Tab 1

SFM 101

AFSA

EDUCATION

Please enjoy these
materials and happy studying!

Exam format for 2025

Weight: *35%* of term mark
Content breakdown: *30%* pre midterm, *70 %* post midterm content
Question breakdown: *17* Multiple choice, *5* short answer
Cheat Sheet: 1 page back and front, 8.5 X 11 inches. Same length as midterm
Time + Place: Monday Dec 15, 2025 | 12:30 - 2:30 | MC 2035, 2038

Week 1: What is Sustainability?

Prep Readings

- *Clark, W. C. Sustainability science: A room of its own.*
- *Micheal Porter, M.E. Why business can be good at solving social problems.*
- *Cavendish, C. The arrival of the Anthropocene is our final warning on climate*

- ***Clark, W. C. Sustainability science: A room of its own.***
    - Sustainability science became its own field of study in **2007**
        - The early 2000s saw rapid growth in this field of research with a 15-20% increase per year in terms of articles published
    - It focuses on the complex **dynamics of interactions** between **human-environmental systems**
        - Many of the articles were in different "silos" (areas) without much interaction which limited "cross-fertilization" (sharing ideas between different fields/disciplines): an idea that would spark progress through collaboration

- ***Micheal Porter, M.E. Why business can be good at solving social problems.***
- Traditional approaches like governments are insufficient in solving social problems due to the lack of sustainability and the scale of solutions is too broad
- Companies can find **profit in addressing environmental degradation**
    - Economic value can help businesses contribute to social good
    - **Conventional Wisdom**: the historical tradeoff between social and economic performance -> businesses have historically made a profit by creating social problems (If a company polluted, they made more money than if they tried not to)
        - This is the **False Dichotomy** since the opposite of this idea is the truth. The false dichotomy is the mistaken belief that there is a strict separation between business and social goals (profit vs social issues)

          Safer working environments -> less expensive accidents
          Prioritized health of employees -> higher productivity
          Reducing emissions -> generate profits, less resources wasted

- ***Cavendish, C. The arrival of the Anthropocene is our final warning on climate.***
- *Scientists argue we have entered the Anthropocene, a new epoch defined by human-driven planetary change.*
- Human activity has reshaped Earth through:
    - A sixth mass extinction
    - Fossil fuel emissions altering oceans and atmosphere

    - Chemical pollution of land and water
- Humans as Geological Agents
    - Sediment from a Canadian lake contains radionuclides, carbon particles, and fertilizers, showing clear, lasting evidence of industrial activity.
- Conventional Wisdom: Human impacts are minor
    - Historically, we assumed human effects were local or limited.
    - This is a False Understanding
        - Human systems now alter global climate, ecosystems, and chemical cycles, proving there is no strict divide between human actions and planetary health.

Lecture Content:

Introduction to Sustainability and Financial Management: What is Sustainability?

- **ISSB** - International Sustainability Standards Board
    - Develops and promotes sustainability standards on a global scale

- On **June 26, 2023** - the ISSB issued the first global sustainability disclosure standards
    - **Purpose**: to create a "common language" to help companies disclose **sustainability-related and climate-related risks**
    - It allows stakeholders to improve their confidence in **company disclosures** about sustainability and can help inform them about investment decisions

- **2 Key Standards created by the ISSB**

IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information	• A general framework for companies to disclose *sustainability*-related risks and opportunities
IFRS S2: Climate-related Disclosures	• Specifically for disclosing *climate*-related risks and opportunities

- Sustainability: The ability to be maintained at a certain level/rate
    - Avoidance of the depletion of natural resources
    - **Mitigation** (proactive: preventing effects)
    - **Adaptation** (reactive: adapt/manage effects)

- **Sustainable Development** (SD)
    - Purpose: Promote development that meets the **needs of the present** without compromising the ability of **future generations** to meet their own needs (Big focus of the Brundtland Report)

- **3 Goals of SD**

Social Equity	• Institutional sustainability, equity, and social justice

Economic Prosperity	• Basic needs, increasing availability of useful goods and services to the public
Ecological Integrity	• Genetic diversity, biological productivity, resilience

- **Tragedy of the Commons:** Everybody acts in their **self-interest**; technology can only go "so far" in solving problems. Common goods will be depleted if everyone acts in personal favour (selfishness)
    - Some **technological innovations** can be **detrimental** to the **environment**
    - There is no technical solution if both sides understand the problem well (like tic tac toe) ex. The issue of overpopulation has no technical solution
    - Global resources have a limit, if everyone acts in their self-interest, how would we have **equal access to resources**?

- **4 Trade-offs between goals in Sustainable Development (SD)**

Intertemporal	• Doing something now for a delayed positive outcome later in the future (time-related) • Smaller **immediate outcome** vs larger **delayed outcome** • Ex. Choosing to receive $100 now or $400 in 3 months
Interspatial	• **Transfer** of something or processes to a new location (shifting the burden) • Transferring/exporting waste from a landfill in one country to another
Intersocial	• **Compromise**/exchange between social groups • A public facility being built in one area may positively affect one group while neglecting another
Interscale	• Decisions/actions taken for one space **affect** another • Conservation area restricting agriculture in one area affects food production on a larger scale (local ->regional -> national -> global)

- Opportunities/challenges in **Sustainable Finance**

Urgency	• 7 years since SDGs released • Other countries are doing much better than us (especially in **Europe**) • Governments are now prioritizing sustainability • **International Standards** • No longer “nice to have”, it is now a “must”
Organizations	• Most companies do not know or don’t know where to start • **Risks** aren’t addressed • “Wait and see” approach - see what other companies do
A/F Profession	• **Few professionals** with sustainable accounting/reporting • Stakeholders want **consistent reporting** on targets/actions • No current global reporting standards

- **Pragmatic Worldview** - Tools or strategies that influence practices, technologies, infrastructures, and institutions that solve sustainability problems

- **Socio-technological innovations (solutions for climate change)**

Example	Social Aspect	Technological Aspect
Renewable Energy	• Government **incentives** for **renewable** sources + upgrading **grids** to handle that energy (wind)	• **Hydropower** used to generate electricity
E-Scooters	• **Safety policies**, the public needs to use these daily for their commutes	• **Low emissions**, less **reliance** on gas vehicles
Carbon Capture (Farming)	• **Education** for farmers, demand for sustainable food growth	• **Regenerative** agriculture (soil restoring farming)

- **3 Pillars of Sustainability:** Environment, Economic, Social
    - A sustainable system **balances** all 3: **social** (well-being of communities), **environmental** (protection of natural resources), and **economic** (financial stability, fair labour) sustainability
    - Focus on all 3 to create solutions that balance

Week 1 Practice Questions

1 According to Michael Porter, what is the "False Dichotomy" in the context of business and social performance?

a) The belief that businesses must always prioritize profits over social issues.
b) The notion that businesses have historically contributed to social issues for profit.
c) The mistaken idea that economic and social goals are separate and cannot be aligned.
d) The idea that addressing social issues is solely the responsibility of the government.

2. Which of the following is not a trade-off identified in Sustainable Development (SD)?

a) Intertemporal
b) Interscale
c) Interpersonal
d) Intersocial

3. What is the primary goal of the ISSB's new sustainability disclosure standards?

a) To increase short-term profits by prioritizing sustainability reporting.
b) To create a common language for disclosing climate and sustainability risks.
c) To mandate companies to switch to renewable energy sources.
d) To replace all international financial reporting standards with sustainability-focused ones.

4. Which of the following best describes the concept of "Shared Value" in sustainability?

a) The separation of social and economic goals within business practices.
b) A dual focus on creating both social and economic value through business strategies
c) Prioritizing short-term profits over long-term sustainability goals.
d) Redirecting company resources to charitable organizations.

5. What do the three pillars of sustainability aim to balance in a sustainable system?

a) Resource consumption, biodiversity, and profit margins.
b) Technology, population, and affluence.
c) Economic growth, corporate philanthropy, and technological advancement.
d) Community well-being, financial stability, and environmental protection.

6. Which statement best describes the purpose of Sustainable Development (SD) as highlighted in the Brundtland Report?

a) To ensure development meets present needs without compromising future generations' ability to meet their own needs.
b) To focus exclusively on economic prosperity for developing nations.
c) To increase short-term profits while minimizing environmental impact.
d) To prioritize resource productivity above all other considerations.

7. A government decides to establish a new national park in a rural area to conserve biodiversity and promote eco-tourism. However, this restricts land use for the local farming community, which depends on that land for livelihood. What type of trade-off is this?

a) Intersocial
b) Interspatial
c) Intertemporal
d) Interscale

8. A small coastal town implements strict fishing regulations to preserve local fish populations. These local rules, however, reduce the town's fish exports, which affects regional and even global fish supply chains. What type of trade-off is this?

a) Intersocial
b) Interspatial
c) Intertemporal
d) Interscale

9. What key problem does the "Tragedy of the Commons" highlight?

a) Governments always overregulate shared resources.
b) Individuals acting in self-interest can deplete shared resources.
c) Technology can always fully solve collective resource issues.
d) Renewable energy replaces the need for sustainability decisions.

10. Which of the following is an example of an interspatial trade-off?

    a) Delaying a project to achieve greater future benefits.
    b) One community benefiting from a new service, while another is excluded.
    c) Shipping electronic waste to another country for disposal.
    d) Local conservation rules reducing global food supply chains.

11. Which of the following best defines Sustainability Science?

    a) A discipline that only studies environmental systems.
    b) A field that focuses on reducing business expenses through sustainable technology.
    c) A problem-driven field that examines interactions between human and environmental systems.
    d) A science that predicts long-term geological changes in the Anthropocene.

12. Which of the following best represents adaptation in sustainability?

    a) Developing stricter regulations to prevent climate change.
    b) Redesigning cities to handle increased flooding.
    c) Transitioning fully to solar and wind energy.
    d) Reducing emissions before climate impacts worsen.

Week 2: A Brief History of Sustainability

Prep readings:

- *Oosthoek, KJ. Podcast 59, A sustainable common future? The Brundtland Report in historical perspective.*
- *Caradonna, J. Sustainability: A history.*

1. ***Oosthoek, KJ. Podcast 59, A sustainable common future? The Brundtland Report in historical perspective.***
    - **Sustainable Development (SD)**: Meeting the needs of people today without compromising the needs of future generations (concept was popularized in 1987 by World Commission on Environment and Development -> Brundtland Report)
    - **1990s Definition has 3 key principles for SD**
        - Don't use more resources than the ones being regenerated in the same period
        - Don't produce more waste than what can be absorbed
        - Find substitutes for non-regenerative resources
    - *The end of growth* - a book that takes about how we cannot grow the economy due to environmental and human constraints "useless to talk about the environment unless it had something to do with the economy"

2. ***Caradonna, J. Sustainability: A history***
    - *All about realizations of France during the 18th century*
    - **Ecosystem cultivation** - Indigenous people grew their own food which is considered western agriculture (they lived a "sustainable culture")
    - In the 18th century, the woodlands were declining which brought attention to stability because it affected mining
        - Many realized that resources have limits and are connected to our well-being
        - Strong connections to **the use of wood**: mismanaged forests, cost of wood has risen, access to firewood causing poor people to not cook, silk and other industries are affected
    - **Classical Economics:** any economy that is self-regulating and favours free-trade (imports/exports with no restrictions like tariffs, prohibitions)

Lecture Content:

Recent history: The last 100 years
Global environmental governance

- **National Park**
    - The first National Park was the Yellowstone National Park

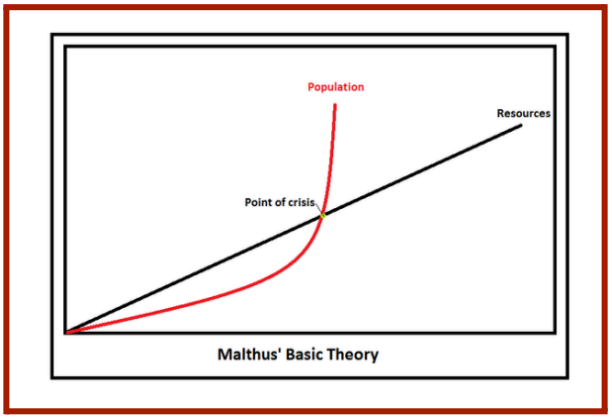
- **Antecedents and Emergence of Conservation**
    - Theodore and Franklin Roosevelt have protected the nation's natural resources, no one has been able to replicate their conservational efforts.
        - **Franklin** Roosevelt, building off the legacy of his **cousin** Theodore Roosevelt, through **policies** like the Civilian Conservation Corps (CCC)

and the expansion of the national park service also created a foundation for sustainable resource management.

- **Early Conservation**
  - Conservation aims at the greatest good for he the greatest number for the longest time

- **Definition of Conservation**
  - Conservation is a political, **environmental** and social movement that seeks to manage and protect natural resources including animal fungus, and plant species as well as their habitat for the future

- **The Malthusian Catastrophe**
  - Thomas Robert Malthus famously predicted that the population would **outgrow** food production.
    - For 200 years **economists** have said Malthus overlooked **tech** advancements, which would keep humans **ahead** of the curve. Malthus believed that population can be **exponential** but supply growth, not so much.



- **Emergence of the Environmental Movement**
  - **Rachel Carson** plays the role in the environmental movement highlighting the dangers of pesticide use and its impact on ecosystems.
    - The groundbreaking book “Silent Spring” (1962) raised public awareness about environmental issues and inspired regulatory changes. **Dichloro-diphenyl-trichloroethane (DDT)** impacting wildlife and food sources affecting human health. Her book led to the **Environmental Protection Agency** (EPA) and banning DDT in the USA.

- **Environmental Movement Gaining Foothold Example:**
  - **Oil Embargo 1973** - Geopolitical event. The Organization of Arab Petroleum Exporting Countries (**OAPEC**), put an oil **embargo** on the US and other countries supporting Israel during the Yom Kippur War. This led to a severe global energy crisis, with the embargo 4x the oil prices resulting in higher prices for everyone.

- **Emergence of Environmental Legislation**
  - **Clean Water Act 1972** - Aims at regulating the discharge in the US national surface waters, rivers, lakers, streams and wetlands. Made to make it safer for fishing, swimming and supporting wildlife.

- **Environmental Racism**
  - A type of inequality where people in communities of colour or low income face higher exposure to **pollution** and other environmental health issues. For example 978, a transformer manufacturer contracted illegally dumped polychlorinated biphenyls (PCBs) along 240 miles of roads in **North Carolina**, including areas in **Warren County**. This proposal led to significant controversy and protests.

- **Earth Rise**
  - 1968 **Apollo** 8 "The most influential environmental photo ever taken" - G. Rowell. This photo inspired the environmental movement and helped establish **earth** day in 1970.

UN conference on the Human Environment 1972	• The focus on **Transboundary** Air and water pollution. Movement of pollutants across national and regional borders through the atmosphere. The **Outcome:** Establishment of **UNEP** as a special program within the **UN.**
UN World Commission on Environment and Development	• To propose long-term solutions about sustainable development making the term more popular as well. The outcome of the World Commission on Environment and Development (WCED) published the Brundtland Report, also called Our Common Future, in 1987.
1983– UN World Commission on Environment and Development	• Proposing long-term solutions for bringing about sustainable development • **Outcome** WECD published the Brundtland Report, also called Our Common Future, in 1987
Montreal Protocol 1987	• The focus ozone protection through reducing production and consumption of ozone depleting substances (ODSs) signed by all 197 countries • **Outcome** was global agreement, universal ratification
UN Conference on Environment and Development, Rio EarthSummit 1992	• The focus, global environment and the relationship between

	economics, social issues, and the environment. Beginning of the sustainable development era. • **Outcome** was Rio declaration - integrated social, economic, and environment as pillars of sustainable development, Rio Conventions a) United Nations Framework Convention of Climate Change, b) biodiversity convention, c) The United Nations Convention to Combat
UN Millennium Ecosystem Assessment 2001	• The focus is consequences of ecosystem change for human well being, scientific basis for action on conservation and sustainable use. 1300 scientists and other experts from 95 countries, governments concluded that two thirds of the worlds' ecosystems are degraded or used unsustainably. • **Outcome** five technical volumes and six synthesis reports, scientific appraisal of ecosystems and their service.
The Brundtland Report (Our Common Future)	• Defines sustainable development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." • The report argued that economic development and social equity were necessary in order to protect the environment and the economic well-being, equity and environmental protection could be reconciled if social and environmental considerations were systematically integrated into all decisions affecting the economy. Long-term environmental strategies for achieving sustainable development by the year 2000 and beyond. Benefits and key points - greater cooperation

	among developing countries, take account of the interrelationships between people. resources. environment. and development, define shared perceptions of long-term environmental issues.
World Summit on Sustainable Development 2002	• Progress since the Earth summit and plan of action for the future 22,000 people (10,000 delegates, 8000 representatives, 4000 members of the media), George Bush did not attend. • **Outcome** Political declaration (reaffirmed past goals); led to 300 multi-sectoral partnerships.
UN Conference on Sustainable Development 2012	• Green economy, affirm prior commitments. Major heads of states absent (Germany, Italy, Netherlands, United Kingdom, United States, Canada, Japan).The significance failure of international community, loss of faith in political leadership
Sustainable Development Goals 2015	• Focus: combat urgent environmental, political and economic challenges to ensure that all people enjoy prosperity by 2030. Universal UN Member adoption of 17 goals for Sustainable Development.
COP 21 2015: Paris Agreement	• Legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016.

Week 2 Practice Questions

1. What was the first National Park established in the world?

a) Grand Canyon National Park
b) Yosemite National Park
c) Yellowstone National Park
d) Everglades National Park

2. Who were the U.S. presidents known for significant conservation efforts, including the expansion of the National Park Service and the Civilian Conservation Corps?

a) John F. Kennedy and Lyndon B. Johnson
b) Theodore Roosevelt and Franklin Roosevelt
c) Abraham Lincoln and Ulysses S. Grant
d) Woodrow Wilson and Herbert Hoover

3. Which groundbreaking book by Rachel Carson highlighted the dangers of pesticide use and spurred the modern environmental movement?

a) "The Silent Earth"
b) "The Green Manifesto"
c) "Silent Spring"
d) "The Environmental Crisis"

4. What was a major outcome of the 1972 UN Conference on the Human Environment?

a) Establishment of the United Nations Environment Programme (UNEP)
b) Creation of Montreal Protocol
c) The adoption of the Paris Agreement
d) Declaration of Earth Day as a global holiday

5. What is the focus of the Montreal Protocol, signed in 1987?

a) Reduction of greenhouse gas emissions
b) Protection of biodiversity
c) Phasing out ozone-depleting substances
d) Promotion of renewable energy

6. How did the 1973 Oil Embargo impact environmental awareness?

a) It led to the banning of DDT in the United States
b) It increased global awareness of energy conservation and alternative energy sources
c) It resulted in the creation of Earth Day
d) It established the first global agreement on climate change

7. According to the Brundtland Report, how is sustainable development defined?

a) Development that maximizes short-term profits regardless of future impacts
b) Development that meets the needs of the present without compromising future generations
c) Development focused solely on environmental conservation
d) Development that prioritizes industrial growth over natural resource management

8. What was a key focus of COP 21, held in Paris in 2015?

a) Establishing the Sustainable Development Goals
b) Proposing solutions for ozone layer protection
c) Adopting a legally binding international treaty on climate change
d) Outlining regulations for clean water access

9. When is Earth Day?

a) April 23
b) March 1
c) March 22
d) April 22

10. Which statement best explains environmental racism?

a) It refers to the unequal distribution of wildlife conservation areas.
b) It describes pollution exposure in communities chosen based solely on economic status.
c) It highlights how low-income or racialized communities face higher exposure to environmental hazards.
d) It occurs whenever conservation policies fail to protect endangered species.

11. What was the significance of Rachel Carson's Silent Spring in the environmental movement?

a) It introduced the concept of sustainable development.
b) It exposed the dangers of DDT and helped inspire the creation of the EPA.
c) It focused on ozone depletion and led to the Montreal Protocol.
d) It addressed global trade rules affecting environmental protection.

12. According to Malthusian theory, why did Thomas Malthus believe living standards would decline over time?

a) Governments would fail to regulate pollution effectively.
b) Population growth would outpace technological innovation.

c) Population would grow exponentially while food production grew more slowly.
d) Industrialization would cause permanent soil degradation.

13. Why was the 1992 Rio Earth Summit considered a turning point in sustainable development?

a) It replaced the Montreal Protocol with a new global treaty.
b) It introduced the concept of environmental racism in global policy.
c) It formally integrated social, economic, and environmental pillars into global sustainability discussions.
d) It created Earth Day and established UNEP as a global agency.

14. Which event is often credited with dramatically accelerating public awareness of global environmental issues due to its iconic imagery?

a) The 1970 Love Canal discovery
b) The 1968 Earthrise photo from Apollo 8
c) The 1980 Superfund creation
d) The 1973 Oil Embargo

Week 3: Frameworks for Sustainability

Prep Readings:

- *Polenc (2015). Weak versus strong sustainability. UN Sustainable Development*
- *Hails, R. S., & Ormerod, S. J. (2013). Ecological science for ecosystem services and the stewardship of Natural Capital. Journal of Applied Ecology, 50(4), 807-810.*
- *Westley, F. What is a system? All is connected.*
- *Lee (2023). Systems thinking - The new approach for sustainable and profitable businesses. Network for Business Sustainability.*

1. ***Polenc (2015). Weak versus strong sustainability. UN Sustainable Development***

- Weak sustainability assumes natural capital can be fully replaced by human-made capital (machines, technology, infrastructure).
- It focuses on maintaining the total capital stock
    - Meaning environmental damage is acceptable if compensated by economic growth or technology.
- Strong sustainability argues natural capital is not fully substitutable because ecosystems provide unique, irreplaceable services essential for human well-being.
- Some natural resources are critical natural capital, once lost (e.g., species extinction), the damage is irreversible, affecting future generations.
- Because ecosystems are complex and uncertain, strong sustainability requires precaution, interdisciplinary knowledge, and public participation to protect ecological thresholds.

2. ***Hails, R. S., & Ormerod, S. J. (2013). Ecological science for ecosystem services and the stewardship of Natural Capital. Journal of Applied Ecology, 50(4), 807-810.***

- Natural capital is being degraded, and ecosystems provide essential services such as clean water, climate regulation, and biodiversity that are critical for human well-being but often undervalued in decisions.
- Scientific understanding is still limited regarding how biodiversity and ecosystem functions create these services, which makes sustainable management difficult.
- Effective stewardship requires collaboration across ecology, economics, and social sciences so that natural capital can be measured properly, trade-offs can be understood, and policies can reflect ecological values.

3. **Westley, F. What is a system? All is connected.**

- A system is made of interdependent parts that only make sense together.
    - In complex systems, components cannot be understood in isolation and their behavior depends on how they interact with the whole.
- Systems cannot be objectively separated from the observer.
    - Boundaries are created by the person studying the system, and the observer is always part of the system they are analyzing.
- Because everything is connected, individual actions cannot control outcomes.
    - Like boats linked beneath the water, actors in a complex system influence one another, so solutions require coordinated, system-level cooperation rather than isolated efforts.

4. **Lee (2023). Systems thinking - The new approach for sustainable and profitable businesses. Network for Business Sustainability.**

- Systems thinking helps businesses see the bigger picture
    - Instead of linear decision-making, systems thinking recognizes how interconnected elements influence one another, allowing companies to understand complexity, anticipate change, and avoid unintended consequences.
- Systems thinking leads to better long-term decisions
    - By examining patterns, multiple perspectives, and broader contexts, organizations can better identify risks, opportunities, and the future direction of markets
- Businesses can adopt systems thinking through practical strategies
    - This includes zooming in and out, seeking diverse perspectives, looking for patterns rather than simple causes, using foresight instead of forecasting, and taking small experimental actions to learn from system responses.

Lecture Content:

<u>Weak versus Strong Sustainability</u>
<u>Environmental Economics versus Ecological Economics</u>
<u>Ecological Footprint</u>

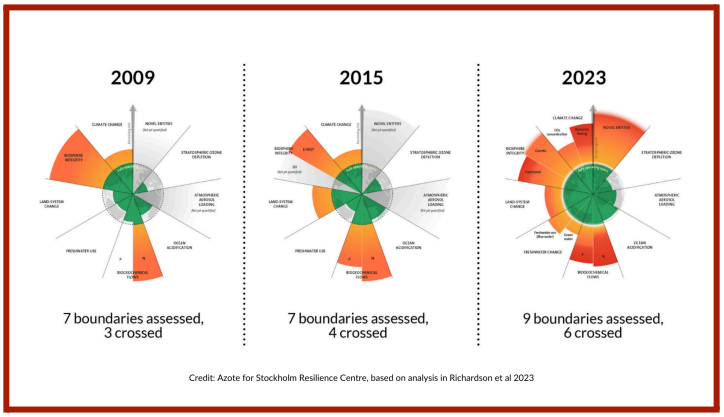
Climate transition fund:

- Transition to **low carbon economy**: investing and supporting initiatives that help us to **mitigate/adapt** to these risks
- Climate change risks: extreme weather events, wildfires, drought and loss of biodiversity
- Examples to be more sustainable: carbon capture, **zero-emission vehicles** (ZEVs)

Growth in Climate Funds:

- In 2018, there were **200 mutual funds** and ETFs with a climate-related mandate.
- In 2023, there was an increase of **1300 in mutual funds** and ETFs with a climate-related mandate

The Planetary Limits Conundrum:

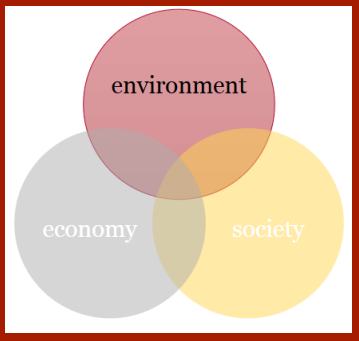
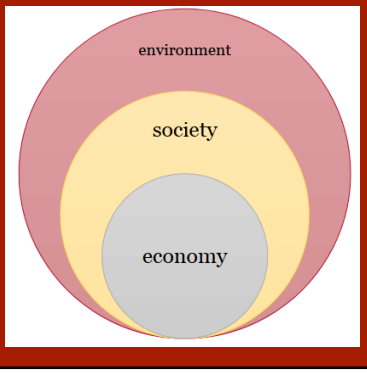


- Shows sections in which humanity can continue to develop and **thrive** for generations to come
    - Crossing boundaries increases the risks of **irreversible environmental changes**
- 9 boundaries that **should not** be crossed to maintain Earth's stability.
- The boundaries are: climate change, biodiversity loss, biogeochemical flows, ocean acidification, land-system change, freshwater use, atmospheric aerosol loading, stratospheric ozone depletion, and introduction of novel entities
- **Carrying Capacity:** The **maximum** # of people an **environment** can **support** forever

Neoclassical Economics:

- Attempts to explain the production, pricing, and consumption of goods and services, and income distribution through **supply and demand**
- Argues that the **consumer's perception of a product's value is the driving factor** in its price, not the cost of production
- Critics argue the theory doesn't account for other factors that impact consumer decisions, such as limited information, resource inequality, or emotional thinking = people tend to NOT make decisions rationally!

Weak vs Strong Sustainability

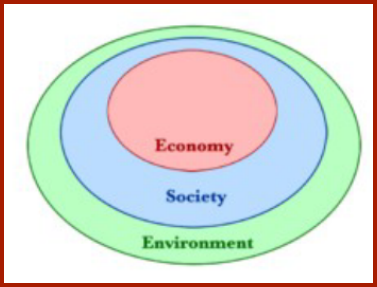
Weak Sustainability 	• Emphasis on **eco-efficiency and decoupling** • Technological optimists ○ Believing that technological advancements will bring us forward • **High degree of substitution** between natural capital and human-manufactured capital • Keeps total net investment above 0
Strong Sustainability 	• Emphasis on curbing aggregate flows of energy and material • **Knows that 100% decoupling is not possible** • Tech-cautious and follows the precautionary principle • Argues that preserving natural capital is critical and there is **limited substitutability with natural and human-manufactured capital**

Externalities

- Form of market failure
- When an activity or transaction **indirectly causes an unintended gain or loss** to another party
  - Impacting a third party that is not directly related to the production or consumption of a good or service (**"side effects"**).
- If the externality results in a loss of welfare, it is a negative externality, and if it results in a gain, it is positive externality
- Example: negative externality: pollution, positive externality: pollination

Environmental and Ecological Economics

Environmental Economics	• Sub-field of economics • Study of costs and benefits of environmental policies

	• **Puts a price on nature**
Ecological Economics  	• Treats economy as a subsystem of the ecosystem • **Emphasis on preserving natural capital** • Herman Daly ○ Earliest critics that consumption do not account for unsustainable depletion of natural capital

Herman Daly:

- Because the economy is a **subsystem of the surrounding ecosystem**, constraints on the function of the ecosystem also would have consequences for the economic system
- Argued that the focus of macroeconomic policy needs to shift from material growth to "steady-state" paths with greatly reduced rates of material consumption and non-renewable energy use, along with a growing investment in the restoration of natural capital

Ecological Footprint:

- A sustainability metric based on a strong sustainability view
- Conveys the impact of human consumption in relation to available biocapacity
- Measure of the demands made by a person or group of people on global natural resources
- Land-use footprints that comprise of the ecological footprint: carbon, cropland, grazing land, fishing grounds, forest product and built-up land footprint

Ecological Footprint	Carbon Footprint
• A **broader measure** of demand for resources including land, water & air • Measures how much land is needed to sustain **resource use** and absorb waste for human activity	• ONLY **carbon emissions** generated by human activities (**greenhouse gas emissions**: primarily CO_2) • One part of ecological footprint: climate impacts of **human activity**

Biocapacity

- Supply of natural resources
- Capacity of an ecosystem to generate renewable resources and absorb waste, particularly carbon dioxide, over a specific period, usually measured in terms of area
- **Relationship:** between biocapacity (supply) and ecological footprint (demand) determines if the environment is capable of sustaining current levels of resource consumption

Overshoot

- Humanity's demand for ecological resources exceeds the Earth's biocapacity, leading to the depletion of natural resources and environmental degradation
- **World overshoot day in 2024 was August 1**

Week 3 Practice Questions

1. What is the primary goal of a Climate Transition Fund?

a) Maximizing shareholder returns
b) Supporting initiatives that help mitigate and adapt to climate risks
c) Promoting fossil fuel energy sources
d) Limiting investments in renewable energy

2. What does the Planetary Limits Conundrum aim to achieve?

a) Economic growth at all costs
b) Development while maintaining Earth's stability
c) Expansion of human population beyond carrying capacity
d) Increasing industrial emissions

3. What is a key belief of weak sustainability?

a) Human and natural capital are largely interchangeable
b) Preserving natural capital is critical
c) 100% decoupling of energy use is impossible
d) Following the precautionary principle

4. How does ecological economics view the economy?

a) Independent from environmental constraints
b) Driven solely by technological advancements
c) Focused on unlimited growth
d) As a subsystem of the ecosystem

5. Who is credited as the father of ecological economics?

a) Adam Smith
b) Milton Friedman
c) Herman Daly
d) Rachel Carson

6. What happens when humanity's ecological footprint exceeds biocapacity?

a) Resource conservation improves
b) Overshoot occurs, leading to resource depletion and environmental degradation

c) Carrying capacity expands
d) There is no significant environmental impact

7. What is an example of a negative externality?

a) Bee pollination
b) Public transportation systems
c) Pollution from factories
d) Development of renewable energy

8. What is the limitation of carbon capture technology?

a) It does not reduce emissions
b) It is ineffective at reducing waste
c) It is expensive and not yet widely scalable
d) It prevents the adoption of zero-emission vehicles

9. What does World Overshoot Day represent?

a) The day humanity uses up all available financial resources
b) The day humanity's demand for ecological resources exceeds Earth's capacity for the year
c) The day the planet reaches maximum biodiversity
d) The day all renewable resources are depleted forever

10. Which statement best describes strong sustainability?

a) It assumes technology can fully replace natural systems
b) It focuses on significantly reducing material and energy flows
c) It prioritizes economic growth above environmental protection
d) It views natural and human-made capital as perfectly substitutable

11. Which of the following is an example of a positive externality?

a) Air pollution increasing health costs
b) Overfishing reducing biodiversity
c) Bee pollination increasing crop yields
d) Noise from construction sites

12. Which sustainability perspective emphasizes that 100% decoupling is unrealistic?

a) Weak sustainability

b) Ecological economics
c) Strong sustainability
d) Neoclassical economics

13. Which of the following best describes overshoot?

a) Biocapacity rising faster than resource use
b) Human demand exceeding Earth's ability to regenerate resources
c) A temporary surplus of natural resources
d) A situation where ecological footprint falls below supply

14. Which statement distinguishes ecological economics from environmental economics?

a) Environmental economics focuses on ethical values
b) Ecological economics views the economy as part of the larger ecosystem
c) Environmental economics rejects cost-benefit analysis
d) Ecological economics ignores natural capital

Week 4: Evolution of Business Sustainability

Prep Readings:

- *SDGs. Sustainable Development Knowledge Platform. Review each of the 17 goals.*
- *Westley, F. What is a system? All is connected*
- *Rangan, K. Chase, L, & Karim, S. The Truth about CSR*
- *Elkington, J. 25 Yearsago I coined the phrase "Triple Bottom Line." Here's why it's time to rethink it.*

1. ***SDGs. Sustainable Development Knowledge Platform. Review each of the 17 goals.***

   All 17 Goals are listed below

   - **No Poverty** – End poverty in all its forms everywhere.
   - **Zero Hunger** – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
   - **Good Health and Well-being** – Ensure healthy lives and promote well-being for all at all ages.
   - **Quality Education** – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
   - **Gender Equality** – Achieve gender equality and empower all women and girls.
   - **Clean Water and Sanitation** – Ensure availability and sustainable management of water and sanitation for all.
   - **Affordable and Clean Energy** – Ensure access to affordable, reliable, sustainable, and modern energy for all.
   - **Decent Work and Economic Growth** – Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
   - **Industry, Innovation, and Infrastructure** – Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
   - **Reduced Inequalities** – Reduce inequality within and among countries.
   - **Sustainable Cities and Communities** – Make cities and human settlements inclusive, safe, resilient, and sustainable.
   - **Responsible Consumption and Production** – Ensure sustainable consumption and production patterns.
   - **Climate Action** – Take urgent action to combat climate change and its impacts.
   - **Life Below Water** – Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
   - **Life on Land** – Protect, restore, and promote sustainable use of ecosystems, manage forests sustainably, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
   - **Peace, Justice, and Strong Institutions** – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.
   - **Partnerships for the Goals** – Strengthen the means of implementation and revitalize the global partnership for sustainable development.

- Urgent call for action by all countries
- UN Secretary-General makes annual SDGs progress report

2. ***Westley, F. What is a system? All is connected***

- **Complexity Theory**: represents that everything is **interconnected**, nothing is a straight line, and life is a constant process of **adjustment**
- **The idea of Clockware:** you can dissect the discrete parts of the world and see how it works just like a clock
    - **Separate parts** all doing their jobs
- **Systems:** education, healthcare, economic, etc
    - How are they connected?
    - What are the boundaries around these systems?
    - What are the perspectives of these different systems?
- **Scales and Theory of Emergence:** creating **change** on an individual level can change things at the **organizational** level -> vice versa as well (interconnected)
- **Complex Systems:** System mapping + complexity + scale = shows you where a problem originates
    - Creating a system map will show the dynamics
    - Using different lenses to view your problems

3. ***Rangan, K. Chase, L, & Karim, S. The Truth about CSR***

- **Corporate, Social, Responsibility (CSR)** is a business **initiative** designed to meet goals for **ethics**, **sustainability**, and **social** impact
- **Purpose:** align a company's social and environmental **goals**/activities with its business purpose and **values**
    - Increasing pressures of CSR to be a **demand** that every initiative deliver business results - distracting from the main purpose to contribute to the well-being of society
    - Companies should **align** their CSR with **core values** and not business benefits (ex. Reputation enhancement)

- ***CSR Framework***

Theatre One	*Theatre Two*	*Theatre Three*
Philanthropy: not direct business enhancement but through the community Donations or Volunteering	**Operational Effectiveness:** improve social or environmental aspects that may also benefit the company's efficiency or revenue	**Business Model Transformation:** create new models for transformation -> business and social outcomes are interdependent

- **Migration** across theatres: Philanthropic effects may improve company reputation, resulting in gains which are theatre two
- **Project Shakti:** case study empowering women entrepreneurs in India boosted social outcomes and company sales
- Create diverse CSR strategies based on the company
    - Focus on specific needs of the community (ex. Lack of healthcare)
    - Alignment with stakeholders
    - Prioritize societal impact

4. ***Elkington, J. 25 Years Ago I coined the phrase "Triple Bottom Line." Here's why it's time to rethink it.***

- **Triple Bottom Line (TBL)** was created to challenge the Single Bottom Line which prioritizes **profits> the environment and people**
    - Challenges business leaders to rethink capitalism, stop only focusing on profits, and include **improving lives and the health of the planet**
    - TBL **balances trade-offs** instead of doing things differently
    - Businesses continue to prioritize profit over people + planet
        - Stresses the importance of innovation and scaling **next-gen solutions** to address social/environmental crisis
- **B-Corps:** certified companies for their **commitment** to social environmental change like **Unilever, Natura, and Danone** who all embrace the **TBL philosophy** "best for the world"
- The next wave of TBL should focus on innovation, regeneration, and true transformation of capitalism to be effective

Lecture Content:

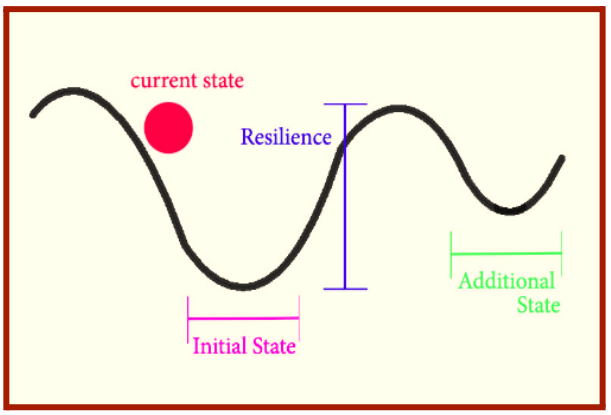
Introduction to the SDGs
Systems Thinking
Evolution of Business Sustainability

- **Systems** are nested within other systems and they all need to work together to function -> interconnectedness
- **The Bathtub Theorem:** Water going in and out of the bathtub represents that to maintain a **constant level**, the **inputs** must keep up with the **outcomes**
- **Ecosystem Services (ES):** Ecological characteristics that we use for sustainable well-being. Ecosystems have **valuations** with 3 goals -> Efficient Allocation **(E-Value)**, Fair Distribution **(F-value)**, and Sustainable Scale **(S-value)**
- **Natural Capital**: The world's **natural stock of resources** (air, water, wood)
    - Doesn't require human activity to build/maintain
- **Valuations of ES:** always a **trade-off about ES** implying valuation (a decision is made because something is more valued) but if we can find a **win-win solution**, then no real solution is required -> avoid valuation
    - Most **environmental decisions weigh benefits/costs** but not everything is quantifiable or easily comparable so it is hard to make a decision

- **Externalities:** Essentially "Side Effects", when the activity of one party causes an unintended gain/loss for another party and there is no compensation for the outcome

Positive Externality	Negative Externality
Planting Trees: improves air quality and provides habitat for wildlife, benefiting the broader community	Pollution from a Factory: harms local ecosystems and public health, imposing costs on society that aren't reflected in the factory's production costs

- **Growth** isn't always good, although it is thought to be the solution for every economic problem (ex. Unemployment? -> Increased demand for goods/services, lower interest rates)
    - Relying on growth isn't always the solution because it is impossible to maintain
- **Ball-in-a-Basin Model:** The ball represents the **current state of a system** and the basin is a range of **stable conditions** in which the ball can fluctuate
    - Walls are **boundaries**, so when crossed, systems can move to a different state (**imbalanced**)
    - The model represents the stability and **resilience** of systems and how external forces (environmental stress or policy changes) affect them
    - It also shows how complex systems behave concerning stability, **tipping points**, and critical thresholds



- **Emergent Properties:** outcomes aren't easily predicted even if all system components are known -> systems behavior as a whole may result in new unexpected states due to complex interactions
- **Resilience:** If we know whether events keep happening, how are we going to act to fight against (stand up)?

Evolution of Business Sustainability

- **Philanthropy** in terms of business sustainability is when companies give back to society to help people, and the environment + benefit their business
    - Donations (supporting causes) include business name to boost reputation
    - Foundations (long-term impacts)
    - Carnegie (**Andrew Carnegie**) philanthropist who believed wealthy people have a responsibility to use their money to help society
- A business' social responsibility is to do business
    - **Compliance**: command & control = regulations -> government laws must be followed
    - **Beyond Compliance**: go above and beyond for social, ethical, environmental practices (doing more than regular requirements)
        - Emergence of stakeholders (business must focus on their engagement)
- **Eco-efficiency**: "Doing more with less" (more value, less resources)
- Future: business with an impact?
    - Measure ESGs

- **Financed emissions**: greenhouse gas emissions from activity funded by financial institutions (ex. Bank gives loan to fossil fuel company)
- **Shared Value Proposition:** economic value while addressing social/environmental issues

Environmental Economics	Ecological Economics
• **Costs/benefits** of environmental policies • **Negative Externality** example for T Shirt production: water use, • pollution, land loss for facilities	• The economy is part of the ecosystem • Focuses on the **preservation** of natural capital (air, water, timber) • **Zero-emissions**

- **Sustainability Leaders**

Greta Thunburg	**David Attenborough**
• Swedish environmentalist known for leading global youth climate movements like "Fridays for Future" • Gained attention with her 2018 school strike, addressing world leaders at events like the UN Climate Summit • Honored with numerous accolades, including being named Time's 2019 Person of the Year, for her climate advocacy **Accomplishments** • Right Livelihood Award, Amnesty International Ambassador of Conscience Award, Fridays for Future- School Strike for Climate	• Biologist, writer, and conservationist known for narrating natural history documentaries • Holds 32 honorary degrees from top UK universities for contributions to science and education • Iconic voice behind “Life on Earth”, “The Blue Planet”, and more for 70+ years **Accomplishments** • Primetime Emmy Awards, UN Champions of the Earth Award, Indira Gandhi Peace Prize
David Suzuki	**Jane Goodall**
• Renowned for promoting environmental awareness and sustainable practices • Host of *The Nature of Things* and author of numerous books on science and environmental issues • Recipient of the Right Livelihood Award and Companion of the Order of Canada for contributions to science and environmentalism **Accomplishments**	• Promotes wildlife conservation, sustainable living, and environmental education through the Jane Goodall Institute • Renowned for groundbreaking studies on wild chimpanzees in Tanzania • Recipient of numerous honors, including a UN Messenger of Peace designation, for her lifelong environmental efforts

• Companion of the Order of Canada, Right Livelihood Award, UNESCO Kalinga Prize for Science Communication	**Accomplishments** • UN Messenger of Peace, Templeton Prize, Hubbard Medal from the National Geographic Society
Theodore Roosevelt	**Wangari Maathai**
• 26th U.S. President: Known for his progressive policies, trust-busting, and leadership in the early 20th century • Conservation Pioneer: Established 5 national parks, 18 national monuments, and 150 national forests, protecting millions of acres of wilderness • Nobel Peace Prize Winner: Received the award in 1906 for mediating the end of the Russo-Japanese War **Accomplishments** • Nobel Peace Prize, Medal of Honor, Pulitzer Prize for Biography	• Environmental Activist: Founder of the Green Belt Movement, which planted millions of trees to combat deforestation and empower women • First African woman to win Nobel Peace Prize for her contributions to sustainable development, democracy, and peace • Championed women's rights, environmental justice, and political reform in Kenya and globally **Accomplishments** • Founded Green Belt Movement, Nobel Peace Prize, First Woman in East and Central Africa to Earn a Doctorate
Autumn Pelletier	**Ray Anderson**
• Indigenous Climate Activist: A member of the Anishinaabe nation, Autumn Pelletier is a vocal advocate for water rights and climate action • Gained international attention for her activism on water protection, speaking at events like the United Nations Climate Change Conference • Recognized for her work with numerous accolades, including being named one of Canada's Top 25 Most Influential Environmentalists **Accomplishments** • Water protection advocacy, Founder of Youth for Water, Environmental Advocate of the Year (2020), Canada's Top 25 Most Influential Environmentalists, National Indigenous Youth Award (2019)	• Founder and former CEO of Interface, a global carpet tile manufacturer, known for transforming the company into a leader in sustainable business practices • A pioneer in corporate sustainability, he initiated a bold plan to reduce Interface's environmental impact, aiming for a zero environmental footprint **Accomplishments** • CEO of Interface, Launched Mission Zero, key figure in the environmental business movement, Wrote Confessions of a Radical Industrialist, named one of Time Magazine's Heroes of the Environment (2007), Green Business Award
Racheal Carson	**John Muir**
• A biologist and writer, Rachel Carson is best known for her work raising	• co-founded the Sierra Club in 1892, an influential environmental

awareness about the dangers of pesticides, particularly in her groundbreaking book Silent Spring • Her work led to the eventual ban on the pesticide DDT in the U.S. and sparked the modern environmental movement • Carson's writings have had a lasting influence on environmental policy and conservation efforts **Accomplishments** • Presidential Medal of Freedom, National Book Award for Nonfiction, John Burroughs Medal, Rachel Carson Prize, Sigma Xi Award	organization dedicated to the preservation of wilderness areas in the U.S • His advocacy played a key role in the creation of several U.S. national parks, including Yosemite National Park, and his work laid the foundation for the modern conservation movement • Known for his passionate writings about nature, Muir's books and essays inspired generations to appreciate and protect the natural world **Accomplishments** • Gold Medal from the Royal Geographical Society, Congressional Gold Medal, Gold Medal from the Royal Geographical Society
Herman Daly	**Frances Edmunds**
• Father of Ecological Economics: Herman Daly is a leading figure in the field of ecological economics, advocating for a steady-state economy that balances environmental sustainability with human well-being • Daly challenged traditional economic models, arguing that perpetual growth is unsustainable and that economies should prioritize ecological limits and equitable resource distribution • His influential works, such as Steady-State Economics and For the Common Good (co-authored with John B. Cobb), have shaped discussions on sustainable development and environmental economics **Accomplishments** • Heinz Award in the Environment, Boulder Prize for Ecological Economics, Honorary Doctorates	• South Carolina Conservationist • Coined the phrase "adaptive use" • Notable figure in environmental science and sustainability, recognized for her innovative research, interdisciplinary collaboration, policy influence, & mentorship • **Accomplishments** • Louis E. du Pont Crowninshield Award, Revitalized the neighbourhood of Ansonborough, Initiated the Charleston Foundation's that was included in a government report, which then led to the passage of the national preservation act in 1966
Jacinda Ardern	**Mike Cannon-Brookes**
• Politician: Former Prime Minister of New Zealand (40th)	• Australian who co-founded a collaboration software firm called

● Declared a climate change emergency in New Zealand on Dec. 2, 2020 ● Pledged that the Government would be carbon neutral by 2025 ● Committed to progressive policies, such as child welfare, gender equality, climate change action, and mental health **Accomplishments** ● Awarded the accolade — Dame Grand Companion of the New Zealand Order of Merit,	Atlassian ● Angel investor, who took over a renewable energy outfit Sun Cable, as well owns minority stake in Australian energy company AGL Energy as of 2022 ● Michael Brookes believes in using the combined power of technology, Finance and the world's collective effort in combating climate change ● Philosophy of investing in technological advancements as a green solution **Accomplishments** ● Honored by the World Economic Forum as a Young Global Leader in 2009

Week 4 Practice Questions

1. Which of the following is NOT one of the United Nations Sustainable Development Goals (SDGs)?

a) End poverty in all its forms everywhere
b) Achieve universal peace through military intervention
c) Ensure access to affordable, reliable, sustainable, and modern energy for all
d) Take urgent action to combat climate change and its impacts

2. In the context of systems thinking, which of the following best describes the "Theory of Emergence"?

a) Small changes at the individual level can lead to significant transformations at the organizational level
b) Systems are stable and predictable with no unexpected outcomes
c) Systems cannot interact with other systems
d) The whole system can be easily predicted by understanding its parts in isolation

3. What concept describes systems as interconnected and constantly adjusting rather than linear?

a) Clockware
b) Complexity Theory
c) Emergent Properties
d) Bathtub Theorem

4. What is the Ball-in-a-Basin Model used to represent?

a) The interconnectedness of ecosystems
b) The stability and resilience of systems
c) The process of achieving sustainable development goals
d) The impact of philanthropy on business practices

5. Which CSR framework focuses on creating new business models that interconnect social and business outcomes?

a) Theatre One
b) Theatre Two
c) Theatre Three
d) System Mapping

6. What is the key takeaway from “The Truth about CSR”?

a) CSR should prioritize business benefits over societal impact.
b) CSR initiatives should align with a company's core values and not just enhance reputation.
c) Philanthropy is the most effective way for CSR to achieve societal impact.
d) CSR is ineffective without operational efficiency.

7. Which of the following is an example of a company aligning with TBL principles?

a) A business donating to local charities for reputation enhancement
b) Reducing operational costs by cutting employee benefits
c) A company transforming its business model to interconnect social and business outcomes
d) Launching short-term green initiatives without measurable outcomes

8. What does the Bathtub Theorem illustrate?

a) How inputs and outputs must balance for stability
b) The trade-offs in ecosystem services
c) The interconnectedness of SDGs
d) The impact of philanthropy on environmental policies

9. Who is known for initiating the Green Belt Movement to combat deforestation and empower women?

a) Jane Goodall
b) Wangari Maathai
c) Greta Thunberg
d) Rachel Carson

10. Which of the following best describes Natural Capital?

a) Resources created through industrial processes
b) The world’s natural stock of resources that exists without human creation
c) Financial assets owned by corporations
d) A framework for reporting greenhouse gas emissions

11. What does the Ball-in-a-Basin Model demonstrate?

a) How ecosystems grow indefinitely
b) How systems maintain stability within boundaries and can shift when thresholds are crossed
c) How companies measure their ESG performance
d) How inflation affects business cycles

12. In business sustainability, what does “Beyond Compliance” mean?

a) Meeting the minimum legal requirements and nothing more
b) Ignoring regulations to prioritize profit
c) Exceeding regulations by adopting stronger social, ethical, and environmental practices
d) Relying only on government policies for sustainability

13. What is eco-efficiency primarily focused on?

a) Eliminating all environmental regulations
b) Doing more with fewer resources while reducing waste
c) Maximizing short-term profit without environmental considerations
d) Shifting corporate focus entirely to philanthropy

14. Which sustainability leader is widely recognized for groundbreaking research on chimpanzee behavior and promoting environmental education?

a) David Suzuki
b) Jane Goodall
c) John Muir
d) Rachel Carson

Week 5: Voluntary Initiatives & Regulations

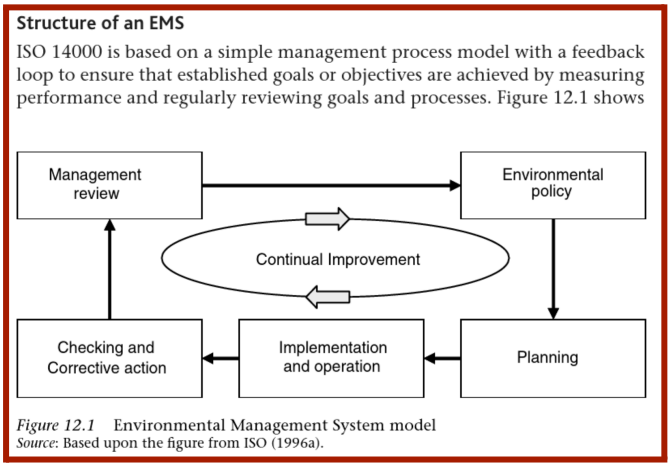
Prep Readings:

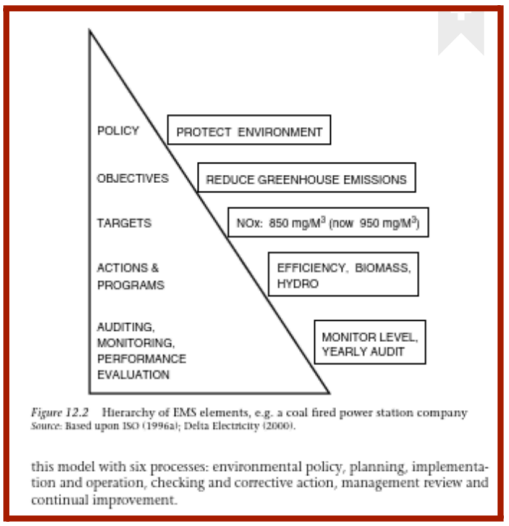
- *Staib, R. Chapter #12*
- *Environmental Management Systems and Review ISO 14000s family of standards*
- *Vogel, D. Private global business regulation*

1. Staib, R. Chapter #12

- **Environmental Management Systems (EMS) -** enables an organization to manage environmental issues in a structured way
    - Both public/private
    - ISO Standards: International Organization for Standardization
    - ISO 14001 - environmental
    - British Standard BS 7750 was the base for ISO 14000
    - European Union standard Eco-management and Audit Scheme (EMAS) is for industrial activities
    - Responsible CARE is used by the chemical industry
- **Pros of Environmental Management Systems:**
    - Legal protection
    - Systemic approach
    - Tool to identify future environmental/legislative changes
    - Documentation
    - Real achievable goals

- **ISO 14000** - standard adopted worldwide covering EMS
    - More than 500,000 companies certified to ISO 14001 in over 180 countries





- **ISO 14001 Requirements**
    - Compliance with environmental regulations
    - Prevention of pollution
    - Commitment to continual improvement
    - Policy available to public

Issue	Aspect	Service	Program/Function
Flooding for urbanization	Water quantity	Facilitate Urbanization	Dry basin on creek mitigates flooding, but impacts the creeks continuity

2. Environmental Management Systems and Review ISO 14000s family of standards

- ISO 14001 sets criteria for new EMS
    - Audit, communication, environmental challenges (climate change)
- *Same content as previous reading*

3. Vogel, D. Private global business regulation

- Regulations that govern social/environmental impacts of global firms/markets without **State Enforcement**
    - **Voluntary regulatory standards** to avoid additional regulations/protect reputation
- **Most Important Civil Regulations:** multi-stockholder codes -> government is shared by firms and NGOs that rely on product certifications -> challenge of persuading firms the value of the standards
- **Corporate Social Responsibility (CSR) -** Companies commitment to manage business for positive impact on society
    - Voluntary actions beyond legal requirements (social, ethical, and environmental issues)
- **Self-Regulation:** creating own policies to follow (no external enforcement)
    - Used to avoid stricter government regulations and improve public image
- **Non State Regulation:** standards from organizations other than government (NGOs, private companies)
    - Certifications, voluntary to address labour & environment
- **Civil Regulation:** driven by citizens/advocacy groups who are pressuring business to do better
    - Campaigns, boycotting, public awareness
- **Global Governance:** management of global issues by states, international organizations
    - Frameworks, agreements (SDGs) for global challenges

Lecture Content:

<u>Regulations</u>
<u>Command and Control</u>
<u>Voluntary Private Codes</u>

- **Policy from the People: Citizen Climate Initiative- Background**
    - In 2019, at a political impasse over climate policy, French President Emmanuel Macron launched an initiative involving 150 citizens.
    - **Objective:** These citizens, including Amandine Roggeman, were tasked with

learning about climate change, exploring policy options, and proposing solutions.
    - **Promise** Macron pledged to introduce their recommendations "sans filtre" — unfiltered — into national policy.

- **Macron's "Three Jokers" in Citizen Climate Policy - Promise with a Catch**
    - While Macron pledged to implement the citizen proposals "sans filtre," he reserved the right to veto three policies.
    - **Reaction:** This surprise move disappointed some citizens, though Amandine, familiar with French politics, anticipated such compromises.
    - **Vetoed Proposal:** Macron's "jokers" were used to reject policies on reducing speed limits, taxing large corporations to fund climate measures, and criminalizing ecocide for corporate leaders.

- **Zero Emission Vehicles**
    - Regulatory tools Infrastructure and technology, Effective design Shift in norms, adoption

- **Intervention Continuum**
    - High Intervention: Government Ownership, Command and Control

- **Moderate Intervention**
    - Delegation to Agency, Enforced Self-Regulation

- **Low Intervention**
    - Voluntary Self-Regulation, Market

- **Key GHG Reporting Frameworks GHG Protocol**
    - Guidelines for corporate-level GHG inventories.

- **SBTi**
    - Best practices for net-zero and emissions targets.

- **CDP**
    - Global system for environmental impact disclosures, scoring entities annually.

- **ISSB Standard:**
    - S1: General sustainability disclosures.S2: Climate-specific disclosures on financial risks opportunity

- **Regulatory GHG Management Frameworks - SEC Rule**:
    - Certain companies must disclose material climate risks and Scope 1 & 2 emissions, phased in for larger firms (paused as of April 4).

- **Federal Contractor Proposal:**
    - Contractors with $50M+ contracts disclose Scope 1, 2, and some Scope 3 emissions, while $7.5M-$50M contractors report Scope 1 & 2.

- **California Rules:**
    - SB 253: $1B+ revenue businesses disclose Scope 1, 2, and 3 emissions. SB 261: $500M+ revenue companies report climate risks per TCFD by 2026, with biannual public updates.

- **'Traditional' regulatory approach**
    - "command-and-control" approach to public policy

- **Regulatory Standards - Emission standards**
    - Maximum permissible values applied directly to the quantities of emissions coming from pollution sources.
        - Example: The average CO2 emission of the car fleet must be below 120 g per km

- **Ambient standards**
    - Qualitative dimensions of the surrounding environment. Accept a particular level of pollution in the ambient environment.
        - Example: The air in the town should have a pollution level of no more than x kg/m3

- **Technology-based standards**
    - Refer to the technologies, techniques or practices that potential polluters must adopt.
        - Example: All factories smokestacks must have catalytic converters

- **Cap and trade**
    - Central authority sets a limit or cap on the amount of a pollutant that can be emitted. Limit is used as currency to trade

- **Command-and-Control: Pros and Cons**
    - **Benefits**:
        - Simple, direct approach with clear targets, universal participation, aligns with legal norms, and addresses pollution as a harm.
    - **Drawbacks:**
        - Inflexible, potentially inefficient, costly to enforce, challenging to set standards, may hinder innovation.

Voluntary Initiatives and Private Codes

- **Voluntary Initiatives**
    - self-regulation occurs when those regulated – in this case, corporations – design and enforce the rules themselves' (V. Haufler, 2001)

- **Reasons for Voluntary Initiatives and Private Codes**
    - Driven by industry interest in eco-efficiency, public pressure from activists, and a desire to address globalization concerns without adding regulatory burdens that could impact competitiveness.

- **Regulation**
    - Government-instituted, enforced, mandatory compliance with direct

sanctions, Specific to media (e.g., water, air) with set standards for emissions/technology, Public information access on compliance.

- **Private Codes**
    - Industry-led, firm-enforced with third-party verification, voluntary compliance. Integrative, focusing on life-cycle impacts and management systems. Limited public information, firm-defined performance with improvement goals.

- **Environmental Management Systems**
    - The organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing environmental policy

- **ISO 14001**:
    - A global standard for environmental management systems, guiding organizations to improve environmental performance, reduce waste, and ensure regulatory compliance.

- **Voluntary Initiatives: Pros and Cons - Benefits**:
    - Cost-effective, flexible, fosters tech progress.
    - **Drawbacks**: May lack true commitment, driven by regulatory pressure, risk of greenwashing, no sanctions for non-compliance

Week 5 Practice Questions

1. Which of the following best describes the "command-and-control" approach to public policy?

a) Voluntary self-regulation by industries
b) Government ownership of private firms
c) Setting enforceable standards with mandatory compliance
d) Using market-based mechanisms like cap-and-trade

2. What was the primary objective of the Citizen Climate Initiative launched by French President Emmanuel Macron in 2019?

a) To implement immediate carbon tax policies
b) To develop climate policy recommendations through citizen involvement
c) To replace existing government climate policies with citizen proposals
d) To veto all corporate tax initiatives proposed by citizens

3. What was the primary purpose of Macron's "three jokers" in the Citizen Climate Policy?
a) To ensure all citizen proposals were implemented
b) To provide flexibility in rejecting select proposals
c) To enforce stricter climate policies without public consultation
d) To criminalize corporate environmental offenses

4. Which regulatory standard directly limits the quantities of emissions from pollution sources?
a) Emission standards
b) Ambient standards
c) Technology-based standards
d) Market-based standards

5. Which of the following is an example of moderate government intervention in regulatory policy?
a) Voluntary self-regulation
b) Command-and-control policies
c) Delegation to an agency with enforced self-regulation
d) Cap-and-trade mechanisms

6. What is the purpose of ISO 14001 in environmental management systems?
a) To provide universal enforcement of emissions standards

b) To guide organizations in improving environmental performance and compliance
c) To establish mandatory taxes on polluting industries
d) To implement voluntary sustainability initiatives without regulation

7. Under California's SB 253, which emissions are companies required to disclose?
a) Only Scope 1 and 2 emissions
b) Scope 1, 2, and 3 emissions
c) Scope 3 emissions only
d) Emissions based on global averages

8. What is a major drawback of voluntary environmental initiatives?
a) Lack of innovation in environmental practices
b) High enforcement costs for governments
c) Risk of greenwashing and lack of true commitment
d) Over Reliance on public pressure for compliance

9. Which framework provides guidelines for corporate-level greenhouse gas inventories?
a) CDP
b) ISSB
c) SBTi
d) GHG Protocol

10. Which example represents a low-intervention approach on the intervention continuum?

a) Mandatory technology standards
b) Government ownership of industries
c) Voluntary self-regulation by firms
d) Delegation to an external agency with enforcement powers

11. Which of the following best describes technology-based standards?

a) They allow companies to choose any method as long as emissions stay below a cap
b) They require adoption of specific technologies or practices, such as best available technology
c) They measure the qualitative condition of the surrounding environment
d) They apply only to voluntary environmental programs

12. Which statement correctly compares regulation and private codes?

a) Private codes always include legal penalties for non-compliance

b) Regulations provide mandatory rules, while private codes rely on voluntary participation and firm-defined standards
c) Regulations focus on life-cycle analysis, while private codes address only emissions
d) Private codes are enforced by government courts and police

13. What is one major concern associated with voluntary initiatives?

a) They require expensive government enforcement
b) They may serve as greenwashing without strong accountability mechanisms
c) They always replace the need for regulations
d) They prevent innovation by restricting technology use

14. Which element is commonly part of Environmental Management Systems (EMS) such as ISO 14001?

a) Mandatory government audits each year
b) Organizational processes for implementing environmental policy and improving performance
c) A requirement for firms to reduce emissions by a fixed percentage
d) Public voting on corporate sustainability standards

Week 6: Making the Business Case

Prep Readings:

- *Li, S. (2020). The Business Case For ESGs: Why Companies Adopt Environmental Values Beyond Social Responsibility. Forbes. Article.*
- *Whelan, T (2020) Making a Better Business Case for ESG. Stanford Social Innovation Review. Article.*
- *Willard, B. (2018). The business case for sustainability. Sustainable Nation. Podcast.*

1. ***Li, S. (2020). The Business Case For ESGs: Why Companies Adopt Environmental Values Beyond Social Responsibility. Forbes. Article.***

    - Bob Willard: expert on quantifying business value of sustainable strategies
    - Plummeting cost of renewable energy + transparent requirements have influences on a business
    - We saw an almost 30% increase in the number of companies in the S&P 500 that adopted ESGs from Q2 to Q3 2019 alone.
    - Adopting ESGs is not only good for the environment but also in avoiding PR crises and expensive fines.
    - **The B Corps Movement:** certification for organizations that met high levels of social and environmental performance
    - Developed the **Sustainability ROI Workbook** to help businesses make the case for sustainability
    - Consumers are also willing to spend more on items that are sustainable. To businesses, this means that by involving themselves in activities that are environmentally conscious, they can not only be socially responsible but also make more money doing it.
    - One key limiting factor when companies adopt sustainable practices is the specificity required of companies to make claims. Sometimes these claims can be vague, unverifiable and consumers will question the company's intent.

2. ***Making a Better Business Case for ESG. Stanford Social Innovation Review. Article.***

    - Adopting ESG Standards is quite common now: "by doing business responsibly, companies can do good while also reaping positive financial externalities"
    - What motivates beyond just doing good?
        - Avoiding damage crisis (Deepwater Horizon oil spill cost millions of dollars)
        - People are willing to pay extra for sustainable items (73% of millennials)
    - CEO of Social Capital says ESG investing is a fraud and companies should just make sustainable claims to reap benefits but not actually do them
        - Consumer challenge because they are unsure who's lying

3. ***Willard, B. (2018). The business case for sustainability. Sustainable Nation. Podcast.***

    - <u>Question 1: What is one piece of advice you would give other sustainability professionals that might help them in their careers?</u>

- Find an issue that you care about and an organization that can help with this issue to partner with. You need to be passionate about the issue in order to not get worn down from it. Also, find people to do it with to increase your ability to make things happen
- Question 2: What are you most excited about right now in the world of sustainability and regenerative development?
- I love how the cost of renewable energy has decreased so much that in many jurisdictions, it is the same as fossil fuels. This makes the transition off fossil fuels much more attractive and easier. In addition, there is more requirement for companies to be more transparent about their carbon footprint, supply chain and value chain footprint.

Lecture Content:

Building a competitive advantage
When does it pay to be green?
What is the business case?
Mid-term prep & review

Sustainability "Motivations" for a Company

- Compliance with regulations
- Mitigating risks
- Seizing opportunity
- Purpose

Sustainability Advantage

Eco-efficiency costs savings	• Example: Walmart • Retrofitting buildings, investments in Solar Energy, Improved Fleet Efficiency – over a 10 year period led to billions in savings

Conscious consumer	• Product differentiation – creating a new product that has unique environmental benefits for consumers
	  ○ Example: toyota prius
	  ○ The first mass-produced hybrid car, launched in 1997
	• Brand image – building a brand that consumers identify with
	  ○ Example: Ben and Jerry's ice cream
	  ○ Top selling ice cream brand in the US

Conscious employer	• Attract and retain top talent ○ Example: Unilever

	○ Young people want to join companies that are ethically and socially responsible – biggest business case of all is that it is an absolute magnet for talent
Conscious investor	● ESG funds have grown astronomically ● Expectation of large investment firms ○ Example: Blackrock ○ Blackrock would avoid investments in companies that "present a high sustainability-related risk"
Conscious CEO/Ownership	● Example: Patagonia ○ Mission statement: build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis

Competitive Advantage

Resources

- The VRIO framework helps us decide which resources are a source of competitive advantage:
  - Value: does it provide customer value and competitive advantage?
  - Rareness: do no other competitors possess it?
  - Difficult to imitate: is it difficult for others to imitate?
  - Organized to exploit: are "resources" being put to work?
- Resources can be
  - Tangible (machinery, location, finances)
  - Intangible (technologies, patents, copyright, reputation, brand recognition)
  - Human (skills, motivation, expertise)

Capabilities

- The firm's expertise at exploiting its resources
  - Business processes that are well developed
  - May reside in any functional area
  - May consist of the ability to reconfigure the business to fit rapidly changing environments
- What resources enable you to do so and how are they put to use?

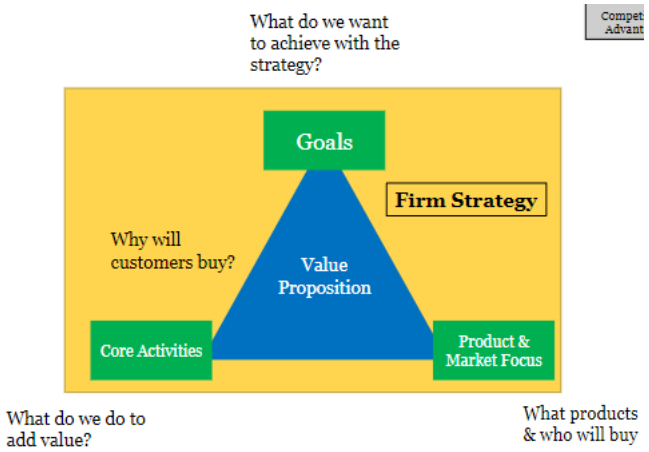
Competencies

- Core competency
    - Cross divisional boundaries and are wide-spread throughout the corporation and is something the corporation does exceedingly well
- Distinctive competency
    - Core competencies that are superior to those of the competition

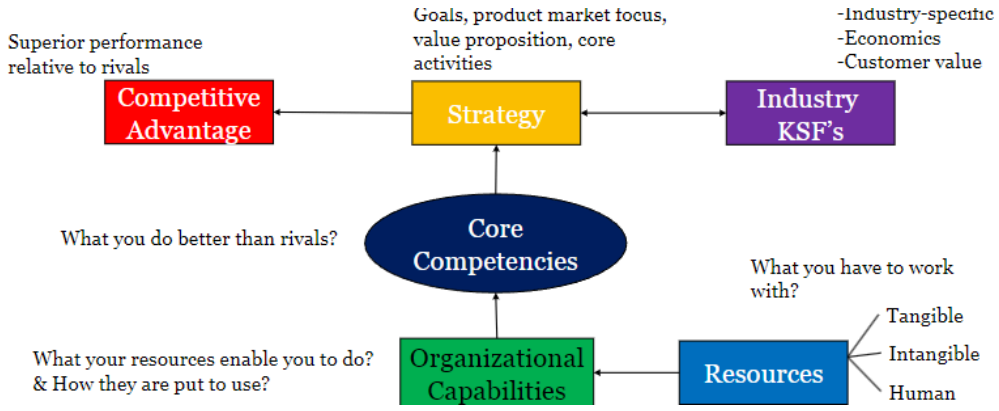
Key Success Factors (Industry KSFs)

- Industry specific, economics, customer value
- Examples:
    - Low-cost production, quality manufacturing, adequate skilled labour, low-cost locations and high labour productivity

Strategy

- What do we want to achieve with the strategy
- 

Summary



Week 6 Practice Questions

1. What is an example of a company achieving eco-efficiency cost savings?

   a. Toyota with the Prius
   b. Patagonia's mission statement
   c. Walmart's solar energy investments
   d. BlackRock avoiding unsustainable investments

2. What is a primary motivation for Unilever (from a conscious employer) to focus on sustainability?

   a. Compliance with legal standards
   b. Building a green product line
   c. Reducing supply chain costs
   d. Attracting and retaining top talent

3. How does sustainability contribute to product differentiation as a competitive advantage?

   a. By reducing production costs
   b. By aligning with customer values and offering environmental benefits for consumers
   c. By adhering strictly to government regulations
   d. By outsourcing production to low-cost regions

4. What is the primary financial benefit of adopting sustainable business practices?

   a. Enhanced regulatory compliance
   b. Long-term cost savings from improved resource efficiency
   c. Higher employee turnover due to increased workloads
   d. Reduced need for customer-focused innovation

5. Why is sustainability often considered a driver of competitive advantage?

   a. It allows companies to operate without focusing on profitability.
   b. It guarantees immediate returns on all investments.
   c. It builds resilience, brand loyalty, and attracts environmentally conscious stakeholders.
   d. It ensures compliance with outdated regulatory standards.

6. Capabilities are defined as:

a. The ability to utilize resources in changing environments
b. A firm's patents and trademarks
c. Human resources and motivation
d. Tangible assets like finances and location

7. A competency that is superior to competitors' offerings is called:

a. Core competency
b. Functional competency
c. General competency
d. Distinctive competency

8. What is the primary difference between a core competency and a distinctive competency?

a. Core competencies are unique to the industry, while distinctive competencies are general business practices.
b. Core competencies are widespread within the company, while distinctive competencies are superior to competitors' capabilities.
c. Core competencies focus on tangible resources, while distinctive competencies focus on intangible resources.
d. Core competencies are short-term, while distinctive competencies are long-term.

9. Which of the following is NOT an example of a Key Success Factor (KSF)?
a. Low-cost production
b. High-quality manufacturing
c. Compliance with regulations
d. Skilled labor availability

10. Which of the following is a financial motivation for adopting sustainability strategies?

a. Strengthening company purpose
b. Mitigating ethical concerns
c. Reducing long-term operational risks
d. Complying with employee preferences

11. Which example best illustrates sustainability contributing to brand loyalty?

a. company that focuses solely on price reductions

b. A brand offering products with visible sustainability claims that attract repeat customers
c. A company outsourcing manufacturing to cheaper regions
d. A brand with no sustainability messaging but high marketing spending

12. Which of the following best describes a capability within a company?

a. A firm owning a fleet of vehicles
b. The ability to reconfigure resources to adapt to changing environments
c. Trademark and copyright ownership
d. Office location and physical infrastructure

13. Why might a company willingly invest in expensive green technologies despite uncertain financial returns?

a. They expect regulators to eliminate sustainability requirements soon
b. They anticipate long-term advantages from risk avoidance, market leadership, and brand reputation
c. They aim to reduce employee wages
d. They want to remove competition from smaller businesses

14. Which of the following is an example of a distinctive competency?

a. Basic compliance with safety regulations
b. A skillset widely shared across the entire industry
c. A core skill that is significantly better than competitors' capabilities
d. A company's general mission statement

Week 7: Marketing for Sustainability

Prep readings:

- *Graber-Stiehl. How bogus 'eco-friendly' products trick you. Earther.*
- *Watson, B. The troubling evolution of corporate greenwashing*
- *Prince, E. The 7 sins of greenwashing.*

1. ***Graber-Stiehl. How bogus 'eco-friendly' products trick you. Earther.***
    - Spotting tricks on fake eco-friendly products
        - Buzzwords and bias
            - "Green"
            - Recycling symbol
            - "Natural"
            - "Organic"
            - Free-range"
        - Brand Recognition
            - Process visuals over words
            - 30% of people believe that green coloured packaging was sustainable
    - How do we fix this?
        - Nutrition labels but for sustainability/carbon footprint
        - Example: Tesco (grocery store in UK) tried a green, yellow, red, labeling system for levels of sustainability on products but found it way too much work to actually verify if the label was true
        - Think about greenwashing before you buy

2. ***Watson, B. The troubling evolution of corporate greenwashing***

    - Evolution of corporate greenwashing
        - Term "greenwashing" was coined in 1980s against the government's environmental claims
        - Companies like Chevron made fake ads of employees protecting wildlife which sparked "greenwashing" since the media was used to promote misleading eco-friendly claims
        - Another example would be hotel companies saying to reuse towels for sustainability but in the background they are expanding which was harming the environment (greenwashing in the 1980s)
        - 1990s people were influenced by environmental records for their purchases
        - Increased awareness of greenwashing
        - 66% of people will pay more for sustainable products
        - Many companies are engaging consumers through sustainability models but core operations are still bad
            - Ex. Home Depot encourages people to recycle products but the continue to sell environmentally damaging items like paints with toxins and chemical fumes

3. ***Prince, E. The 7 sins of greenwashing.***
    - **Greenwashing:** When a company markets themselves as environmentally friendly when they aren't

- Companies greenwash because they want a good reputation and more money

- **The 7 Sins of Greenwashing**

Sin of the Hidden Trade-Off	Focus on only one aspect that is sustainable (product made from recycled materials but ignored manufacturing pollution, chemicals)
Sin of No Proof	No proofs to back up claims -> tactics
Sin of Vagueness	No specifics provided, over-generalized claims with a lot of buzzwords
Sin of Irrelevance	Saying "CFC-free" when the chemical is already illegal/banned
Sin of Lesser of 2 Evils	Greener than competitors even though it's still bad for environment ("clean diesel" is still diesel)
Sin of Fibbing	Straight-up lies, claims, stats, facts, certifications
Sin of Worshipping False Labels	False labels/awards that the company made up and awarded themselves (paid endorsements)

- **Example of Greenwashing:** British Petroleum became Beyond Petroleum and changed their brand colour to green when they still literally supply oil

Lecture Content:

<u>Week 8 Marketing for Sustainability</u>

- **Picture of many utensils vs chopsticks**
  - Chopsticks are the sustainable option because they can be used to eat multiple things

- **Adoption curve of tech over past century**
  - Steep curve because it was adopted quickly (radio, fridge)

- **How do you create change**
  - Education younger generation/information
  - Protests/rally
  - Substitution
  - Policy change (regulations when you can smoke)
  - Celebrity Endorsements (Logos, Ethos, Pathos)

- **Feeding the Change**
  - Switching vehicles to ZEVs (zero emission vehicles)
  - Regulatory tools (incentives)

    - Shift in norms
    - Infrastructure and tech
    - Effective design

- **Car Ad Feeding Change** -
    - Mustang 1965

- **The Green Police Feeding Change**
- 2011 superbowl ad -
    - Extremely controversial because they allowed “green diesel” which is still bad (1/7 sins of greenwashing)

- **Two Approaches to Consumption Cut vs Switch**
    - Consume less and live simple
    - Switch buy smart and buy low carbon

- **Reduce the Gap**
    - Between Attitude and Behaviour

- **Marketing**
    - Green + Social = Environmental
        - Green - (Marketing, access to more trustworthy products)
        - Social - (Marketing, encourage individuals to change behaviours)
        - Environmental - (Change, balance between access to green options and demand for those options)

- **4 P’s of Marketing for EV’s**
    - Product - Show the env aspect
    - Price - Incentives
    - Place - Test drives, pop up in mall
    - Promotion - Ads, Sales, Public relations

- **Creating Customer Value**
    - Focus on the benefit that you gain from the solution

- **Two Faces of Green Marketing**
    - Good side - Reduce costs, increase efficiency, educate consumers, social change
    - Bad side - Builds distrust among customers

- **Challenges of Merging Sustainability with Marketing**
    - Hard to find green products (trust)
    - Convincing retailers that there is a want
    - Overcoming attitude/behaviour gap
    - Selling consumers on benefits
    - Green products need to perform better than competitors

- **“Greenwashing” : 1986 by Jay Westerveld**
- Hotels saying to reuse towels was actually to save money (7 sins of greenwashing)
- **Token Gestures**
    - Promoting one green feature while ignoring other issues

        - Ex. plastic to paper straws, while ignoring suppliers are responsible for deforestation
- **Not Specific**
    - Broad definitions to be misleading
        - Ex. recycling symbol without saying what parts are recycled
- **No Evidence**
    - Take their word for it
        - Ex. internal eco-label with no external certification
- **Buzzwords/Green Images**
    - Lots of green and natural words/pics
        - Ex. “non-toxic” “chemical free”
- **Redundant Claims**
    - Unneeded claims
        - Ex. Vegan carrot

Important Facts

- China has the highest number of Evs on the road worldwide
- 1 in 3 cases in NYC is EV
- Norway has the highest proportion for their population of EVs
- Electrobat - the first commercially viable EV

Week 7 Practice Questions

1. Why are chopsticks considered a sustainable option compared to many utensils?

a) They are made of renewable materials
b) They can be used to eat multiple types of food
c) They are biodegradable
d) They are more traditional

2. What does the steep adoption curve of technology over the past century signify?

a) People resisted new technology
b) Technology became outdated quickly
c) Technology like radios and fridges were adopted quickly
d) The adoption of technology was steady but slow

3. Which of the following is NOT a method to create change?

a) Policy Change
b) Celebrity endorsements
c) Doing nothing and waiting for change

d) Education of the younger generation

4. What was controversial about the 2011 "Green Police" Super Bowl ad?

a) It discouraged sustainable living
b) It promoted "green diesel," which is still harmful
c) It failed to highlight environmental issues
d) It was offensive to certain demographics

5. Which is an example of "Switch" in the "Two Approaches to Consumption"?

a) Buying smart and low-carbon products
b) Consuming less and living simply
c) Using products until they break
d) Recycling more than others

6. What are the 4 P's of marketing for electric vehicles (EVs)?

a) Product, Price, Promotion, Place
b) Product, Performance, Publicity, Price
c) Packaging, Price, Promotion, Place
d) Product, Pricing, Partnerships, Positioning

7. What is one challenge of merging sustainability with marketing?

a) Convincing customers to pay more for green products
b) Lack of trustworthy green products
c) Selling green products at a lower price
d) Decreasing performance of green products

8. Which of the following is an example of "Greenwashing"?

a) Using recycled materials certified by an external organization
b) Claiming a product is "chemical-free" without providing evidence
c) Offering transparent environmental impact reports
d) Promoting both environmental and social benefits equally

9. What does "Reducing the Gap" refer to in sustainable marketing?

a) Minimizing the difference between EV adoption in urban and rural areas
b) Closing the gap between consumer attitudes and their actual behaviors
c) Bridging the difference between EV prices and gasoline vehicle prices

d) Reducing the gap in access to green products worldwide

Week 8: Sustainability Finance, Metrics and Reporting

Prep Readings

- *About sustainability reporting. Review the website and it's resources*
- *The Reporting Exchange. Review the website and its resources*
- *Fischoff, M. How bad publicity changes companies' behaviour.*

1. About sustainability reporting. Review the website and it's resources

- The Global Reporting Initiative Standards **enable any organization to understand and report on their impacts** on the economy, environment and people in a comparable and credible way
  - increasing transparency on their contribution to sustainable development.
  - In addition to companies, the Standards are **highly relevant to many stakeholders** - including investors, policymakers, capital markets, and civil society.
- Public Policy - they work with multiple partners to advance sustainability and corporate accountability
- Resources: they **run programs worldwide** with partners supporting companies, to better understand legal reporting requirements, help them

assess their contributions to sustainable development, and support their engagement with governments related to their positive and negative impacts

2. ***The Reporting Exchange. Review the website and its resources***

- ESG Book - The **world's largest ESG Policy and Reporting database**
- Identify ESG reporting requirements, standards, and indicators
    - Be able to search for mandatory and voluntary reporting requirements across more than 80 jurisdictions
- ESG data - transparent, data-driven assessment of corporate sustainability performance inspired by SASB's materiality framework
- Green revenues - provides **greater insight into how** a company is capturing climate-transition opportunities
- Emissions data - showing **Scope 1,2 and 3 emissions**, allowing for a comprehensive analysis of GHG emissions

3. ***Fischoff, M. How bad publicity changes companies' behaviour.***

- Green buildings cost 6.5% more to develop on average. However these buildings will rent for 13.5 - 36.5 % more
- Building green has a clear benefit for developers, investors and lenders, and owner/occupiers
- Even though it makes economic sense, it still has upfront fronts (such as design fees and construction time) that might not diminish soon
- Green buildings aim to **positively impact the natural environment** as buildings and construction represent 39% of global carbon emissions
    - However, green buildings represent a small percentage of the total building stock
    - So it is important to **show people evidence** that they should spend 5% more on design fees since it leads to rent return increases
- "Whether in London, New York, Singapore, Sydney, or Toronto, studies show that green-certified buildings **sell at slightly higher prices, rent at slightly higher rates, and typically have occupancy that is a little higher**", Kok told NBS
    - Very valuable not to have vacant space for developers
- Building certifications are through the BREEAM label in the UK, it goes from levels of Pass to Outstanding. Most green buildings achieve higher levels than without the "green premium"
- The higher cost of green buildings comes from **design fitting and finishes such as lighting and flooring materials**.
- Green buildings also have **health benefits** because they have better air quality and stimulate occupants to move. With the pandemic, employee well-being is more important now

Lecture Content:

Sustainability Reporting Frameworks
Navigating the Sustainability Report

COP 16 in Cali, Colombia

- At COP 16, governments were tasked with reviewing the state of implementation of the Global Biodiversity Framework
- Parties were expected to show the alignment of their National Biodiversity Strategies and Action Plans (NBSAPs) with the framework
- COP 16 aimed to further develop monitoring framework and advance resource mobilization for the Global Biodiversity Framework
- United Nations Office on Drugs and Crime (UNODC) is also emphasizing the intersection of crimes that affect the environment and biodiversity conservation

COP 29 in Baku, Azerbaijan

- The world's only multilateral decision-making forum on climate change that brings together almost every country on Earth

The focus of COP 29

- Bringing together world leaders and negotiators from Parties of the UN Framework Convention on Climate Change (UNFCCC) to further global progress with business leaders, young people, climate scientists, Indigenous Peoples, and civil society to strengthen global, collective and inclusive climate action
- Securing a new goal on climate finance to ensure every country is able to take climate action
- Focusing on the next round of national climate plans or Nationally Determined Contributions (NDCs) with emphasis on transitioning from fossil fuels and keeping the warming to 1.5 degrees

Climate finance

- Climate finance supports mitigation and adaptation actions that will address climate change
- Calling for financial assistance from **Parties with more financial resources to help those who are more vulnerable**. This is implementing the objectives of the UNFCCC
- Developed countries should also continue leading the mobilization of climate finance. The significant role of public funds in this is shown through a variety of actions including supporting country-driven strategies, and the needs of developing countries.
- This mobilization should show a **progression of effort**
- Large-scale investments to **significantly reduce emissions** - specifically in energy transition
- Climate finance is important for the adaptation of climate change effects and reducing the impact
- Resource planning should aim to achieve a **balance** between adaptation and mitigation

- Overall, the Paris Agreement is guided by its focus of making climate finance, work towards lower GHG emissions and climate-resilient development

Forbes: 5 critical areas to watch at this year's climate summit

1. Nationally Determined Contributions (NDCs)
    a. NDCs represent each country's voluntary commitments to reduce emissions
    b. Current predictions show that global temperature changes could exceed 1.5°C by the early 2030s, thus there is more pressure for more ambitious and clearer plans
2. Updating the New Collective Quantified Goal (NCQG) on Climate Finance
    a. The current climate finance needs are 10 times smaller than the estimated annual needs
3. Carbon Markets: refining article 6 of the Paris Climate Agreement
4. Adaptation and Loss and Damage: Operationalizing the Loss and Damage Fund
    a. Large gap between climate finance needs and commitments
5. Biodiversity and Climate: Integrating Nature-Based Solutions

Seven tips on what contributes to a good sustainability report

1. Live it, breathe it	• Describe the sustainability strategy over the short, medium and long term • Demonstrate the integration of this strategy in the core corporate strategy and how its shown throughout the business
2. What gets measured, gets done	• Identify KPIs (Key Performance Indicator) that are directly relevant to the sustainability strategy • Explain why the indicators are relevant and how they are defined • Set and compare performance against challenging but realistic targets
3. The good, the bad, and the ugly	• Present information in a balanced and transparent manner • Celebrate success but also not ignoring the negative sustainability impacts and/or poor performance • Explain where and how improvements will be made
4. It's a material world	• Demonstrate an understanding of the sustainability issues that are relevant to you and key stakeholders • Report only those issues that have

	material importance
5. The great beyond	• Consider the relevant upstream and downstream value chain aspects of a business in order to consider both positive and negative environmental, social, and economic impacts
6. Big Brother	• Explain how the sustainability governance system operates • Identify the board member who is responsible for sustainability issues • Describe the policies that have been implemented • Explain how management ensures these policies are working
7. Prove it	• Ensure the credibility of reported content • When assurance is used, the opinion should clearly state the scope of the work

Week 8 Practice Questions

1. What is the primary purpose of the Global Reporting Initiative (GRI) Standards?

    a) To enable organizations to understand and report their impacts on the economy, environment, and people in a comparable way
    b) To provide mandatory reporting requirements for companies worldwide
    c) To certify green buildings for higher rental rates
    d) To encourage companies to meet the Paris Agreement targets

2. What was the primary focus of COP 16 in Cali, Colombia?

    a) Operationalizing the Loss and Damage Fund
    b) Negotiating climate finance for developing nations
    c) Reviewing National Biodiversity Strategies and Action Plans (NBSAPs)
    d) Monitoring emissions reduction through carbon markets

3. Climate finance aims to achieve which of the following goals?

    a) Exclusive focus on adaptation strategies
    b) Balancing mitigation and adaptation efforts
    c) Transitioning all industries to voluntary reporting frameworks
    d) Eliminating the gap in global biodiversity frameworks

4. What is a key feature of Nationally Determined Contributions (NDCs)?

    a) They represent voluntary commitments by countries to reduce emissions.
    b) They are only applicable to developing nations.
    c) They focus exclusively on green building certifications.
    d) They are implemented through UNODC policies.

5. A sustainability report that considers both upstream and downstream impacts aligns with which principle?

    a) The great beyond
    b) Prove it
    c) It’s a material world
    d) Live it, breathe it

6. What is a critical component of the "Big Brother" principle in sustainability reporting?

    a) Ensuring credibility through third-party assurance
    b) Explaining sustainability governance and policies
    c) Demonstrating a clear link to NDCs
    d) Reporting only positive outcomes to avoid backlash

7. Why is it important to report only material issues in a sustainability report?

    a) To reduce the length of the report
    b) To comply with mandatory reporting requirements
    c) To highlight only positive aspects of the organization’s performance
    d) To ensure the report focuses on what is relevant to the organization and stakeholders

8. What does the "Prove it" principle in sustainability reporting focus on?

    a) Including only positive impacts to enhance credibility
    b) Demonstrating the integration of sustainability into corporate governance
    c) Providing credible content supported by third-party assurance or evidence
    d) Explaining how sustainability policies are aligned with global goals

9. How should a sustainability strategy be demonstrated in a report according to "Live it, breathe it"?

    a) Through short-term, tactical plans only
    b) By integrating it into the core corporate strategy and showcasing its impact throughout the business
    c) By focusing exclusively on environmental impacts
    d) By presenting a list of sustainability KPIs

Week 9 & 10: Organizational Size and Sustainability Typologies

Prep Readings

- *Willard, B. (2005). Sustainability Stages. Read only pp. 25-29*
- *Wisenius, P. & Guntram, U. (2013). Chapter 1: The Environmental Management Challenge. Read only pp. 3-21*
- *KPMG. 2023. Integrating ESG into SMEs' business strategy.*

1. Willard, B. (2005). Sustainability Stages (pp. 25–29)

- Firms move through **5 stages** of sustainability adoption
- Early stages:
  - **Pre-Compliance** – ignores/breaks laws; environment seen as obstacle
  - **Compliance** – obeys regulations; environment = cost, "end-of-pipe" fixes
- Middle stage:
  - **Beyond Compliance** – voluntary **eco-efficiency** to save money (less energy, waste, materials)
- Advanced stages:
  - **Integrated Strategy** – sustainability built into **core strategy, products, business model**; source of innovation/advantage
  - **Purpose & Passion** – same integration, but driven by **values and purpose** (improve society/environment)

- Key shift: from **cost and risk focus** (Stages 1–3) to **strategy and purpose** (Stages 4–5)

2. Wisenius, P. & Guntram, U. (2013). The Environmental Management Challenge (pp. 3–21)

- Environmental issues framed as a **strategic management challenge**, not just technical
- Firms face growing pressure from **regulation, resources, climate, stakeholders**
- Typical response path (similar to Willard):
    - **Reactive** → respond only to crises or enforcement
    - **Compliance / add-on** → pollution control bolted onto existing processes
    - **Eco-efficiency** → reduce waste/resources to cut costs
    - **Integrated** → environment built into strategy, design, operations
    - **Proactive/leadership** → environment used for innovation and competitiveness
- Core problem: requires **organizational change** (culture, processes, decisions), not just new technology
- Core message: move from **"bolt-on" compliance** to **"built-in" environmental management**

3. KPMG (2023). Integrating ESG into SMEs' Business Strategy

- ESG now affects **access to finance**, customers, supply chains, and reputation
- For SMEs, ESG is important for:
    - Managing **climate, regulatory, and reputational risks**
    - Attracting/retaining **talent and customers**
- Main SME barriers:
    - Limited **money, staff, ESG expertise**
    - Weak **data/systems**; short-term focus
    - Perception that ESG is only for **large firms**
- Practical approach for SMEs:
    - Identify **material ESG issues**
    - Set a **small number of clear goals**
    - Embed ESG into **strategy, risk management, budgeting, roles**
    - Track **simple indicators** and report progress
    - Engage **employees, customers, lenders, suppliers**
- Core idea: ESG must be **focused, practical, and aligned with core business**, not a standalone add-on

Lecture Content

Definition (Statistics Canada, 2013)

- Small enterprise: **1–99 employees**
- Medium enterprise: **100–499 employees**
- Large enterprise: **500+ employees**

Importance of SMEs (Canada, 2023)

- Small: **1,190,027 businesses** (97.8%) → ~35% of GDP
- Medium: **23,395 businesses** (1.9%) → ~13.2% of GDP

- Total SMEs: **~1.21 million** (99.8% of all businesses)
- SMEs contribute **~48.2% of GDP** (~$1.03T of 2.14T USD GDP in 2023)
- SMEs present **across all sectors**

Key Characteristics of SMEs (NBS, 2014)

- Owner-managed (partly or entirely)
- Independent (not subsidiaries or franchises)
- Informal (few bureaucratic procedures/structures)
- Face day-to-day **cash flow challenges**
- Require **flexibility** and **multitasking**
- Rely heavily on **personal relationships**

Sustainability Challenges for SMEs (NBS, 2014)

- **Resource constraints**
    - Financial: limited funds for green investments
    - Human capital: few sustainability specialists
    - Time: day-to-day operations dominate
- **Unclear alignment** with core business (linking sustainability to profit/strategy)
- **Informal management**
    - Limited continuity planning
    - Succession/ownership transitions are challenging

Opportunities for Sustainability in SMEs (NBS, 2014)

- Close relationships with **customers, employees, suppliers**
- Strong understanding of **community and local environment**
- Business often integrated with **family life** → supports long-term thinking
- Sustainability often part of **everyday practices**, even if not labeled “sustainability”

Motivations for Sustainability (Masurel, 2007)

Market

- Meet **customer expectations**
- Build/communicate a **positive reputation**
- Clarify **long-term vision and values**
- Capture **new market opportunities**

Employment

- Improve **safety, hygiene, working conditions**
- Increase **employee satisfaction and motivation**
- Boost **managerial engagement**

Regulations

- Ensure **legal compliance** and go beyond minimum requirements

- Gain access to **public subsidies/incentives**

Social responsibility

- Ethical, community, and broader societal motives

Internal management

- Improve **efficiency** and **organizational processes**

Sustainability Typologies

1. **Greenwashing**
    - Limited or deceptive sustainability claims
    - Focus on **image**, not real impact
2. **Meeting Regulatory Requirements**
    - **Reactive / Compliance** phase
    - Driven mainly by **legislation**
    - Uses **basic pollution-control** ("add-on" technologies)
3. **Some Evidence of Sustainability Performance**
    - **Functional / Beyond Compliance**
    - Focus on **eco-efficiency** and resource savings
    - Begin **basic CSR/sustainability reporting**
4. **Strong Sustainability Performance**
    - **Integrated / Integrated Strategy**
    - Demonstrated sustainability practices
    - Clear commitments and **detailed sustainability reporting**
5. **Sustainability Leader**
    - **Proactive / Purpose & Passion**
    - Recognized as **global leader** in sustainability
    - Strong **senior executive accountability** and culture of sustainability

Value of Typologies

- Show **where a company stands** and how it can improve
- Organize understanding of **sustainability maturity**
- Enable **benchmarking** across firms/sectors
- Reveal **gaps** in environmental management and performance
- Support **self-assessment** of corporate responsibility

Common Limitations of Typologies

- Can be **overly prescriptive** or subjective
- Criteria may be **vague**, making comparison difficult
- Movement between levels often **unclear**
- Many firms cluster at **lower levels**
- Good **management systems** ≠ guaranteed good environmental outcomes
- May not fit **specific contexts/industries**

Broader Perspective — Peace and Sustainability

- Jody Williams (Nobel Peace Laureate):
  - Sustainability requires **environmental balance and social justice, equity, and peace**
  - True sustainability = both **ecological** and **human** well-being

Week 9 & 10 Practice Questions

1. According to Statistics Canada, a **medium-sized** enterprise has:

   A. 1–49 employees
   B. 50–99 employees
   C. 100–499 employees
   D. 500+ employees

2. Approximately what percentage of businesses in Canada are SMEs?

   A. 75%
   B. 90%
   C. 99.8%
   D. 50%

3. About what **percentage of Canada's GDP** do SMEs contribute?

   A. 10%
   B. 25%
   C. 48.2%
   D. 75%

4. Which of the following is **most typical** of SMEs?

   A. Highly formal, bureaucratic structures
   B. Strong reliance on personal relationships
   C. Mainly operated as subsidiaries of multinationals
   D. Focus on long-term strategy only

5. Which is **not** listed as a main resource constraint for SMEs in sustainability?

   A. Financial resources
   B. Human capital
   C. Time
   D. Access to global stock markets

6. Why might SMEs be **better than large firms** at recognizing sustainability opportunities?

   A. They have more legal departments
   B. They have stronger ties to local communities and environments
   C. They have larger marketing budgets
   D. They are always publicly traded

7. Which of the following is a **market-related** motivation for SMEs to engage in sustainability (Masurel, 2007)?

   A. Gaining access to public subsidies
   B. Improving workplace safety
   C. Contributing to a positive firm image to attract new clients
   D. Reducing employee turnover through training

8. Which is an **employment-related** motivation for sustainability in SMEs?

   A. Utilizing market opportunities
   B. Improving working conditions in terms of safety and hygiene
   C. Gaining access to subsidies
   D. Clarifying long-term strategic direction

9. Which sequence correctly orders the **sustainability typology** from lowest to highest performance?

   A. Greenwashing → Meeting regulatory requirements → Some evidence → Strong evidence → Sustainability leader
   B. Meeting regulatory requirements → Greenwashing → Some evidence → Strong evidence → Sustainability leader
   C. Greenwashing → Some evidence → Meeting regulatory requirements → Strong evidence → Sustainability leader
   D. Greenwashing → Meeting regulatory requirements → Strong evidence → Some evidence → Sustainability leader

10. Which is a **benefit** of sustainability typologies?

    A. They guarantee better environmental performance
    B. They replace all need for regulation
    C. They help compare and benchmark companies
    D. They eliminate all ambiguity in sustainability language

Week 11 & 12: Sustainable Finance Part 2 & The Lorax

Prep Readings

- *No prep readings this week*

Lecture Content:

1.Green Bonds and Social Bonds

- Green bonds = issued to **raise finance for environmental solutions**, e.g.:
  - **Climate change mitigation** (reduce emissions)
  - **Climate change adaptation** (cope with impacts)
  - **Infrastructure** (e.g., low-carbon, resilient infrastructure)
  - **Renewable energy** (solar, wind, etc.)
- Typical **issuers**:
  - **World Bank** and other development banks

    - **Government banks** (national development, export/import banks)
    - **Private banks** and other private sector issuers

2. COP30 Outcomes (Belém, Brazil)

- COP30 = UN climate conference held in **Belém, Brazil**
- Outcomes are interpreted through **different lenses**:
    - **Government of Canada** (national government view)
    - **International Institute for Sustainable Development (IISD)** (research/NGO view)
    - **United Nations** (global multilateral view)
- Key point: **same event, multiple perspectives** on what was achieved and what comes next.

Climate Finance and Energy Transitions – COP30 Outcomes

Key climate finance outcomes at COP30:

- **$1.3 trillion per year by 2035**
    - Target to **mobilize $1.3 trillion annually by 2035** for climate action
    - Strong focus on **adaptation and resilience**, especially for climate-vulnerable countries
- **Adaptation finance**
    - **Double** adaptation finance by **2025**
    - **Triple** adaptation finance by **2035**
    - Responds to demands from **vulnerable countries** for more support in adapting to climate impacts
- **Loss and damage fund**
    - **Operationalized**: now has a **regular replenishment cycle**
    - Moves from idea/promise → a functioning mechanism to support countries facing loss and damage
- **Global Implementation Accelerator & Belém Mission to 1.5°C**
    - Launched to **support national climate action plans**
    - Aim to keep the **1.5°C temperature goal** "alive" through implementation support
- **Climate disinformation**
    - COP30 **acknowledges climate disinformation as a threat**
    - Commitment to **promote information integrity** and **counter false narratives**
- Overall: COP30 strengthens **climate finance**, **adaptation support**, **loss and damage mechanisms**, and **implementation tools**, while addressing the **information environment** around climate action.

3. Since 2015 – Paris Agreement and Green Credit

- Context: **Paris Agreement signed in 2015** → global climate framework
- Since then, development of **green credit policies**:
    - **More lending** to the **green economy**
        - Renewable energy, energy efficiency, low-carbon infrastructure, etc.
    - **Less lending** to **polluting industries**
        - Fossil fuels and other high-emission sectors
- "**10 years post Paris Agreement: the good news**"

    - Indicates progress: financial systems **increasingly aligned** with climate goals
    - Credit and investment gradually shifting from **high-carbon** to **low-carbon** activities

4. Key Learnings from The Lorax (Video)

- Shows **unsustainable resource use** and **short-term profit focus**
    - Once-ler clear-cuts Truffula trees to expand production
- Illustrates **negative externalities**
    - Pollution and ecosystem damage harm animals and communities
    - Environmental costs are not accounted for in the business model
- Highlights **irreversibility and collapse**
    - Once the last tree is cut, both **nature and the business** are destroyed
- Emphasizes **responsibility and stewardship**
    - The Lorax "speaks for the trees" → represents nature and future generations
- Stresses **individual action and hope**
    - The "UNLESS" message and last Truffula seed → change is possible if someone cares and acts
- **Connection to sustainable finance**
    - Lorax world = example of what happens when **finance and business ignore sustainability**
    - Justifies tools like **green bonds**, **green credit policies**, and **climate finance commitments** (e.g., COP30, Paris Agreement) to **avoid Lorax-style environmental and economic collapse**

Week 11 & 12 Practice Questions

1. Green bonds are primarily issued to:

A. Reduce government budget deficits
B. Raise finance for environmental solutions
C. Support military spending
D. Fund consumer credit

2. **Which of the following is a typical use of green bond proceeds?**

A. Building coal-fired power plants
B. Financing renewable energy projects
C. Speculative cryptocurrency investments
D. Expanding tobacco production

3. Which of the following is not a typical issuer of green bonds?

A. World Bank
B. Government banks
C. Private banks
D. Fast-food chains

4. COP30 was held in:

A. Paris, France
B. Belém, Brazil
C. Glasgow, UK
D. New York, USA

5. The COP30 climate finance target aims to mobilize by 2035:

A. $130 billion annually
B. $1.3 trillion annually
C. $13 trillion annually
D. $1.3 billion annually

6. At COP30, adaptation finance is expected to:

A. Be cut in half by 2025
B. Double by 2025 and triple by 2035
C. Triple by 2025 and double by 2035
D. Stay unchanged

7. "Operationalizing the loss and damage fund" at COP30 means:

A. Closing the fund permanently
B. Turning it into a one-off grant
C. Creating a regular replenishment cycle and making it functional
D. Using it only for private sector projects

8. Since 2015, green credit policies mainly involve:

A. More lending to polluting industries
B. More lending to the green economy and less to polluting industries
C. No change in lending patterns
D. Lending only to coal projects

9. In The Lorax, the Once-ler's behaviour mainly shows:

A. Careful sustainable forestry
B. Short-term profit focus and unsustainable resource use
C. Responsible stewardship
D. Successful climate finance

10. Which is the best example of negative externalities in The Lorax?

A. Advertising for Thneeds
B. Pollution harming animals and ecosystems
C. The Lorax's speeches
D. The price of a Thneed

11. This isn't a real question but I thought a random break would be fitting in Prof Lynes fashion

A. Prof Lynes is the best
B. Im proud to be an SFM student
C. We're gonna pass this final
D. All of the above

Final Exam Practice

These are the study questions that Prof Lynes provided with basic answers.
Best exam prep is the practice questions that are embedded in each week :)
Enjoy and good luck during exams!

1. What are the three pillars of sustainability? Is one pillar more important than another?

Economic, environmental, and social. They're interconnected; no single pillar outweighs the others since all are critical for true sustainability.

2. How is Microsoft planning on becoming 'carbon negative' by 2030?

By 2030, Microsoft plans to remove more carbon from the atmosphere than it emits, using renewable energy, carbon capture, and sustainable supply chain practices.

3. Who is Rachel Carson and what role did she play in the early days of the environmental movement? What is her legacy?

Author of Silent Spring, Carson highlighted the dangers of pesticides like DDT, sparking the modern environmental movement and influencing policies like the creation of the EPA.

4. What is the Brundtland Report and how did it come about?

Published in 1987, it introduced the concept of sustainable development, defined as meeting present needs without compromising future generations.

5. What have been the trends over the past five years in terms of overshoot day'?

Over the past five years, Earth Overshoot Day has come earlier, indicating humanity's increasing overuse of natural resources.

6. What is a deficit in biocapacity?

When a region's ecological footprint exceeds the ecosystems' ability to regenerate resources and absorb waste.

7. What is the 'zone of uncertainty' when it comes to planetary limits?

The range within planetary boundaries where changes could destabilize Earth's systems, but outcomes remain uncertain.

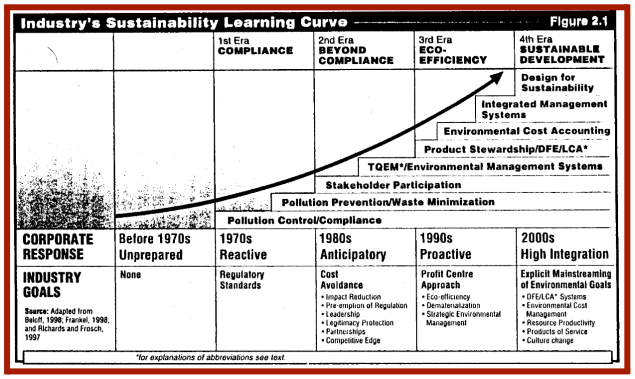
8. What is natural capital and how does the concept of natural capital relate to externalities?

The world's stocks of natural resources. Its degradation often results in externalities, like pollution, affecting societal welfare.

9. What are ecosystem services and how do they relate to natural capital?

Benefits humans receive from nature, like clean air and water. These are integral to natural capital.

10. What are the four eras of the 'sustainability learning curve'? (you should be able to describe the name of the era, the general time of this era (e.g. decade) and what it involved)



Compliance (before 1970s): Limited awareness.
Beyond Compliance (1970s-1980s): Reactive responses to regulations.
Eco-Efficiency (1990s-2000s): Integrated strategies.
Sustainable Development (2010s-present): Systemic change and innovation.

11. What is the concept of 'eco efficiency'? Would you say that it fits under "weak" or "strong" sustainability?

Producing more with less environmental impact, aligning with "weak sustainability" since it assumes technology can compensate for natural loss.

12. What are four different tools that we could use to limit/reduce deforestation? What about emissions from meat production?

Reforestation programs, land-use regulations, certification (e.g., FSC), and financial incentives.
Meat emissions: Alternative proteins, dietary shifts, carbon taxes, and improved farming practices.

13. What are some key differences between voluntary codes of practice and regulations?

Regulations are enforceable laws; voluntary codes rely on self-compliance.

14. Can technology-based standards be considered a regulation?

Yes, they can be regulatory if legally mandated.

15. What are the pros and cons of both regulatory standards and voluntary initiatives (i.e. private codes)

Pros of Regulatory Standards	Pros of Voluntary Initiatives	Cons of Regulatory Standards	Cons of Voluntary Initiatives
• Compliance is legally required, ensuring consistency. • Creates uniform standards for all entities. • Violations have legal consequences.	• Companies can innovate without legal constraints. • Encourages leaders to go beyond minimum compliance. • Enhances brand reputation through proactive efforts.	• Standards may not adapt quickly to industry needs. • Compliance can be expensive, especially for small firms. • Focused on minimum compliance rather than exceeding it.	• Lack of enforcement can lead to inconsistent adoption. • Implementation varies, risking "greenwashing." • Hard to measure effectiveness without clear metrics.

16. What are some reasons a company would be motivated to adopt environmental initiatives? What about social initiatives

Environmental initiatives for cost savings and reputation; social initiatives for employee retention and community goodwill.

17. What is ‘marketing for sustainability’?

Promoting products/services that meet environmental/social goals to attract conscious consumers.

18. Describe four tools that could be used to increase adoption of Electric Vehicles

- Tax incentives
- Charging infrastructure
- Public awareness

- Government mandates

19. What is the difference between climate change mitigation and climate change adaptation? What is the role of climate finance in global climate change mitigation and adaptation?

Mitigation reduces emissions; adaptation addresses climate impacts. Climate finance supports both.

20. With respect to the Paris Agreement, what is meant by the term “the principle of “common but differentiated responsibility and respective capabilities” and why is this relevant to climate finance?

    Developed nations take more responsibility due to their historical emissions and capabilities, relevant for fair climate finance allocation.

21. Why is 2025 a key year for countries in terms of the Paris Agreement?

This year countries are expected to update and strengthen their climate commitments.

22. What is the difference between impact investing and ESG investing?

Impact investing seeks measurable social/environmental outcomes, while ESG focuses on broader sustainability criteria.

23. In terms of the global mega conferences that have taken place in the last few years, in what ways have they been focusing on sustainable finance – and why are they increasing attention being paid in this area?

Increased focus due to the need for private capital in achieving global climate goals.

24. If a high school student asked you if it is important to study sustainability if you are doing a business degree, what would you tell them?

Critical for understanding risks, regulations, and future market trends.

25. Why is the 2008 financial crisis relevant to the evolution of sustainable finance over the past decade?

Connection to The Big Short: The movie illustrates the systemic risks, lack of transparency, and profit-driven culture that led to the financial crisis. These issues spurred the shift toward sustainable finance.

Lessons Learned

The 2008 crisis demonstrated the dangers of neglecting systemic risks, leading to:

- Stronger focus on sustainability to prevent future crises
- Wider recognition of the importance of long-term, responsible investing
- Accelerated growth in sustainable finance as a key driver of resilience

Key Developments Post-Crisis

Growth of ESG Investing: ESG assets under management grew exponentially, with many institutional investors adopting ESG criteria to manage long-term risks.

Integration of Sustainability into Corporate Strategy: Companies began embedding sustainability into core strategies to ensure resilience and attract ESG-conscious investors.

Rise of Sustainable Development Goals (SDGs): In 2015, the adoption of the SDGs provided a global framework for aligning investments with sustainable outcomes.

Answer Key

Week 1
1:C, 2:C, 3:B, 4:B, 5:D, 6:A, 7:A, 8:D, 9:B, 10:C, 11:C, 12:B

Week 2
1:C, 2:B, 3:C, 4:A, 5:C, 6:B, 7:B, 8:C, 9:D, 10:C, 11:B, 12:C, 13:C, 14:B

Week 3
1:B, 2:B, 3:A, 4:D, 5:C, 6:B, 7:C, 8:C, 9:B, 10:B, 11:C, 12:C, 13:B, 14:B

Week 4
1:B, 2:A, 3:B, 4:B, 5:C, 6:B, 7:C, 8:A, 9:B, 10:B, 11:B, 12:C, 13:B, 14:B

Week 5
1:C, 2:B, 3:B, 4:A, 5:C, 6:B, 7:B, 8:C, 9:D, 10:C, 11:B, 12:B, 13:B, 14:B

Week 6
1:C, 2:D, 3:B, 4:B, 5:C, 6:A, 7:D, 8:B, 9:C, 10:C, 11:B, 12:B, 13:B, 14:C

Week 7
1:B, 2:C, 3:C, 4:B, 5:A, 6:A, 7:B, 8:B, 9:C

Week 8
1:A, 2:C, 3:B, 4:A, 5:A, 6:B, 7:D, 8:C, 9:B

Week 9
1:C, 2:C, 3:C, 4:B, 5:D, 6:B, 7:C, 8:B, 9:A, 10: C

Week 11
1:B, 2:B, 3:D, 4:B, 5:B, 6:B, 7:C, 8:B, 9:B, 10: B, 11: D