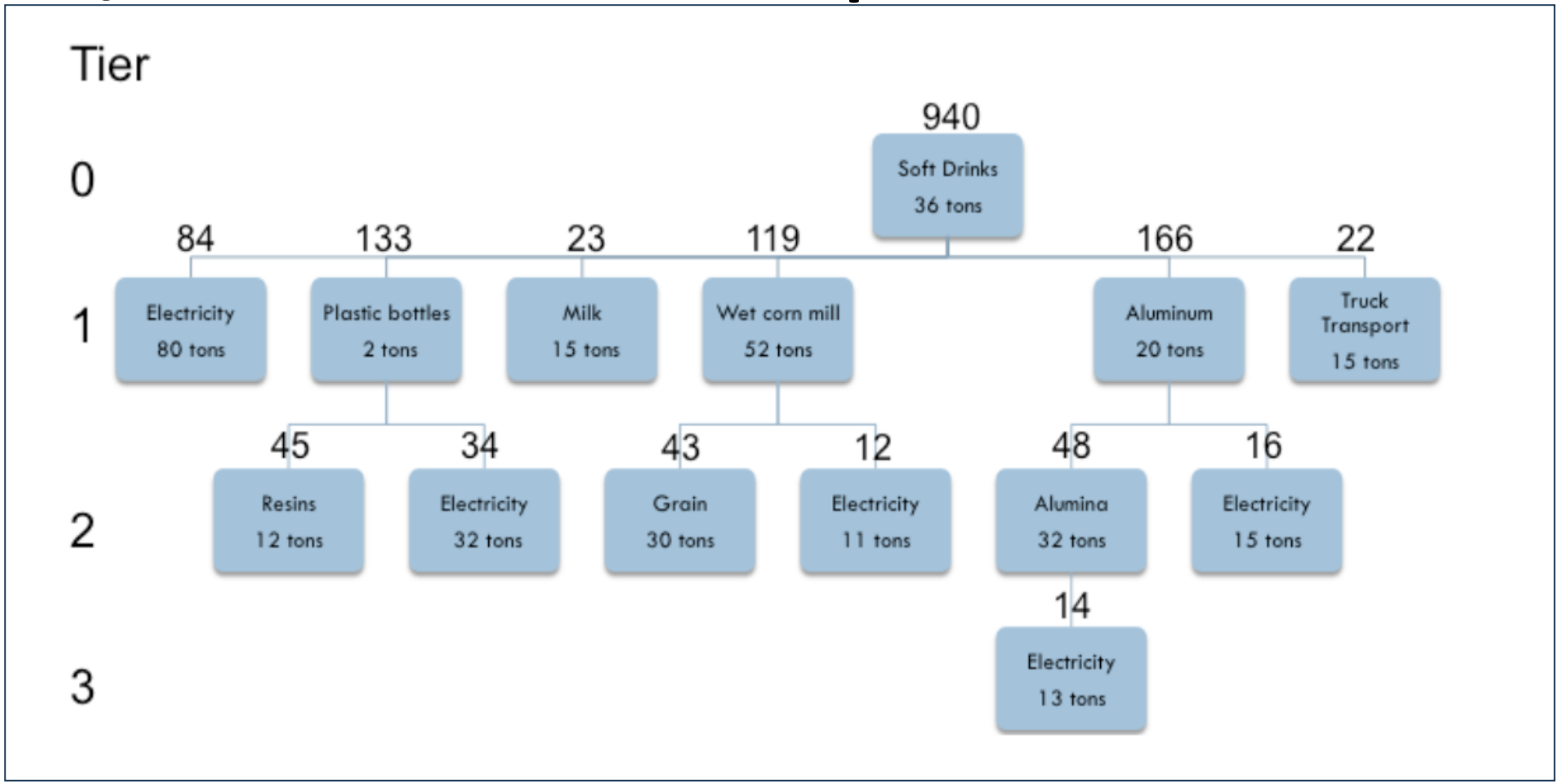
## Supply Chain Hierarchy for a 2 – Sector Economy




PRME Principles for Responsible Management Education

***Heat Map can assess impact hot spots and align risk mitigation and innovation opportunities.***

# I/O model Carbon Hot Spots for Soft Drinks



# *Sustainable Development Goals (SDGs)*

Sustainable development is more than a goal. It is our responsibility to our planet and future generations.

*Antonio Guterres*
*Secretary-General of the United Nations*


"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

# World Economic Forum Risk Assessments 2020

In late 2019, **infectious diseases** were assessed to be of high impact but low probability of occurring.

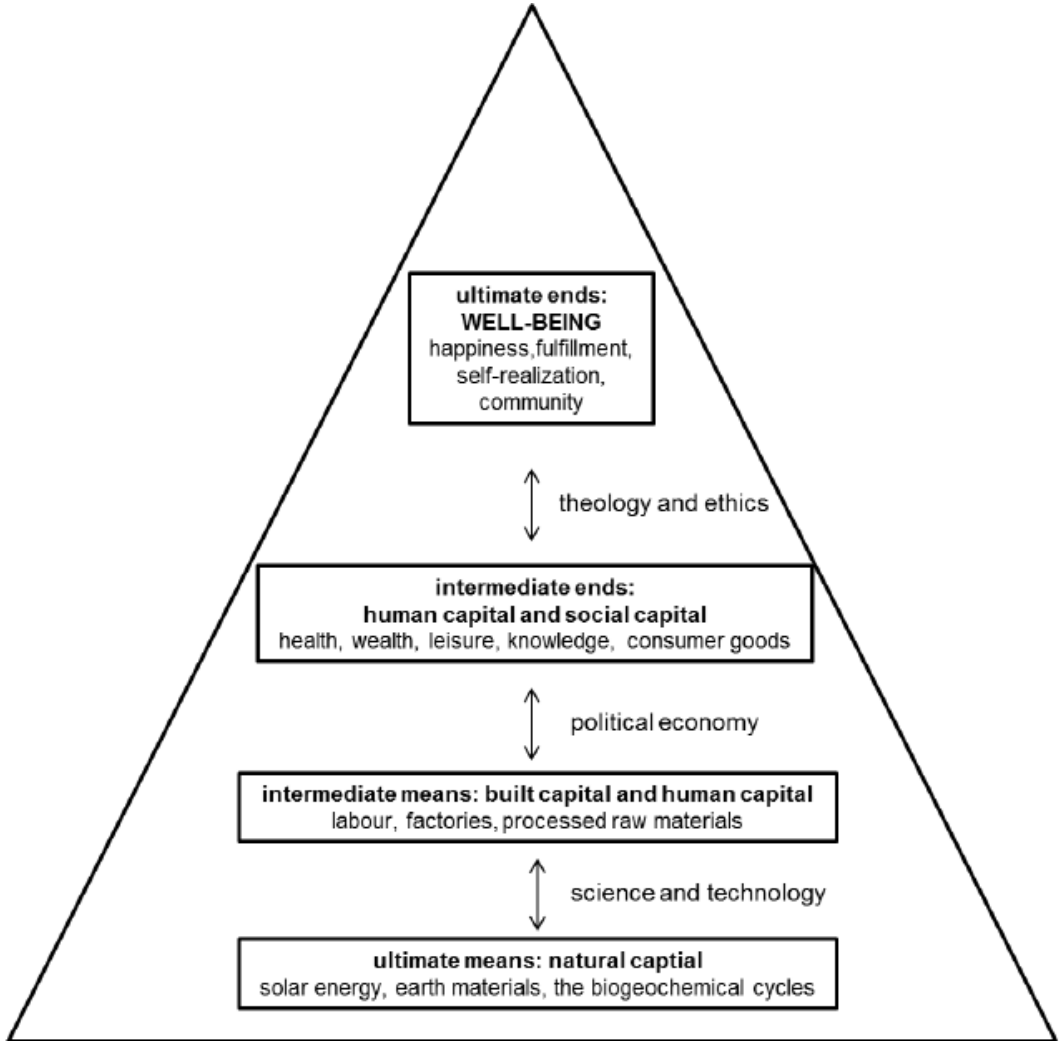
The risk factor for global pandemic has now risen 28%.


"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

# *The Daly Triangle*

## Thriving: The Ultimate Purpose!



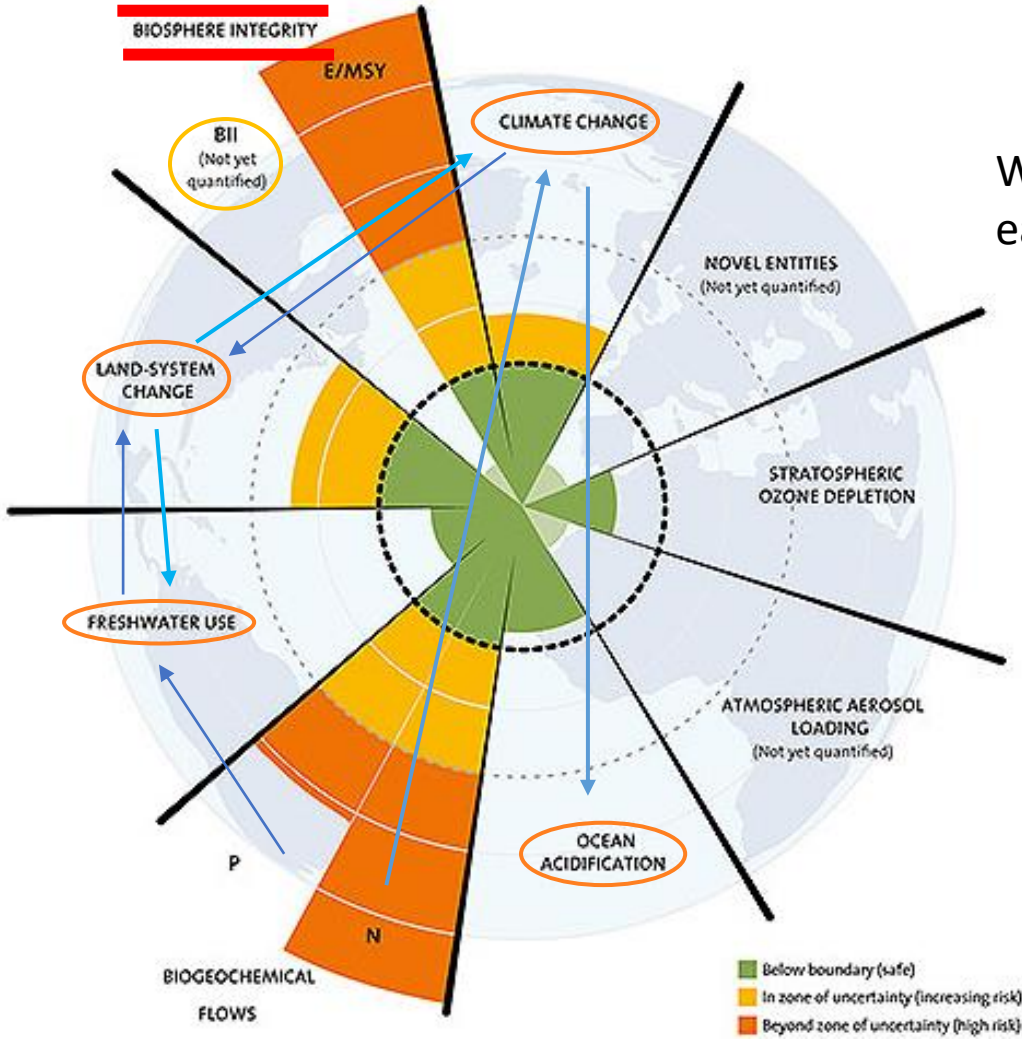

Ultimate Ends

Ultimate Means

# *Planetary Boundaries and Ecosystem Services*

Use of Earth system resources in context of recovery *within human-scale* timeframes

What are safe operating levels for each of these realms?




What are the thresholds for each of these realms?

How does this connect to SDGs?

PRME Principles for Responsible Management Education

# Questions?

- Which frameworks do you use?
  - Ecological Footprint
  - Life Cycle Analysis/Input-Output Models
  - Circular Economy
  - Planetary Boundaries
  - World Economic Forum Risks
  - Sustainable Development Goals

# Systems approach for the SDGs

Tragedy of the Commons
SDGs as nested systems
- Shifting core priorities changes outcome
- Centrality of Zero Hunger

Thresholds and Metrics

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

# *Tragedy of the Commons:* *Humans acting out of a natural "self interest" instinct over consume or exploit limited resources depleting the common resource to the detriment of the whole group and ultimately to themselves.*

## Limited Resource System Consequences

- Failure to consciously know that a common resource is being over consumed does not prevent the tragedy.

  *"Pitfalls of inaction"*

- The wealthy or powerful may consciously influence the system's rules to unjustly protect their interests while knowingly allowing less privileged groups to suffer.

  *"The rich get richer"*

## The Tragedy of the Commons

Garrett Hardin

Individuals when they act independently following their self interests can deplete a deplete a common resource, contrary to a whole group's long-term best interests.

Source: Garrett Hardin, The Tragedy of the Commons, Science, Volume 162, Number 3859, pages 1243-1248, 13 December 1968.

*"The scarcest resource is not oil, metals, clean air, capital, labor, or technology. It is our willingness to listen to each other and learn from each other and to seek the truth rather than seek to be right."* Donella Meadows

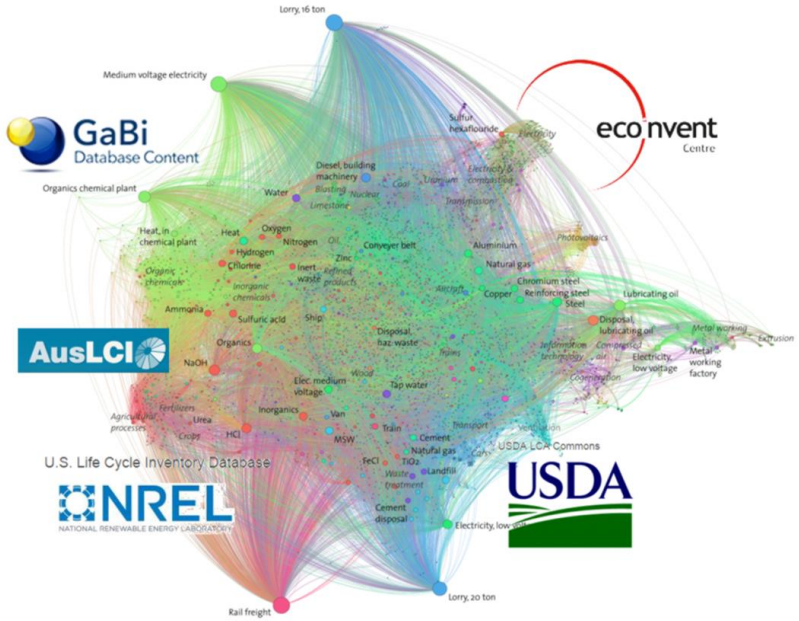
# *Corollary to tragedy of the commons: Thriving of the people*

- Solutions to the tragedy of the commons include:
  - The imposition of private property rights
  - Government regulation; or
  - The development of a collective action arrangement.
- Aligning people to both scale and expand boundaries for collective action to steward and justly distribute limited resources will require:
  - Transparency;
  - Trust;
  - A shared vision and goals; and
  - People acting in service of the whole.


"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

*Technology developments like Big Data, AI, Machine Learning and Social Media have forever changed the world. We must use it wisely and not lose consciousness about being human.*

- # Technology Opportunities:
  - Technology advancements provide one of our greatest opportunities for transformational systems change and achieving global sustainable performance.
  - The ability to automate data collection and analysis is enabling lifecyle inventories and advanced impact assessment modelling.
- # Technology pitfalls
  - Human emotional and ecological intelligence awareness, shifting mindsets and building trust are more difficult barriers to change.
  - Big data analytics and social media have unintentionally increased bias and divisiveness and is causing people to entrench self interests and advance the tragedy of the commons.

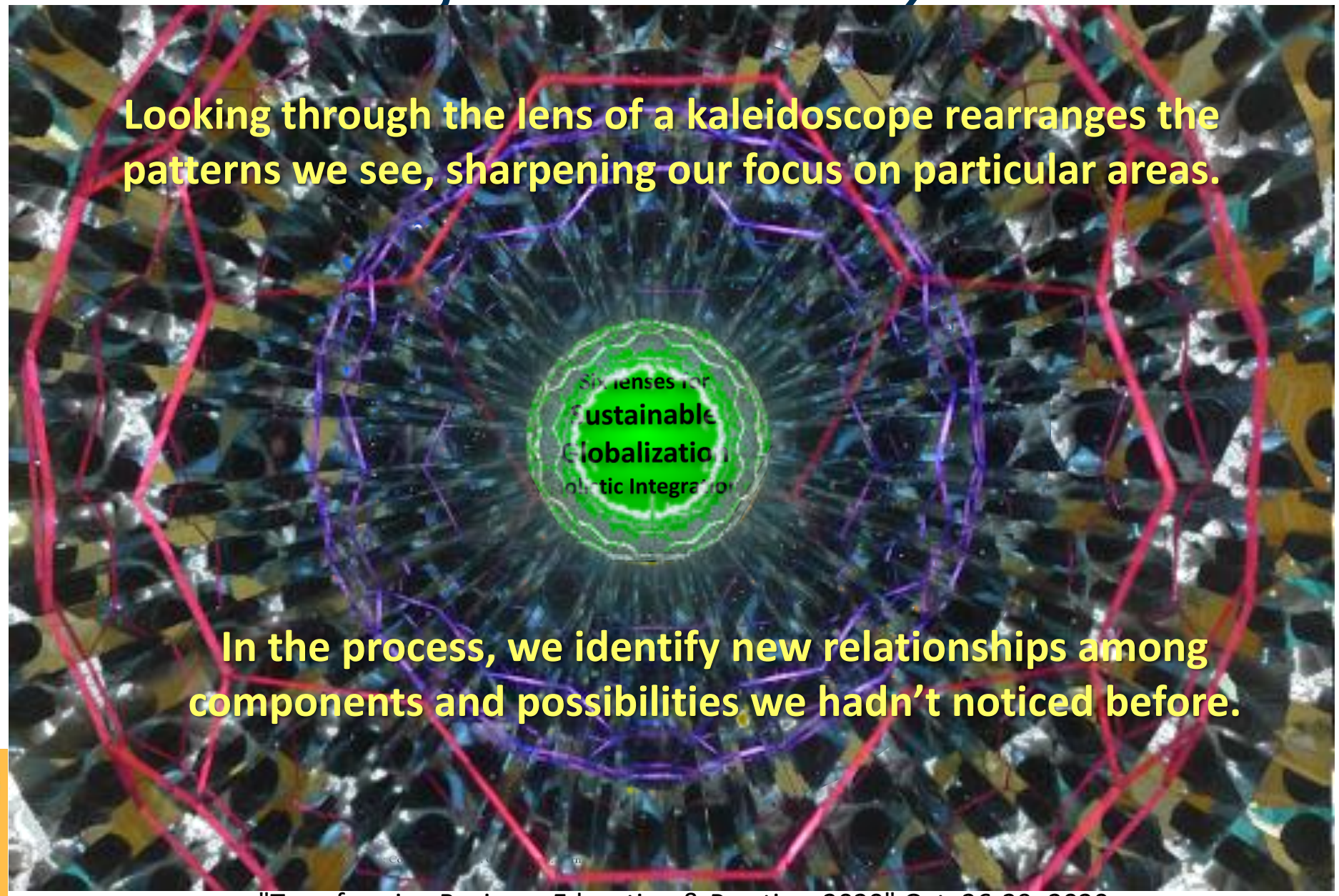



*"In Huxley's vision, no Big Brother is required to deprive people of their autonomy, maturity, and history. As he saw it, people will come to love their oppression, to adore the technologies that undo their capacities to think."*

*Neil Postman, 1985*

PRME Principles for Responsible Management Education

# *Lenses for sustainability*



Systems approach to SDGs

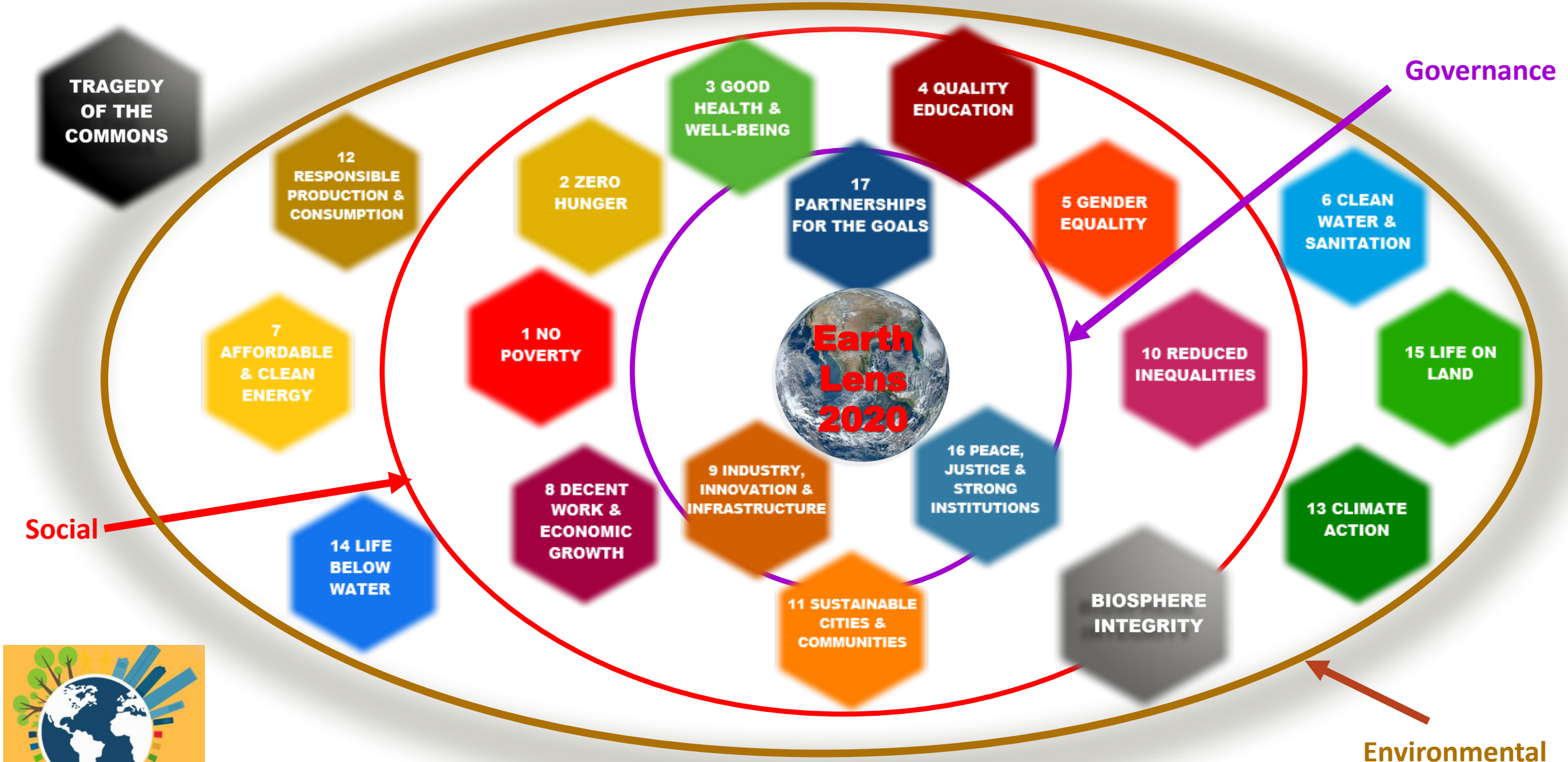
# *Sustainable Development Goals Lens : Economic Self-Interest*


PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

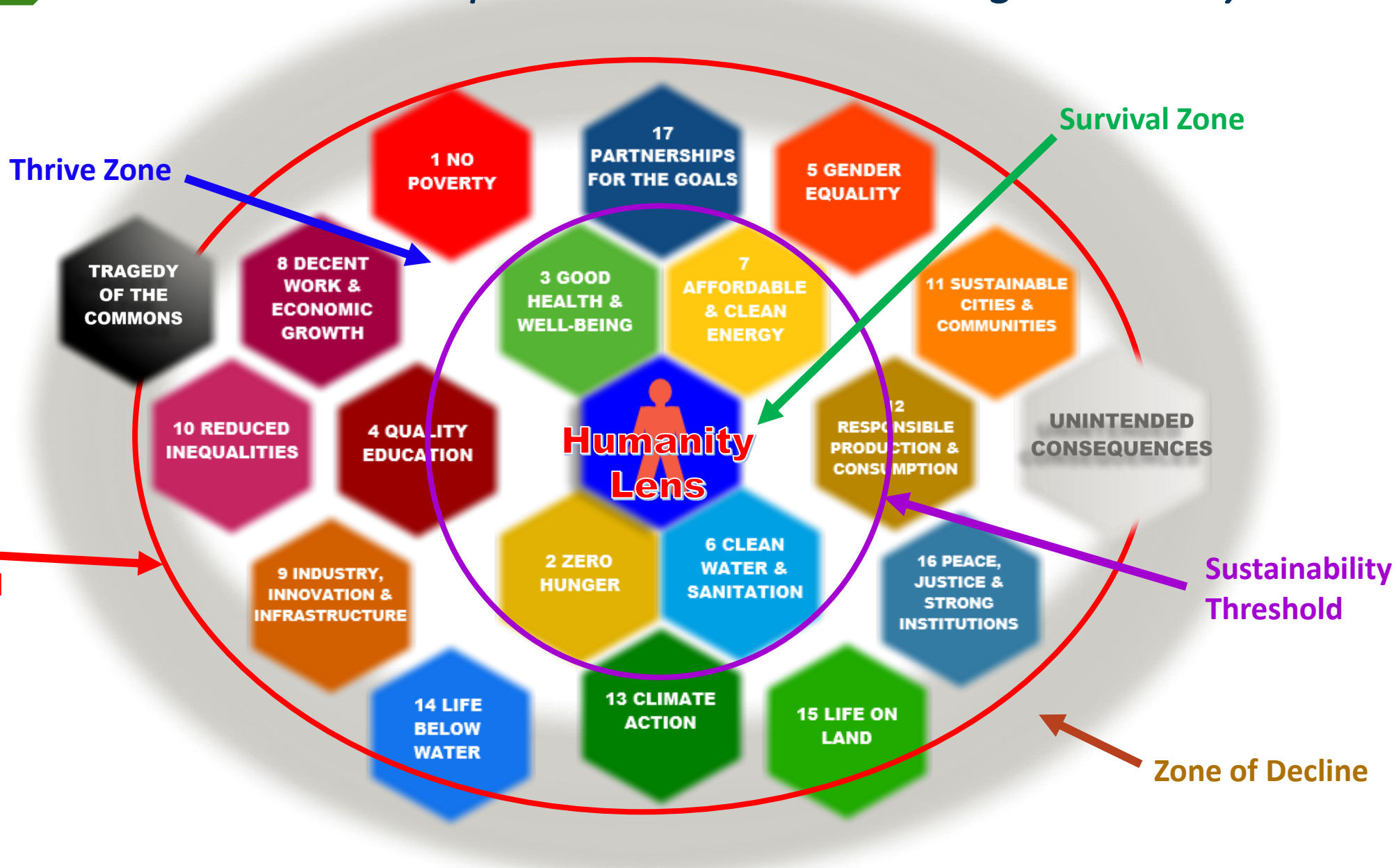
Systems approach to SDGs

# *Sustainable Development Goals Lens: Earth-Centric*




PRME Principles for Responsible Management Education

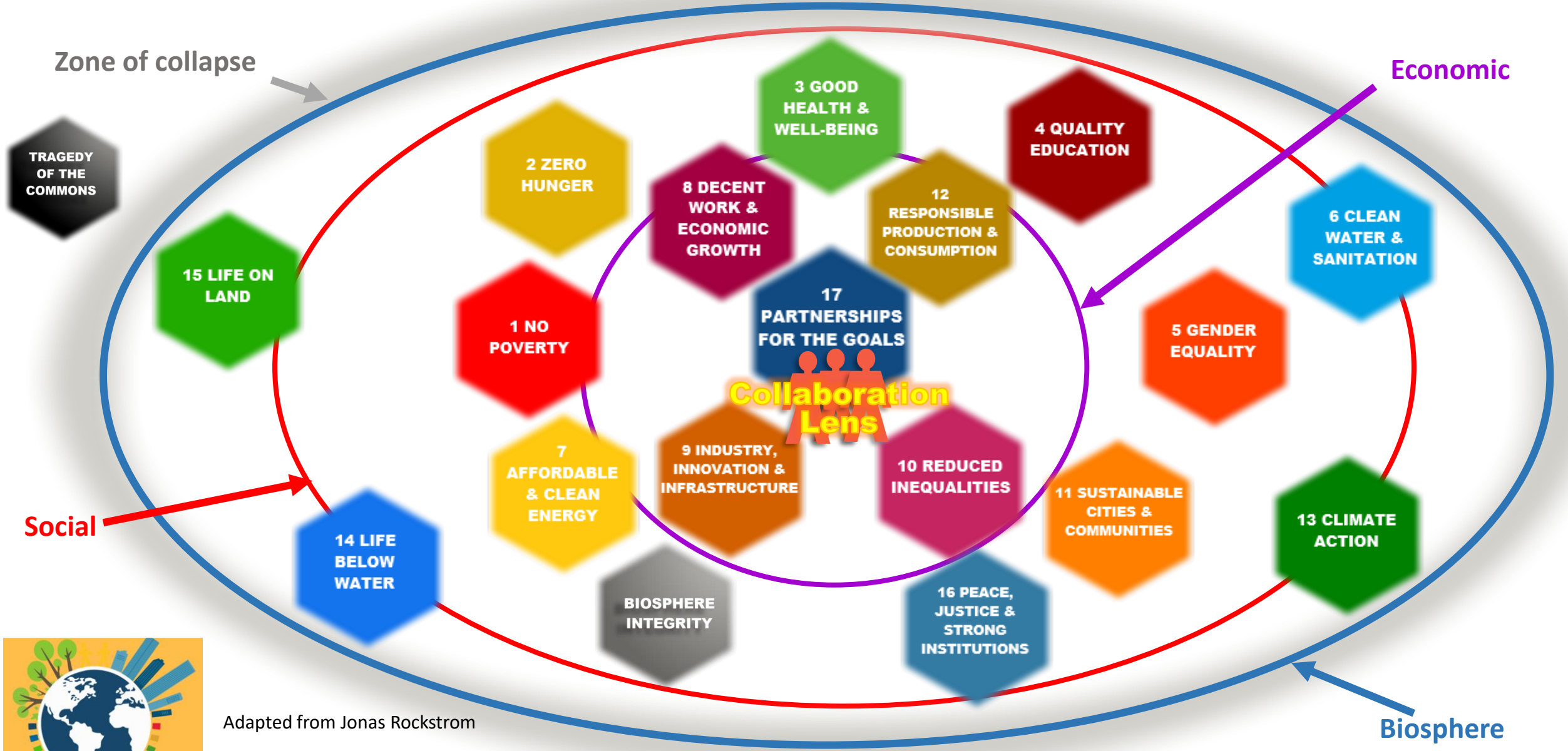
# *Sustainable Development Goals Lens Nesting: Humanity*




PRME Principles for Responsible Management Education

Systems approach to SDGs

# *Sustainable Development Goals Lens: Collaboration*

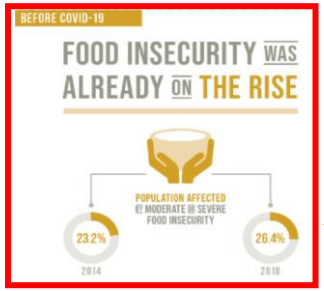



Adapted from Jonas Rockstrom

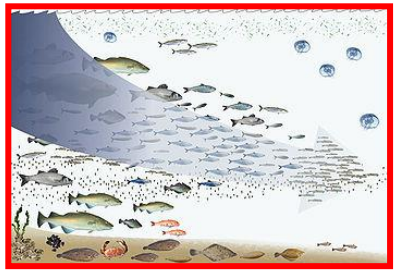
Systems approach to SDGs: Nests

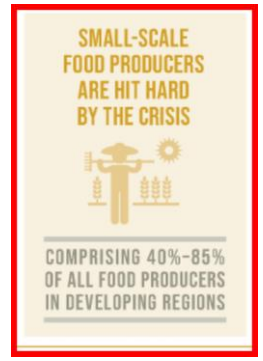
# *Systems approach to food and sustainability – SDG Centric*

2 Billion food insecure




70% in crisis state




Small-scale farmers produce 75% of the world's food


**Who is chronically hungry?**

**Who must collaborate to achieve Zero Hunger?**

**What systems maintain hunger?**

**What systems must change?**

PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

***Siloed home and work life systems consume vital limited resources and create tremendous waste. People are rushed and so don't take the time to reflect on their life's purpose and the impacts and outcomes of their actions.***

Current practices are "insanely" wasteful

***"Normal is getting dressed in clothes that you buy for work and driving through traffic in a car that you are still paying for – in order to get to the job you need to pay for the clothes and the car, and the house you leave vacant all day so you can afford to live in it."***

***Ellen Goodman, American journalist***


PRME Principles for Responsible Management Education

***Sustainable performance measures are a key ingredient to move people from awareness about sustainability to understanding and ultimately to action.***

*How do we know if our behaviors and choices for future paths are moving us toward or away from a more sustainable and thriving world?*

## Sustainability Performance

- Internal sustainability metrics will supply intelligence that aligns an enterprise's need for knowing with informed business decisions and effective strategic actions.
- External sustainability measures inform policy / markets
- Companies acknowledge their lack of metrics as a top factor hindering implementation of sustainability programs.
- **Sustainability Accounting** enables financial and non-financial performance alignment.

*"When indicators are poorly chosen they can cause serious malfunctions….The choice of indicators is a critical determinant of the behavior of a system."* **Donella Meadows**

Systems approach to SDGs: Thresholds

# *Threshold criteria: Operating between collapse ←→ thriving*


- **Transparent and shared** input data across value chains to design and align with optimal paths
- **Develop, monitor and adjust** known and unknown threshold conditions and impact assessment methods to enable science-based targets
- **Shared standards** with adaptable KPI's to facilitate scaled implementation and shorter system feedback loops.
- **Without these we are driving blind on a highway.**

## A Typology of Goals and Metrics

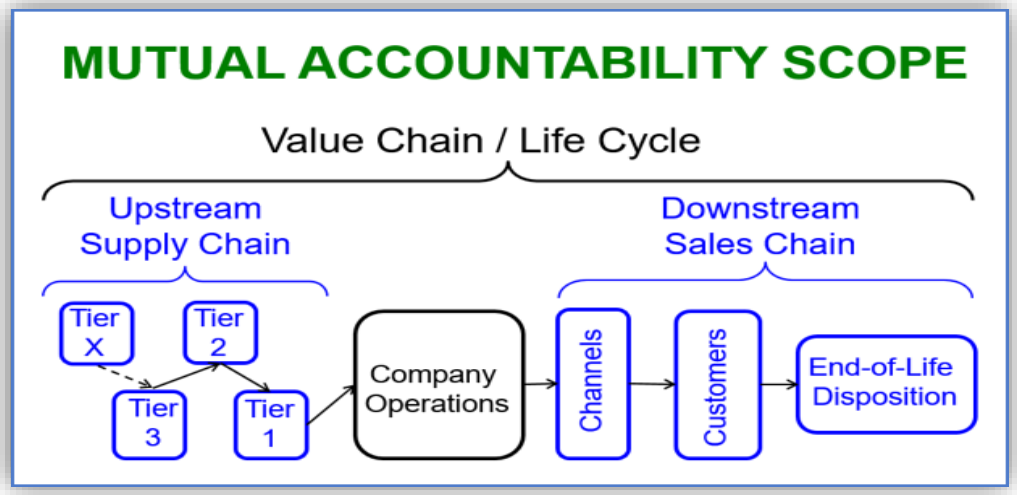
- Science-Based: Grounded in the sciences (any), but with no organization-specific allocations defined; or if so, they are Context-Based
- Ethics-Based: Grounded in principles of justice, fairness, or equity, but with no organization-specific allocations defined; or if so, they are Context-Based
- Context-Based: Science- or Ethics-Based and which also includes organization-specific allocations or standards of performance expressed in terms of (or tied to) the carrying capacities of vital capitals

PRME Principles for Responsible Management Education

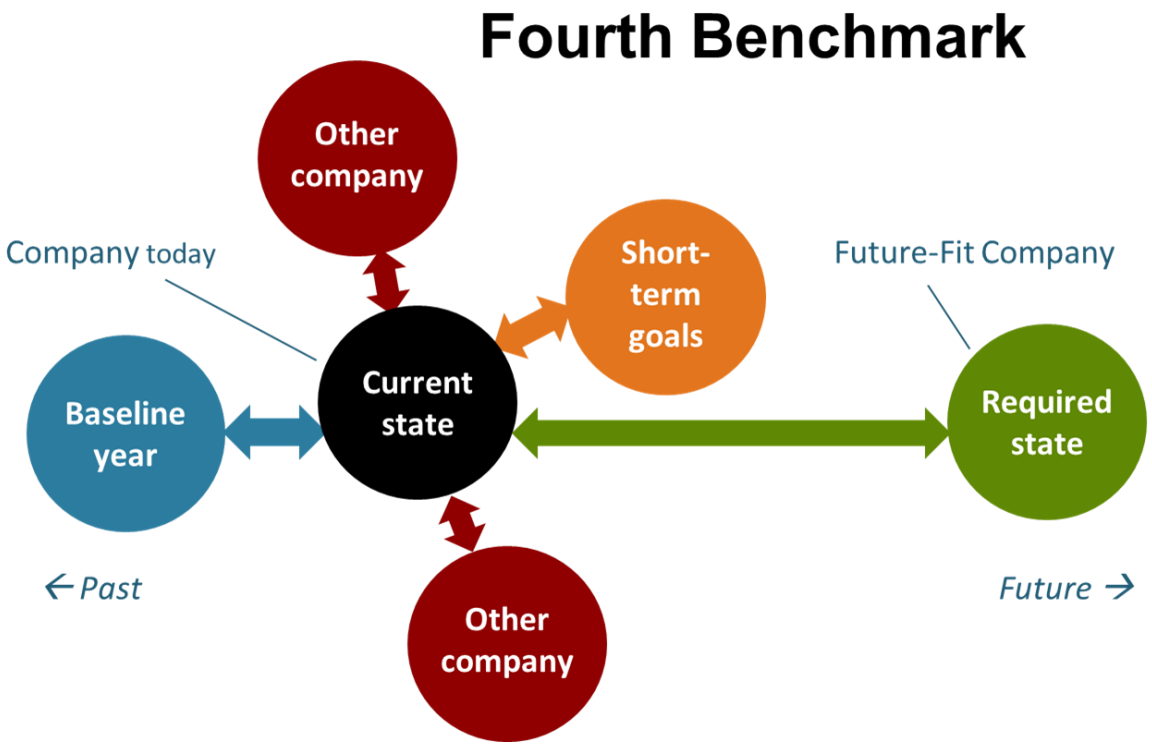
***If it were to operate forever, business would not only do no harm, it could do well by doing some net good.***

## Future-Fit Business


*A Future-Fit Business creates value while in no way undermining – and ideally increasing – the possibility that humans and other life will flourish on Earth forever.*



***Thriving:*** *Privileged companies assume responsibility to sponsor science based and socially responsible innovations to achieve a regenerative and flourishing future.*




## Thriving: Science-based Systems

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION
CDP DRIVING SUSTAINABLE ECONOMIES · WORLD RESOURCES INSTITUTE · WWF

**Thriving:** The company is accomplishing its purpose for its customers while having no net decline in natural capital, improving the wellbeing of its employees and the communities within which it operates, and its products are used.

PRME Principles for Responsible Management Education

*"The future is not some place we are going to but one we are creating. The paths are not to be found, but made, and the activity of making them changes both the maker and the destination."*

John Schaar, Professor Emeritus, UC Santa Cruz

# Poll

# Where in the educational system transformation do you see yourself contributing?

- **Incrementally improve education curriculum** to integrate the SDGs
- **Disrupt the current policies and practices** by innovating educational methods and content
- **Anticipate and create** the future state of education
- **Practice and advocate for learning as a way of being**

# Poll Results and Questions

New Bridges Website

# Bridges to the New Future

- Building shared knowledge for continual learning
- Fostering collaboration
- Aligning personal contributions with global sustainability
- Living Fieldbook as a tool for educating and training

PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

New Bridges Website

*Bridges to a new future is a web resource for learning and collaboration.*


"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

New Bridges Website

# *Bridges to a new future website landing page*

ABOUT THE BOOK  LIVING FIELDBOOK  BUILDING NEW BRIDGES TO THE FUTURE


*"This moment, the moment we are all in together, is our greatest opportunity to forge a new path forward."*

*Welcome to The Sustainable Enterprise Fieldbook's Building New Bridges to the Future.*

Finding hope and purpose in the midst of global disruptions

PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

New Bridges Website

# *Quickly navigate to locate information and initiatives for your level of interest*

ABOUT THE BOOK  LIVING FIELDBOOK  BUILDING NEW BRIDGES TO THE FUTURE

## PERSONAL LEVEL

***You cannot go back and recreate the past; You can't step into the***

> *As happens with the turn of a kaleidoscope, our accumulated skills and experiences reorder and recombine to make new original patterns time after time; we're always a work-in-progress.....Gain insights on how individuals successfully embrace the new normal and navigate the uncertainties caused by COVID Pandemic*

- *There's a Crack in Everything. That's Where the Light Gets In:* ....The idea is that everything is flawed. Yet, there is also hope despite the flaws. It is through the cracks where the light comes in. Certainly, the cracks in our economic, social, political, leadership, and ecological systems have become manifest in the wake of the ongoing Covid-19 pandemic. Many people who might not have recognized those cracks prior to the emergence of Coronavirus may now have to admit that the system itself needs dramatic transformation, not restoration or tinkering around the edges.
- *The Virus Is a Reminder of Something Lost Long Ago In rebuilding a broken world, we will have the chance to choose a less hurried life.....*With the forced slowing of life granted by the coronavirus, we are now seeing an explosion of creative ideas and innovations in many parts of the world. In Italy, quarantined citizens are singing from balconies. Writers have created new blogs. Parents have developed new art projects for their children. But there is something more to be regained, something more subtle, more delicate, almost impossible even to

PRME Principles for Responsible Management Education

New Bridges Website

# *The Living Fieldbook contains additional information of interest*


www.thesustainableenterprisefieldbook.com/about.html

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

New Bridges Website

# *Professors can access learning guides for each Fieldbook chapter*

THE SUSTAINABLE ENTERPRISE
LIVING FIELDBOOK

HOME ABOUT CHAPTER ABSTRACTS CHAPTERS EVENTS BLOG CONTACT Search

## CHAPTER 1 : LEADERSHIP FOR A SUSTAINABLE ENTERPRISE

LEARNING GUIDE FOR CHAPTER 1

### ACTIVITIES

- Discussion Questions for the Leadership
- Engaging the Natural Tendency of Self Organization
- The Process Enneagram, pp. 45-48
- The Leadership Diamond, pp. 55-56
- Nature and Domains of Leadership, pp. 57-60
- Domains of Leadership, pp. 60-63
- Processes and Practices for Sustainable enterprise, pp. 63-64
- Reflections on leadership from ancient traditions and Earth wisdom, pp. 64-69

PRME Principles for Responsible Management Education

New Bridges Website

# *Professors can access learning guides for each Fieldbook chapter*

THE SUSTAINABLE ENTERPRISE
LIVING FIELDBOOK

HOME ABOUT CHAPTER ABSTRACTS CHAPTERS EVENTS BLOG CONTACT Search

## CHAPTER 1 - LEARNING GUIDE

**Activity 1: Leadership for a sustainable enterprise overview includes:**

- A pre-reading to be assigned prior to the workshop
- Four brief activities that together provide an overview of the entire chapter
- Activities take 50 minutes

Files include:

- Pre-reading: Transformation (pdf)
- Instructor's Guide - Leadership for a Sustainable Enterprise Overview Activity - The Leadership Diamond (pdf)
- The Leadership Diamond presentation (PPT)

**Activity 2: Nature and domains of leadership for a**

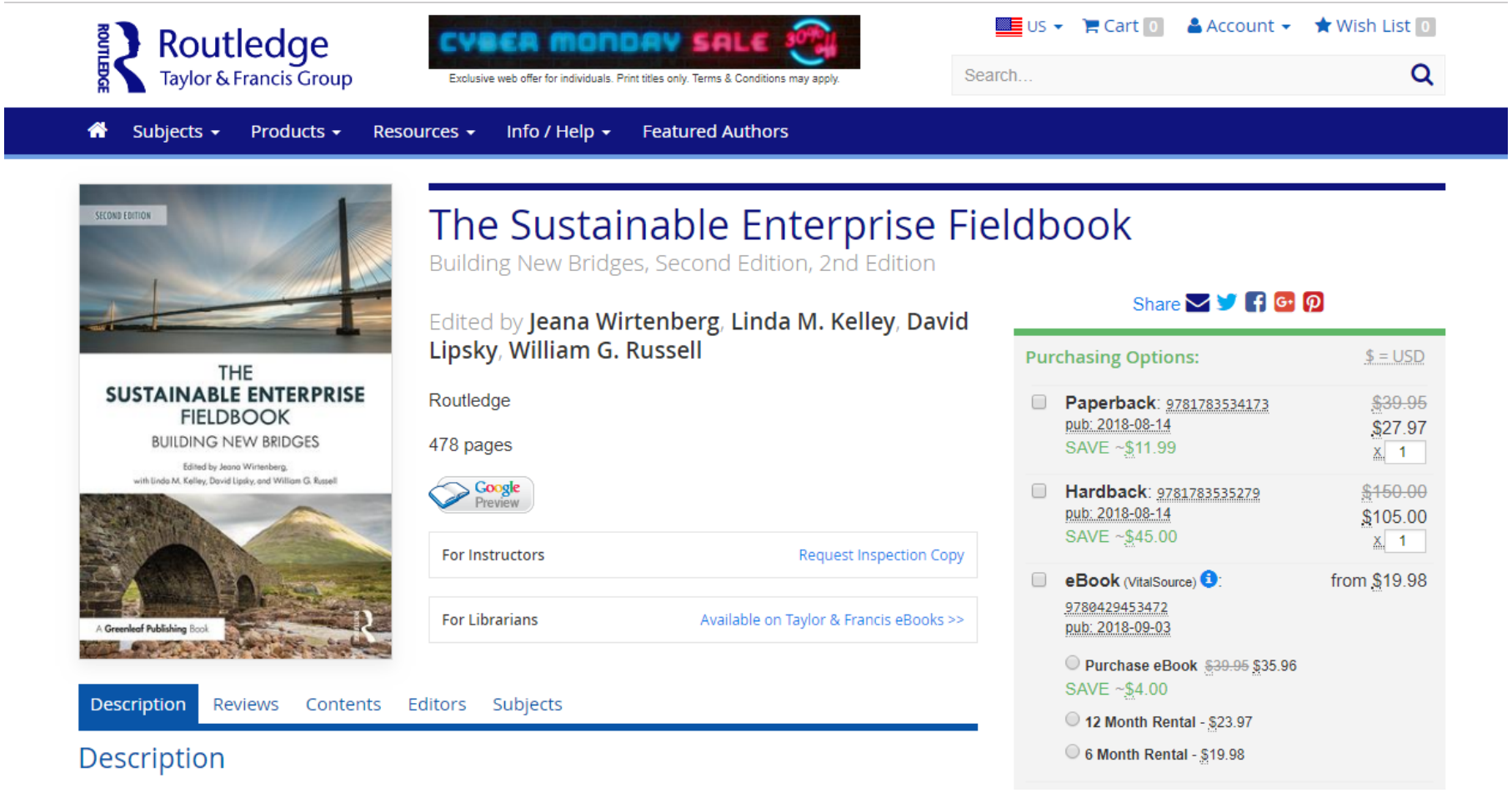
PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

New Bridges Website

# *Free Inspection Copy from Routledge for Professors*

https://www.routledge.com/The-Sustainable-Enterprise-Fieldbook-Building-New-Bridges-Second-Edition/Wirtenberg-Kelley-Lipsky-Russell/p/book/9781783534173



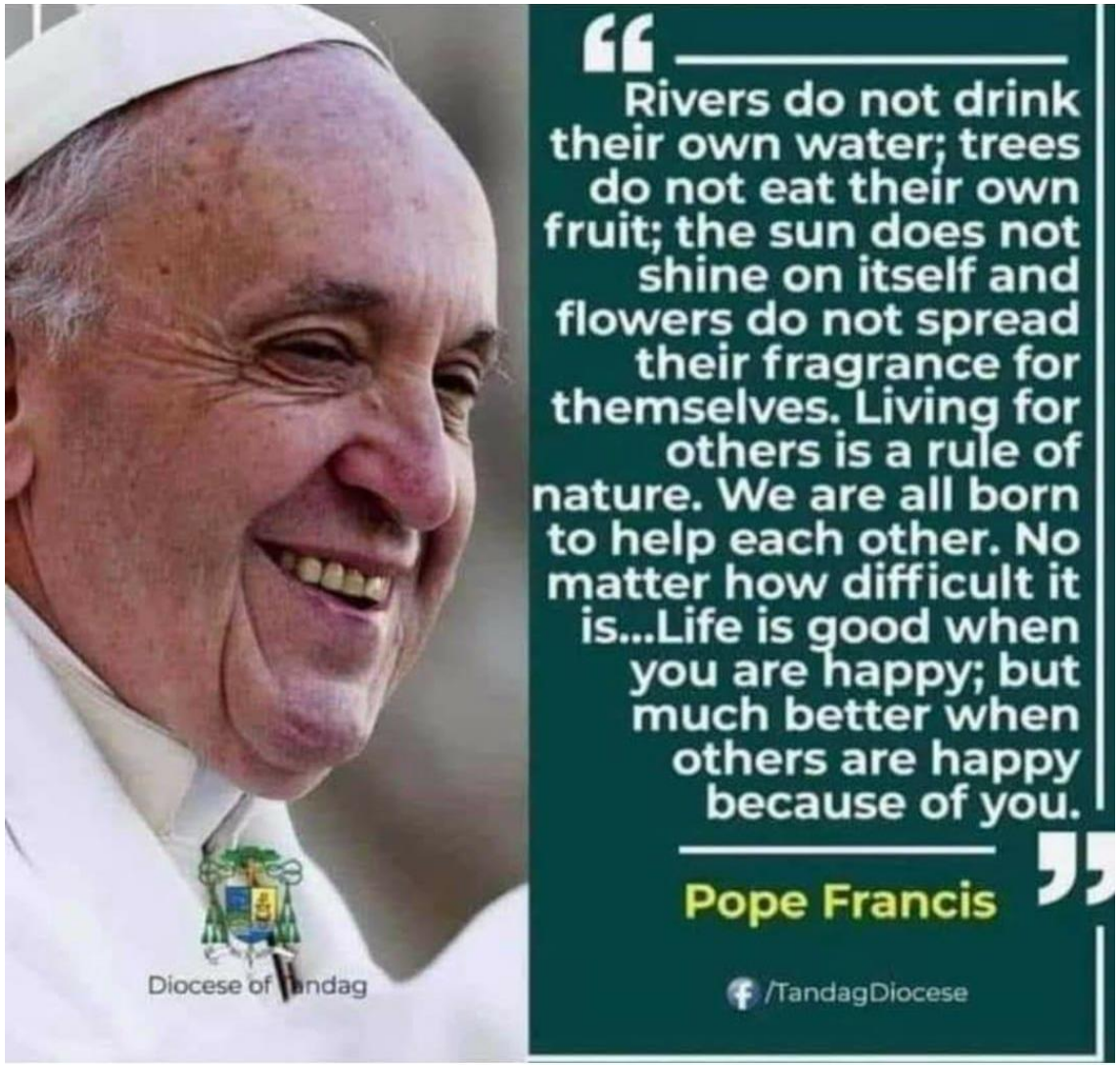

PRME Principles for Responsible Management Education

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

# Questions?

Conclusion

# Individuals operating in service of the whole




"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education

# Thank you!


We invite you to think on these things during the rest of this conference, to consider the systems effects in your own actions, to explore your own mental models and how they drive your thoughts and actions, the mental models of your communities and your culture.


Linda M. Kelley, William G. Russell, & Nalini Kumaran

ld366496@gmail.com wgrussell59@gmail.com nmahad@gmail.com

Transitioning to Green, LLC


https://www.thesustainableenterprisefieldbook.com/building-new-bridges-to-the-new-future1-567974.html

"Transforming Business Education & Practice, 2020" Oct. 26-29, 2020

PRME Principles for Responsible Management Education