Developing skills
that support sustainability

Valentina Rossi | Centre d'Appui à l'enseignement (CAPE)

Developing skills that support sustainability

Sustainability should be integrated into everything we do, but how to do this is not always obvious.

This activity uses the context of a design project to explore how to include multiple facets of sustainability and negotiate apparently contradictory outcomes.
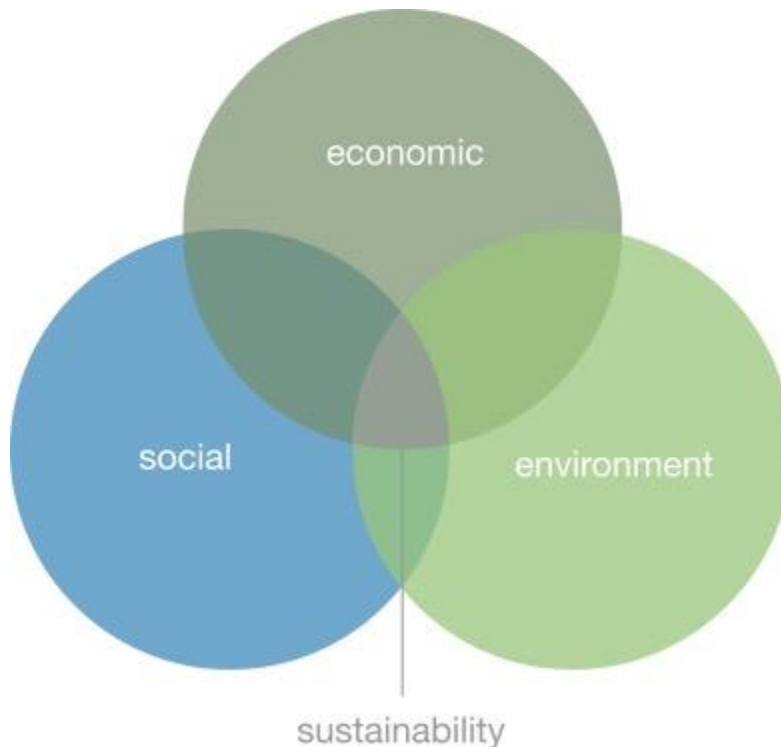
This session will help you improve your skills for

- **perspective-taking** and seeing what is important to others

- **systems thinking** that recognises complex interactions

- **negotiating skills** to incorporate multiple criteria and build consensus
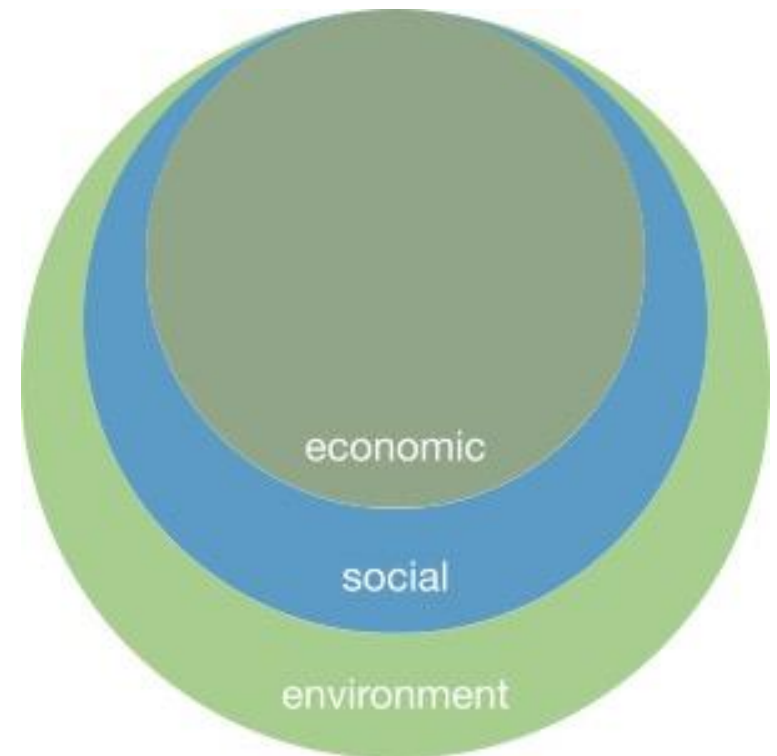
All dimensions of sustainability are interconnected and codependent

weak sustainability

strong sustainability

Activity Outline

Your engineering company is bidding for a **wind turbine project** in the region of Alpenblick. Residents are excited but have some concerns. To be accepted, your design must embody **strong sustainability principles**.

Your job is to bring your engineering skills and sustainability thinking into the proposed design. The choice of materials will have big socio-environmental and economic impacts as **100 wind turbines** will be manufactured and installed.
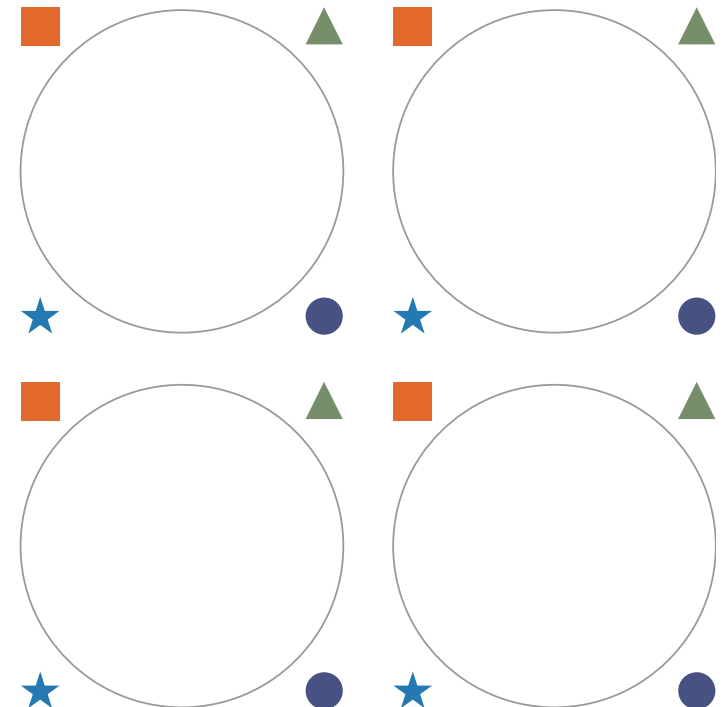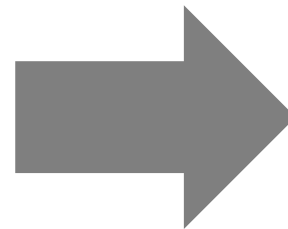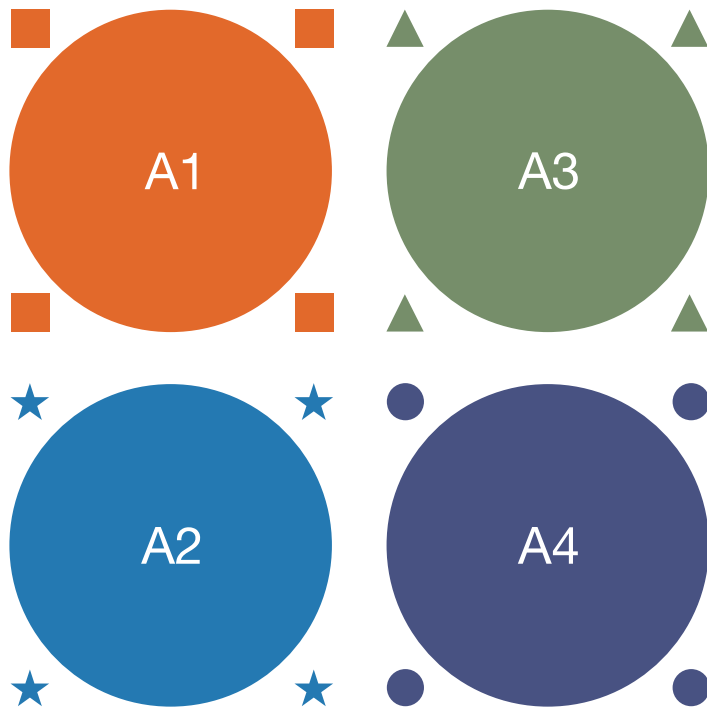
1. Read attentively the description of your role on Handout A.

2. With the other people in your group, identify 3 priorities to guide the choice of materials for the wind turbines. Keep your role in mind.

For the next phase, please rearrange your groups to create mixed groups

PHASE 1

PHASE 2

A1

A3

A2

A4

Negotiation – a strategic discussion that resolves an issue in a way that ALL parties find acceptable

Principled negotiation involves exploring the deeper interests underlying stated positions to achieve better outcomes

1. focuses on **interests** rather than positions

2. generates a **variety of options** before settling on an agreement

3. seeks agreement based on **explicit criteria**

Lyons, Carl. *I win, you win: The essential guide to principled negotiation*. Bloomsbury Publishing, 2009.

Getting others to see your perspective

LOGIC
- Facts: data, cause+effect
- Questions: get people to find the benefits themselves

"What are you worried will happen if we choose green?"

EMOTION
- Passion: stories that touch us
- Feelings: create a pleasant experience

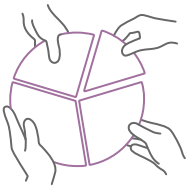*"Imagine how we will feel visiting a dangerous work site"*

GROUP
- Belonging: what others are (not) doing

"I've heard others are also avoiding this material"

EXCHANGE
- Reciprocity: *quid pro quo*
- Kindness: doing the right thing

"If we use blue, we could also…"

NATURE
- Rarity: uniqueness + opportunity
- Rules: norms + laws

"This is against our company policy"

Negotiation in groups

1. In this new group you will be working with other engineers to choose the materials for the wind turbine. The current prototype uses 5 colours of LEGO blocks to represent the materials described in Handout B.

2. Keeping your role in mind, negotiate the % of each material for the wind turbine to optimise for strong sustainability.

3. Make sure to write down the justification of your group decision.
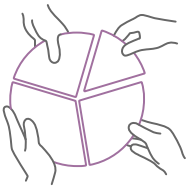
Activity debrief sharing turbine prototypes

1. What different perspectives of how a project can embody sustainability did each role bring? What was the impact of this diversity on your discussions?

2. What priorities did you put forward in your project and why? Was it possible to separate out specific effects?

3. What strategies were effective for sharing perspectives and convincing others? How did the negotiations affect the final design?

4. In what ways are the prototypes different between teams? Is there a single best answer for strong sustainability?

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Developing skills to improve collaboration

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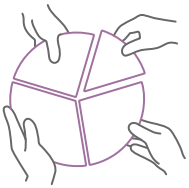
Developing skills to improve collaboration

Interdisciplinary teams are central to engineering, requiring us to repeatedly adjust our **collaboration approach**.

This activity uses the construction of a 2-part structure to create an experiential context to develop skills for productive **team retrospectives**.

This session will help you improve your skills for

● **Collaborating** and **managing unequal contributions**

● Using **retrospective discussions** for future improvement

Warm up

Please discuss your assigned question with your neighbours, writing down your ideas

On the left side of the room, list things that

- make it **difficult** to get things done in a team
- **ruin** team atmosphere

On the right side of the room, list things that

- make it more **productive** to work in a team
- create a **pleasant** team atmosphere

Debriefing – Groups take turns sharing <u>one</u> element from their discussion
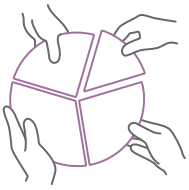
Good teams aren't just the result of good luck - they are fostered by good collaboration stategies

Teams use strategies for

- making **decisions** and setting **goals**

- conducting **meetings**

- sharing **information**

- giving **feedback** to team members

- **tracking progress** towards objectives and deadlines

When these strategies are shared and understood by all team members, it is likely to feel like a « good » team.

Teams can improve their **climate** and **efficacity** by making their strategies **explicit and transparent** to each other
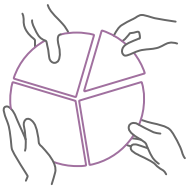
Building a 2-part LEGO structure

1. Working alone on **Handout A**, answer the **questions 1+2** about *"expected teamwork distribution"*.

2. With your group, complete the **table B1 on Handout B**.

3. Continue with B2 and **build the 2 tasks per instructions**, respecting the **colour assignments** that limit the bricks you can manipulate.

4. Return to Handout A and respond to **questions 3+4** about *"reflecting on the collaborative tasks"*

Retrospectives are structured team discussions held at the end of project phase to improve how the team works together on the next phase

Retrospectives

- make team work **more productive** and **more pleasant**
  - feedback and concerns are shared and addressed
- identify **what went well, what needs to improve**
  - track progress and identify challenges (i.e. free-riding)
- improve **collaboration**, **decision-making**, and **planning**
 - implement better strategies

Contributing to a retrospective

- taking **personal responsibility**
- sharing **negative feedback**
- making **specific, concrete proposals**
- sharing **positive feedback** and celebrating success
- using **active listening** and communication strategies to promote mutual understanding

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Holding a retrospective discussion

1. Allow each team member 1 minute (uninterrupted!) to share their perspective on the collaborative activity from their Handout A notes.

2. Together, complete **question 5** by listing 3 major difficulties you encountered during your building tasks

3. Working alone, complete **questions 6-8** on Handout A "reflection after retrospective discussion"
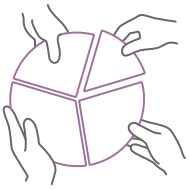
Thank you for your active participation!

Any questions?

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