



ECL Managing Director



Mark Abbott, P.Eng., MBA (he/him)

- UBC Mechanical Engineering
 - Consulting Engineering (14y)
 - SFU Executive MBA
 - Engineers Without Borders (4y)
 - Engineering Change Lab (7y)
- ★ Colette, Felix (7) and Stella (5)



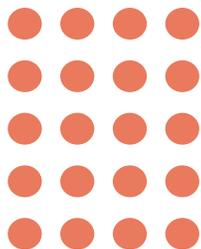
A Robust & Collaborative Approach

Since Jan 2015
the passionate
commitment of

350 system
leaders from **150**
organizations



20
core
workshops



100+
talks &
workshops



10,000+
leaders
engaged



Ambitious Plans

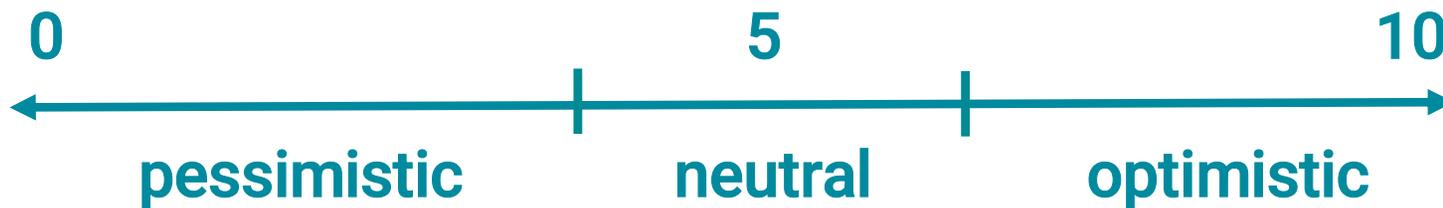
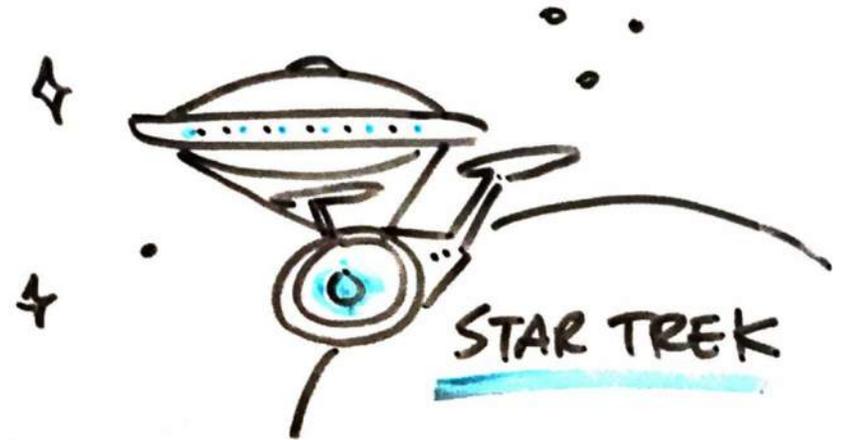
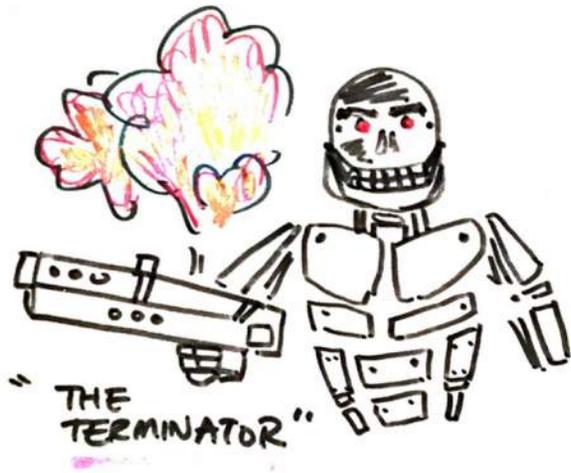
A) To reach a tipping point
in the engineering
profession

AND

B) To catalyze and support a
larger Tech Stewardship
movement

**Weaving just 40 hours of
tech stewardship practice
throughout the 4 years of the
undergraduate program of
all students will radically
transform engineering
for the benefit of all**

What is the default trajectory of humanity's relationship with technology?



what is tech stewardship?

A professional identity, orientation and practice. As tech stewards, we continuously discuss, refine and imagine new ways to shape technology for the benefit of all.



purposeful

Tech is not neutral. We imagine, design, and implement technology intentionally for positive impact.



responsible

The pace of tech disruption is accelerating. We anticipate, monitor and manage the complex impacts of tech.



inclusive

Who's driving tech? We expand who and what is considered and involved in decision making.



regenerative

Tech is often extractive. We proceed in a manner that cares for the environment, economy, communities & individuals

Tech Stewardship Core Commitments



Advance Understanding

We continuously deepen our understanding of our relationship with technology, challenge dangerously limited narratives and stereotypes.

Tech Stewardship Core Commitments



Advance Understanding

We continuously deepen our understanding of our relationship with technology, challenge dangerously limited narratives and stereotypes.

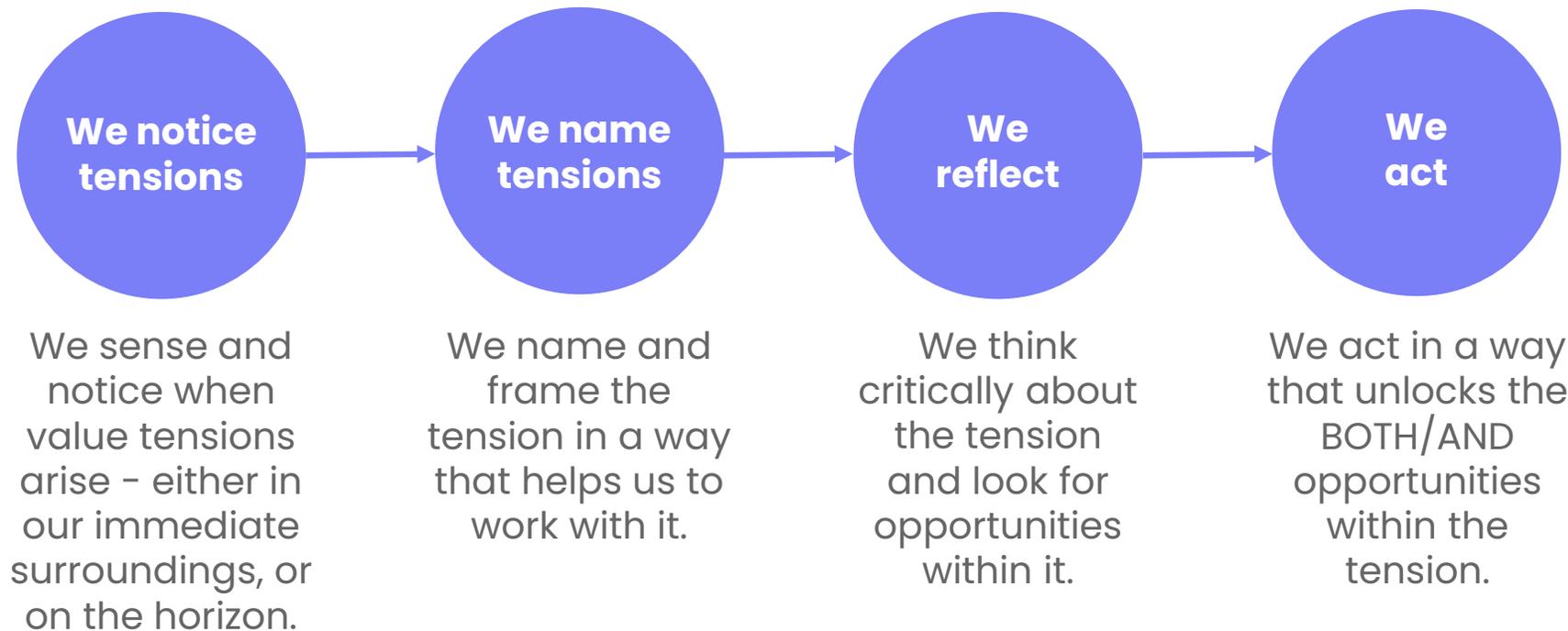


Deliberate Values

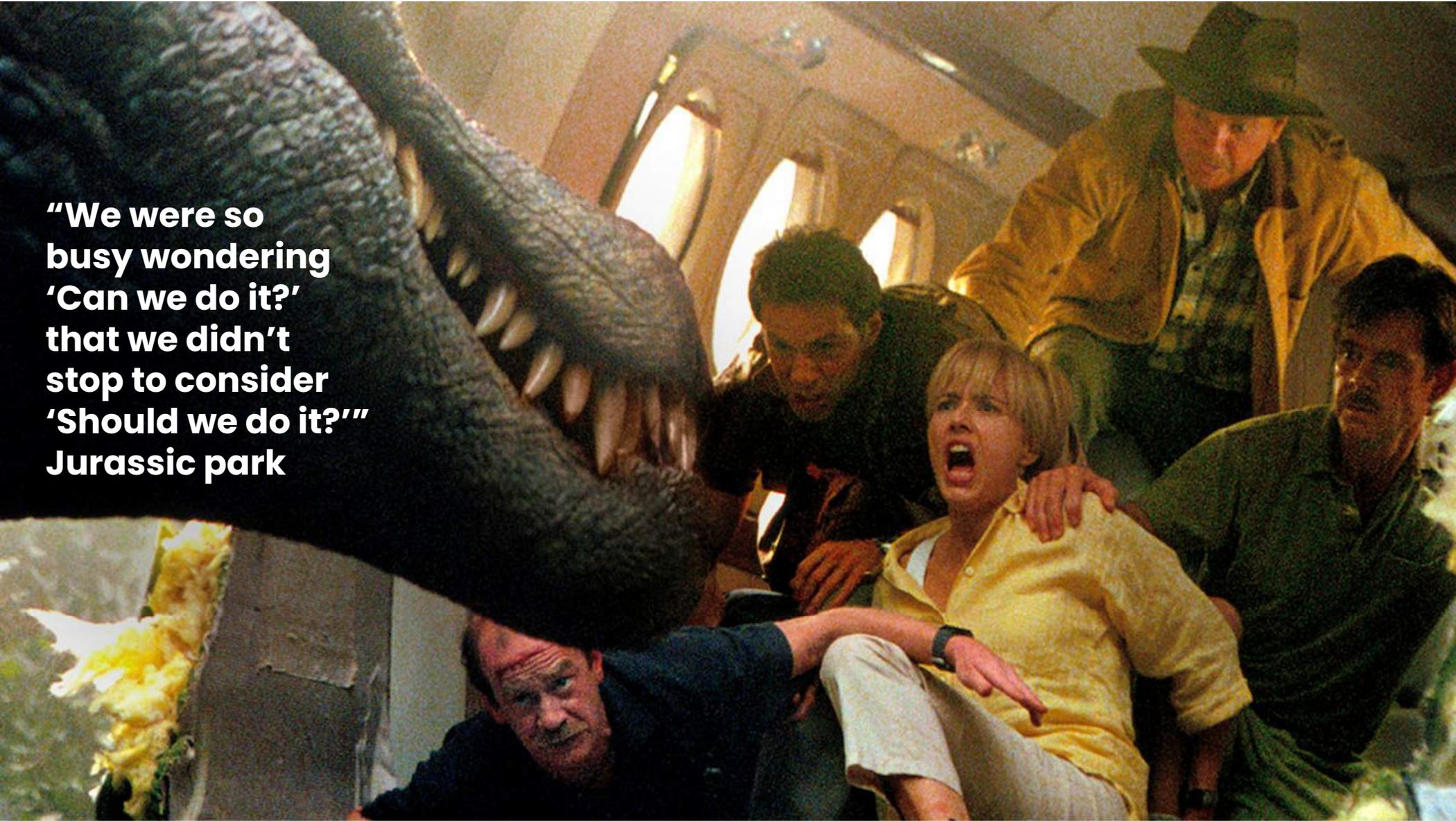
We seek to understand how our values are shaping and being shaped by the technologies we build and scale.

Deliberate Values: the essence of Tech Stewardship...

Finding BOTH/AND opportunities within value tensions



**"We were so busy wondering 'Can we do it?' that we didn't stop to consider 'Should we do it?'"
Jurassic park**



Tech Stewardship Core Commitments



Advance Understanding

We continuously deepen our understanding of our relationship with technology, challenge dangerously limited narratives and stereotypes.



Deliberate Values

We seek to understand how our values are shaping and being shaped by the technologies we build and scale.



Practice Behaviours

We support each other to practice the daily behaviours that enable progress in all its forms - from incremental steps all the way to breakthroughs!

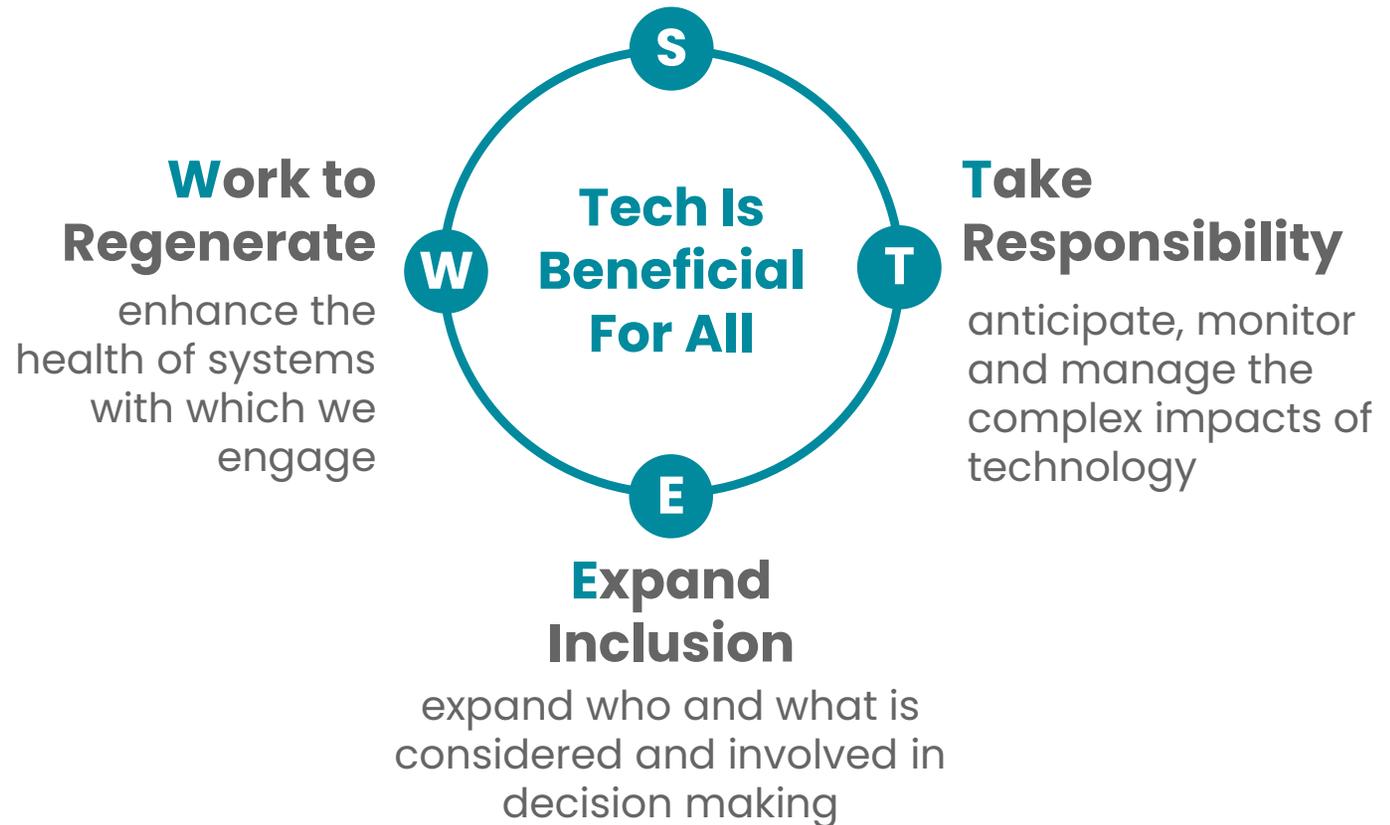
Practice Behaviours

We support each other to practice the daily behaviours that enable progress in all its forms. In particular, we look for opportunities to practice the “S.T.E.W” behaviours



Seek Purpose

direct technological development to maximize positive outcomes for all



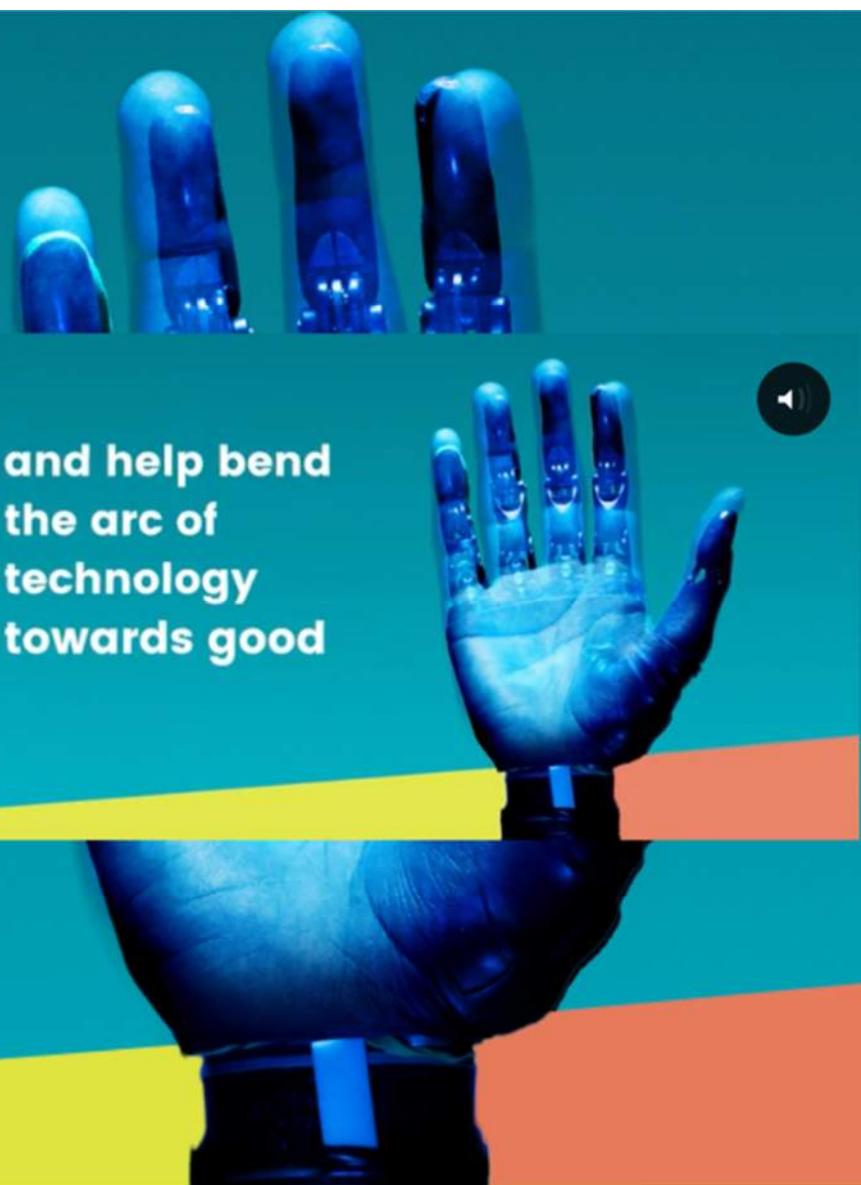
Tech Stewardship Practice Program

Bend the arc of technology
towards good.

Become a Tech Steward.

18hrs | Online | Free
Summer Registration closes May 6, 2022

[Enroll Now](#)



**and help bend
the arc of
technology
towards good**



Program Funders



Program Facilitators



Academic Partners

- BCIT
- Brock
- Cambrian
- Concordia
- Conestoga
- Confederation
- George Brown
- Georgian
- Lakehead
- McGill
- McMaster
- Memorial
- Mount Royal
- Queen's
- Royal Roads
- SAIT
- Simon Fraser U
- Thompson Rivers U
- Toronto Metro. U.
- UBC
- U Calgary
- U Guelph
- U Manitoba
- U of Northern BC
- U Ottawa
- U PEI
- U Sask
- U of Toronto
- York

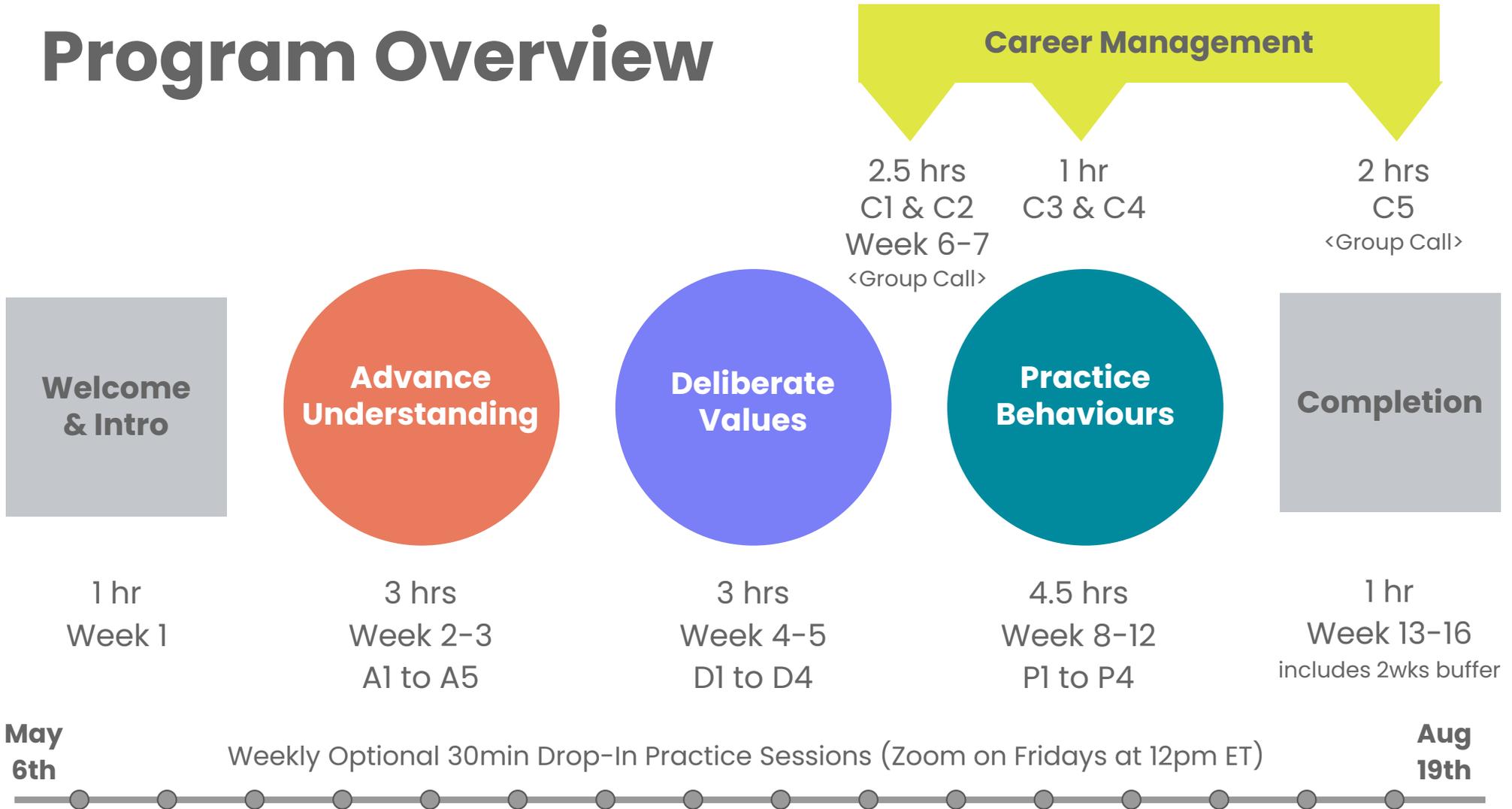
Become a tech steward!

18 hours online
Registration now open!

ts techstewardship



Program Overview





< Go to Dashboard

TS Practice Program - Canadian Post Secondary - Winter 2022

1% complete

Search by lesson title

WELCOME 0/5

FOUNDATIONS 0/2

F1 - Default Trajectory? 1/4

Framing

VIDEO · 1 MIN

Reflection

SURVEY · 3 QUESTIONS · DRAFT

Debrief

SURVEY · 1 QUESTION · DRAFT

Digging Deeper

TEXT

F2 - What Is Technology? 0/4

Framing



What is the default trajectory of humanity's relationship with technology?

MARK INCOMPLETE

CONTINUE →

Sample Student Story – Seek Purpose

*“My group's **capstone design project** aims to design an **Arctic Patrol vessel** for the Canadian Coast Guard. This week, we were reviewing the mission of the vessel and how it will interact with the environment and communities of the Canadian Arctic. We found that instead of just designing a vessel to do basic patrol and sovereignty tasks, we could **make our ship more useful by allowing it to support arctic communities and their residents, as well as provide environmental support and ensure the fragile ecosystem remains safe and healthy.** This showed that by Seeking Purpose in our design we could broaden our horizons and help to make a greater effect on the people and environment that our design will interact with.”*

Sample Student Story – Take Responsibility

*“I **did a work term** with a geotechnical engineering firm doing **geotechnical testing** and construction materials testing. I would often be responsible for using a nuclear densitometer for testing the compaction of soil. This piece of technology was capable of reading how well soil had been compacted. The machine did not always properly portray the conditions of the soil being tested. At times I would need to use my best judgment and not rely on the numbers given by the machine. This applies to this specific situation but it also applies to a great number of engineering applications. For many engineering applications there is software to aid in calculations or design. The software is easy to use but there are times when software can not fully capture the situation it is analyzing and therefore an engineer needs to take responsibility by using critical thinking and not just using technology. I practiced taking responsibility often by **knowing when to trust the nuclear densitometer and knowing when to trust my judgment**. I feel like this is something that is often missed with some engineers. Some engineers become reliant on technology and then attempt to avoid responsibility by blaming technology.”*

Sample Student Story – Expand Inclusion

*“At my workplace, my job is to assist in improving a **machine learning algorithm** that can identify what certain anatomical structures are and where they are located in **MRI and CT scans** by verifying the image segmentations. Every image I come across varies as each individual and their anatomy is different. Other than the obvious inclusion of both sexes, the images that we use to train the algorithm includes those with internal abnormalities such as certain organs removed (only having one kidney, or no gallbladder), enlarged organs or various tumors and health conditions (free- fluid in the abdomen, fluid in the lungs, enlarged vessels, etc.). Realize Diversity therefore relates to this situation because it is creating flexible technology to include those in underrepresented communities. The field of healthcare has historically marginalized minorities and typically focused on Caucasian males. In this situation one way to increase the opportunity in Realizing Diversity is to **include children's images** as well to train the machine learning algorithm. Children obtain MRIs and CTs as often as adults do when ill. Training the algorithm to include children's images will increase the accessibility to personalized healthcare that can decrease risks with misdiagnoses.”*

Sample Student Story – Work to Regenerate

*“My current co-op job has involved a strong **analysis of the water system supplying my region**, as well as sewage and water water systems. There are 3 major reservoirs that supply the region, and the water from the reservoir is treated and distributed within the region. With a constantly increasing population, the **water systems design and accompanying policies have been dynamic** in their approach to maintaining water supply and maintaining the natural environment at the same time. The policies change with the seasons, and may vary in the future to limit unnecessary uses of water. The system itself is dynamic in that it requires portions to be updated or redesigned. It may be redesigned in the case of old pipes or a change in a certain area's demand. In the future, it will be even more important to design a water supply system that is able to keep up with the population's intake and outputs while maintaining healthy reservoir levels. Seeking regeneration – analyzing the water and waste systems' effectiveness – is absolutely crucial in supporting a healthy community, both for people and the environment.*”

Stand out from the crowd at hiring time!



Licenses & certifications



Tech Stewardship Practice Program

Tech Stewardship

Issued Apr 2022 · No Expiration Date

Credential ID 26385609448224

Show credential [↗](#)

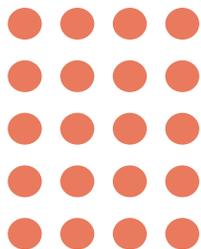


A Robust & Collaborative Approach

Since Jan 2015
the passionate
commitment of

350 system
leaders from **150**
organizations

20
core
workshops



100+
talks &
workshops



10,000+
leaders
engaged



Ambitious Plans

A) To reach a tipping point
in the engineering
profession

AND

B) To catalyze and support a
larger Tech Stewardship
movement

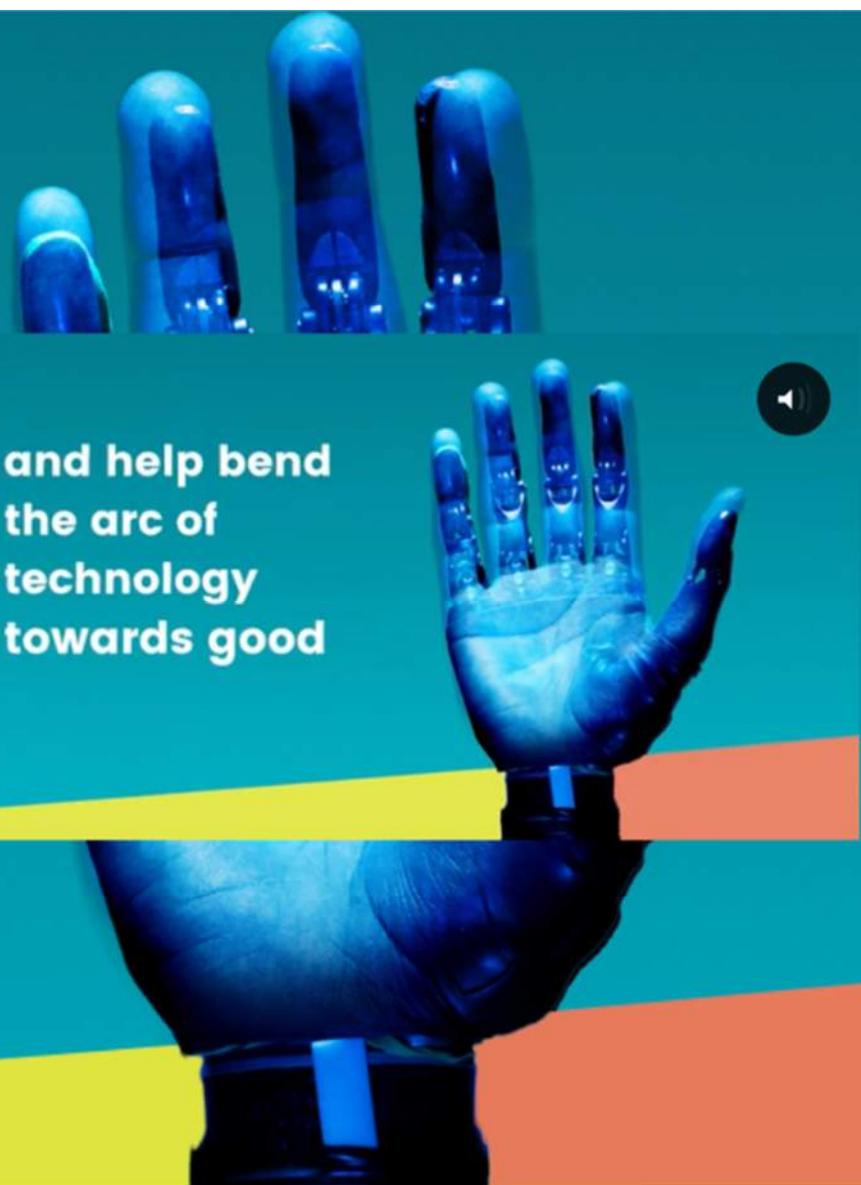
Tech Stewardship Practice Program

Bend the arc of technology
towards good.

Become a Tech Steward.

18hrs | Online | Free
Summer Registration closes May 6, 2022

[Enroll Now](#)



**and help bend
the arc of
technology
towards good**



the change

Technology is
beneficial for all

journey

Transform tech
practices & culture

community

Fellow travellers &
supporters

conversation

Stories, insights &
resources



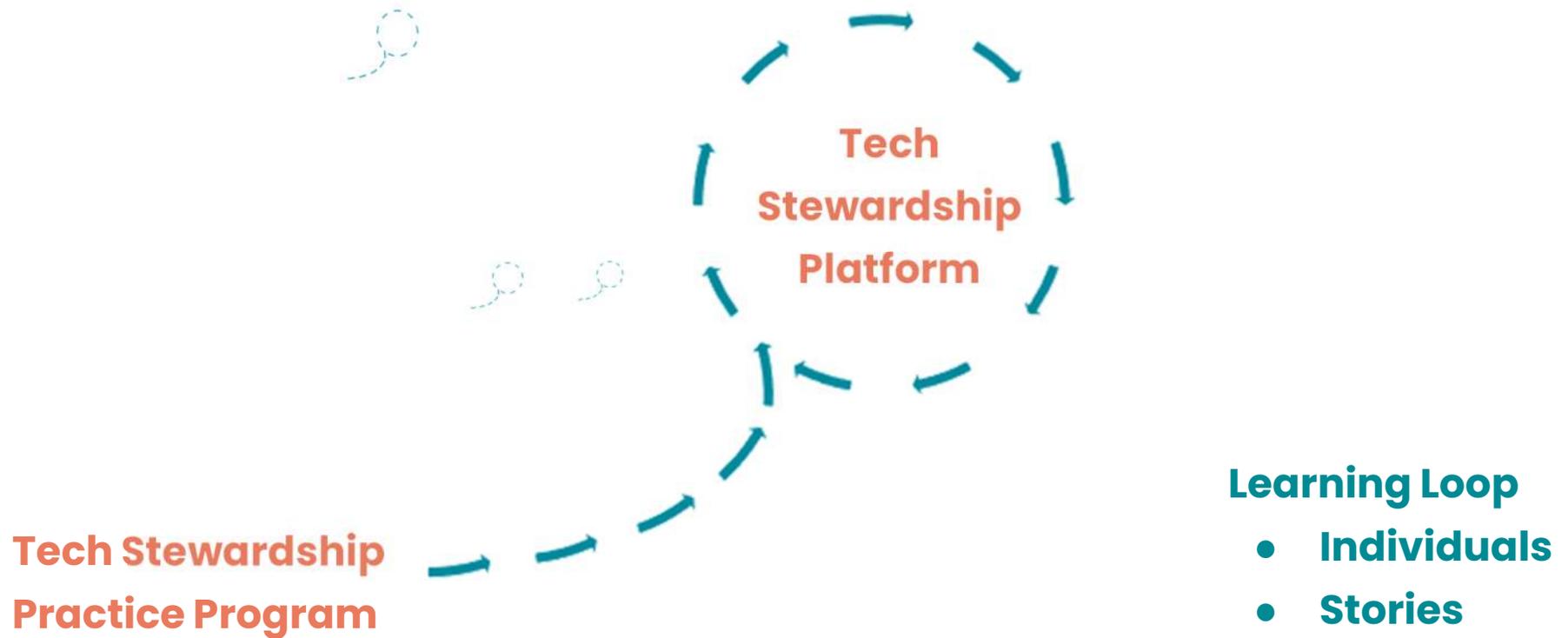
bending the arc of **technology** towards good.

As people who create and apply technology, we shape
society's most powerful elements.

We also witness their most destructive effects.

www.techstewardship.com

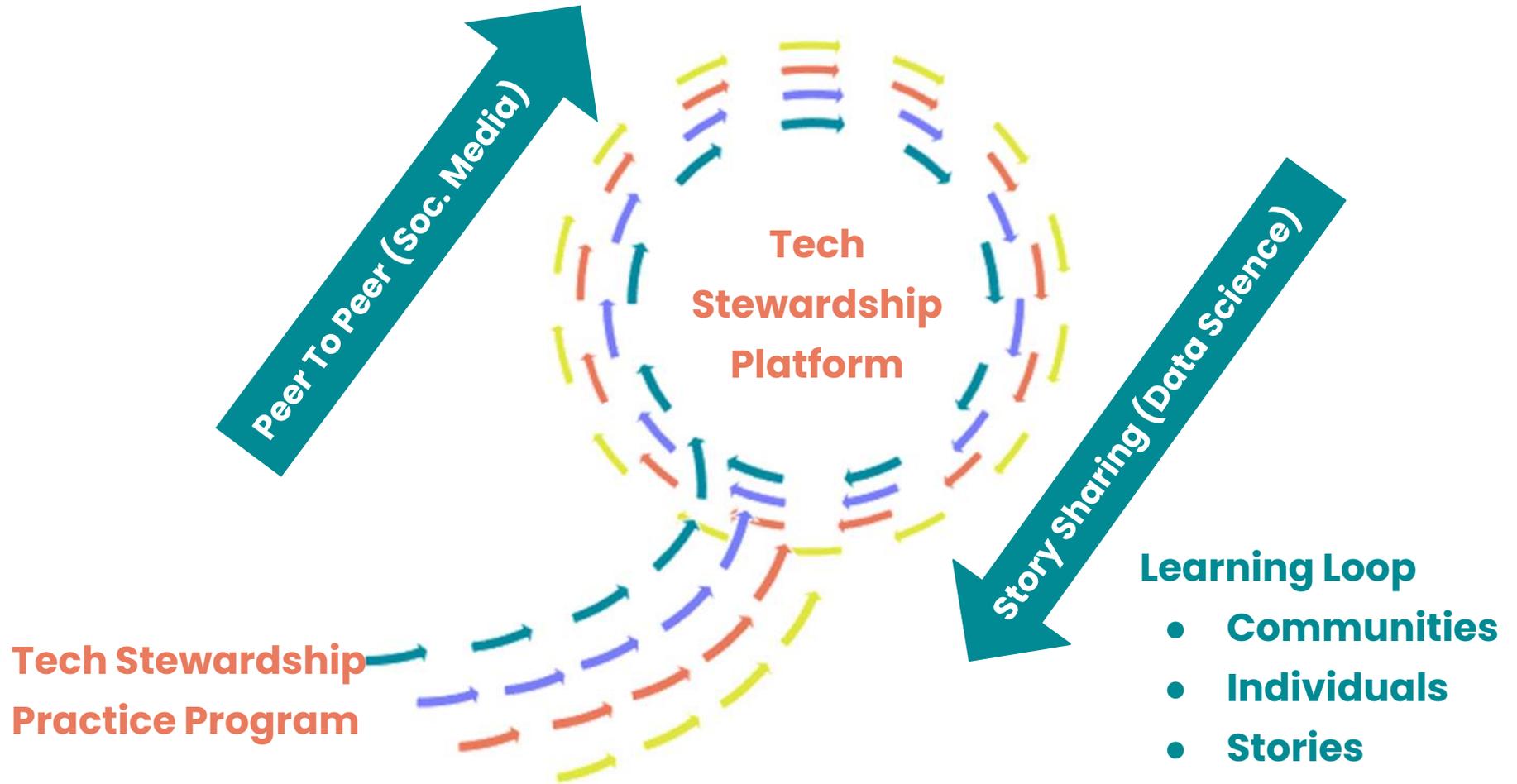
Building & Scaling Our Flywheel



Building & Scaling Our Flywheel



Building & Scaling Our Flywheel



**A story about
that time
I climbed a
mountain in
Peru...**



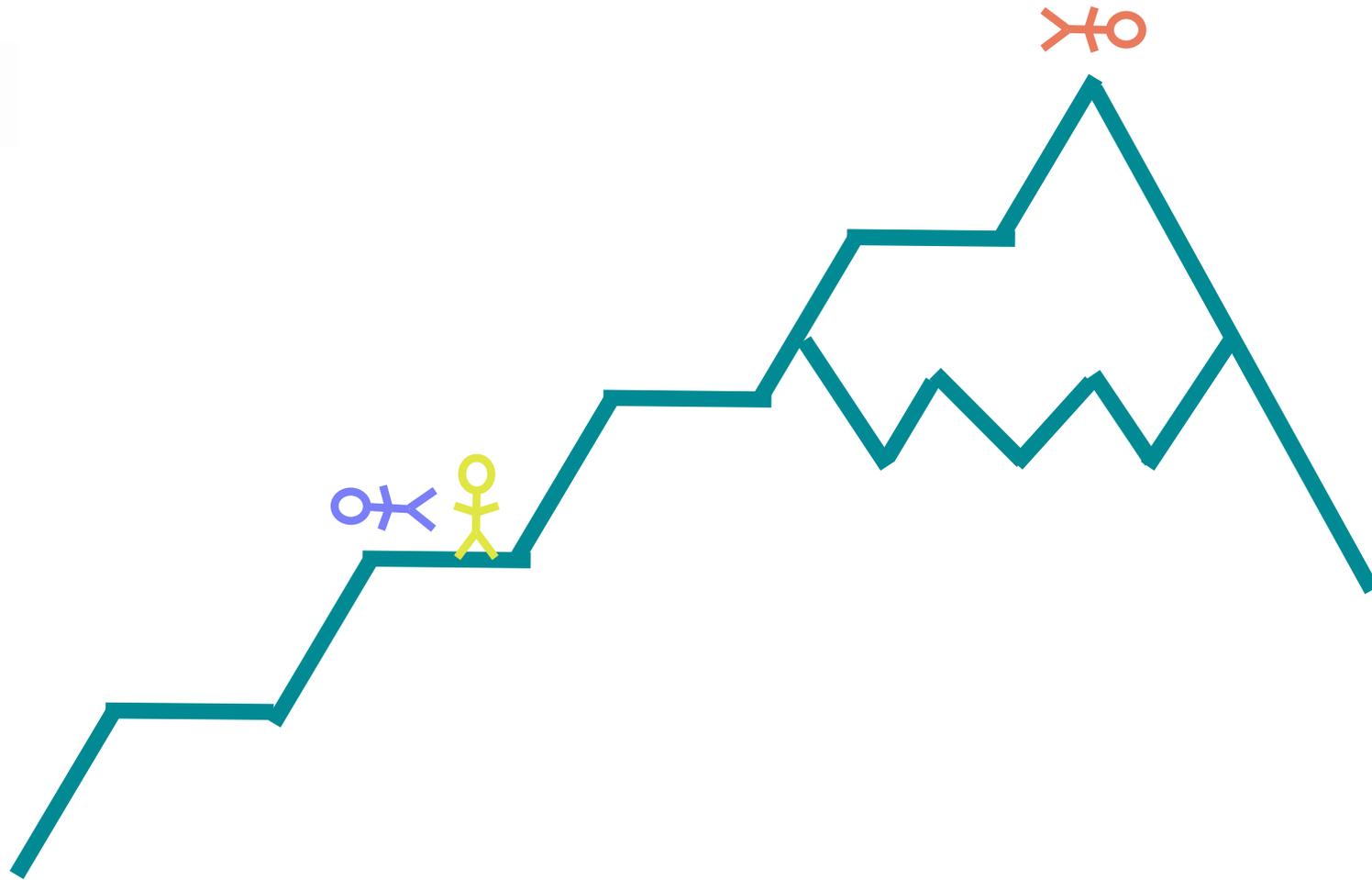




**6,000 m
(20,000 ft)**





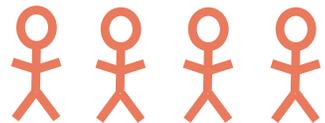








BHER Grant Tech Stewardship Practice Program (TSPP)



Successful
proposal

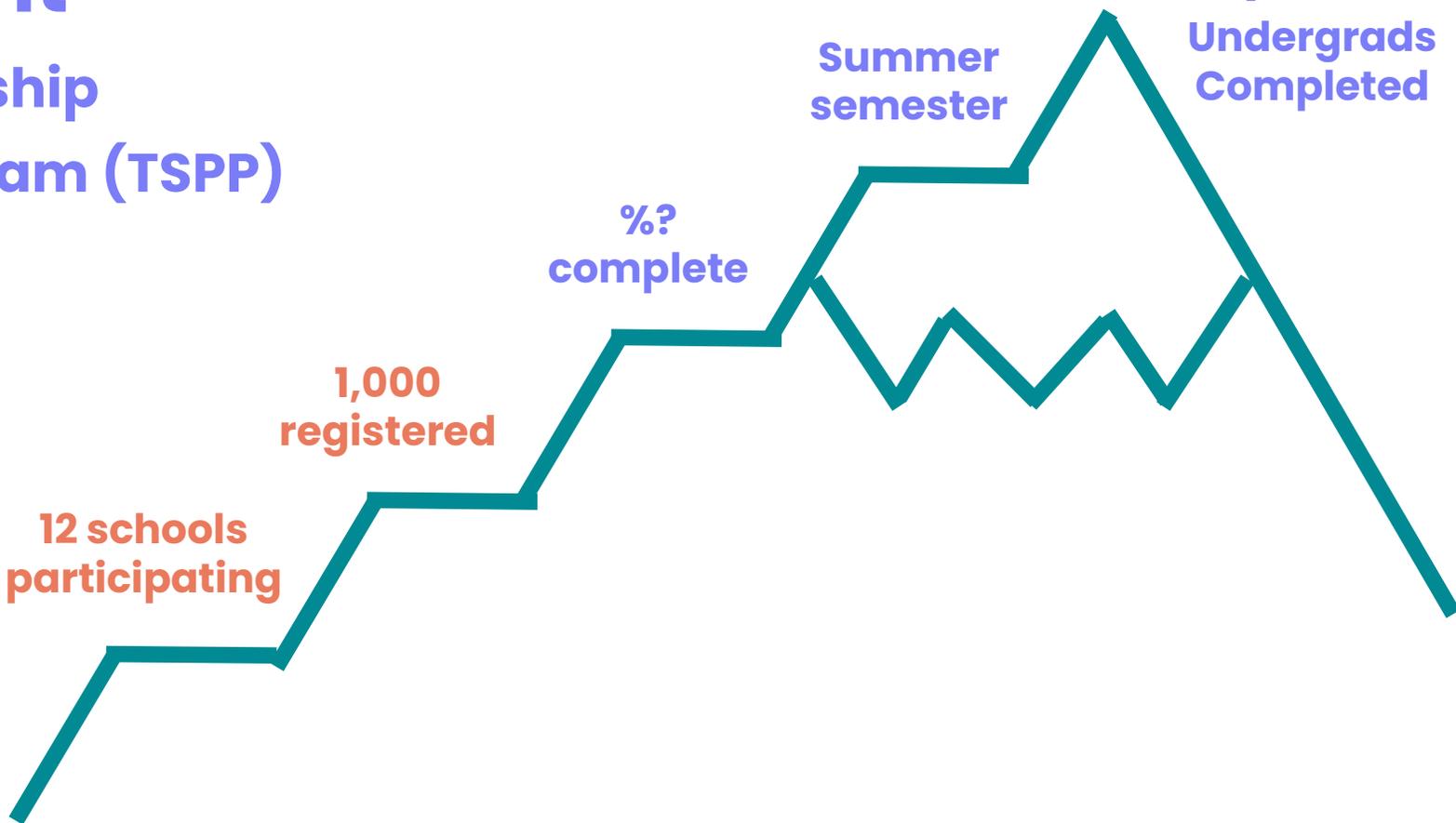
12 schools
participating

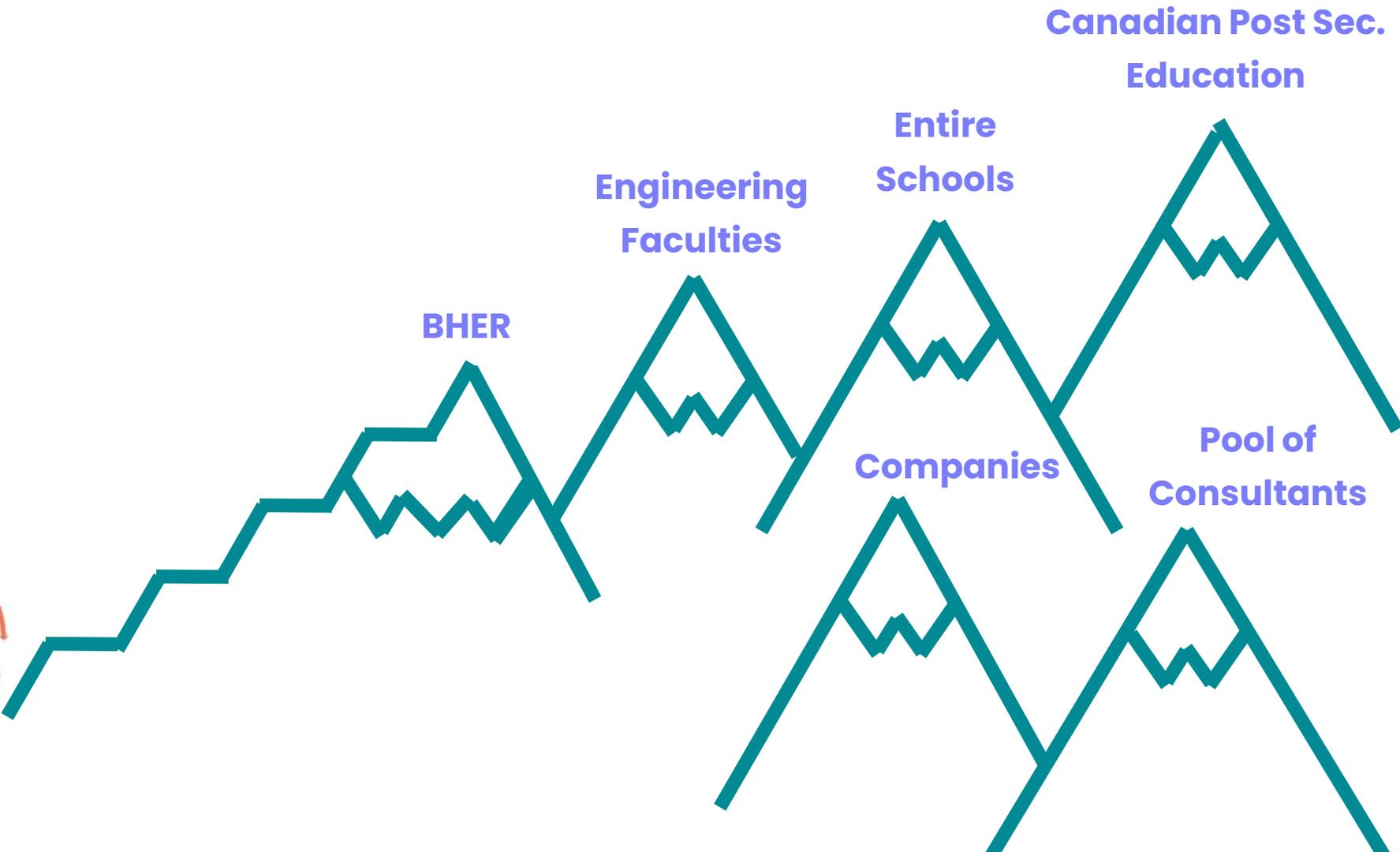
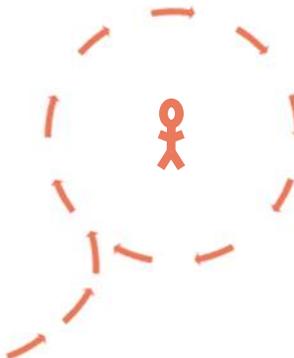
1,000
registered

%?
complete

Summer
semester

2,500
Undergrads
Completed





BHER

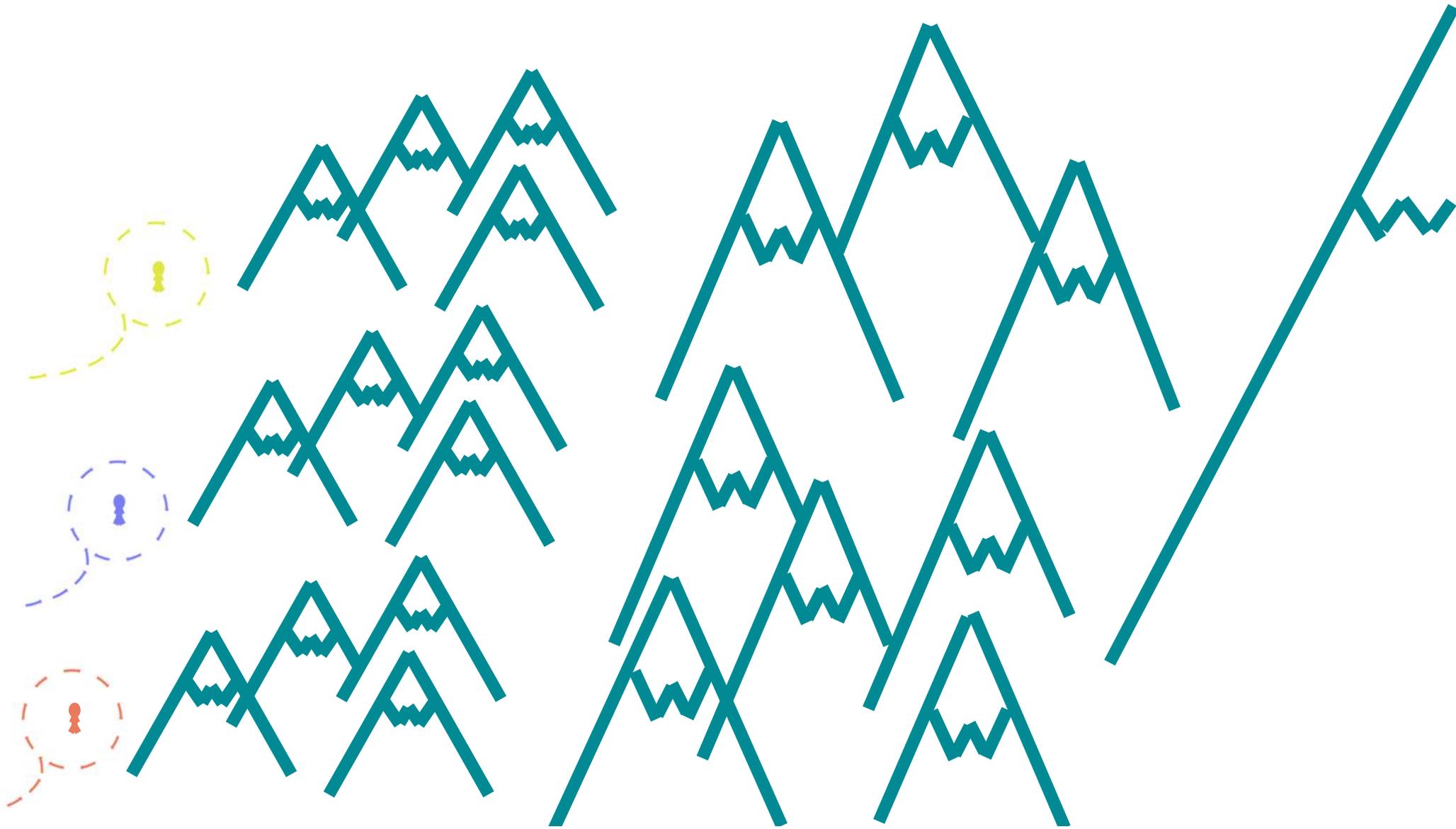
**Engineering
Faculties**

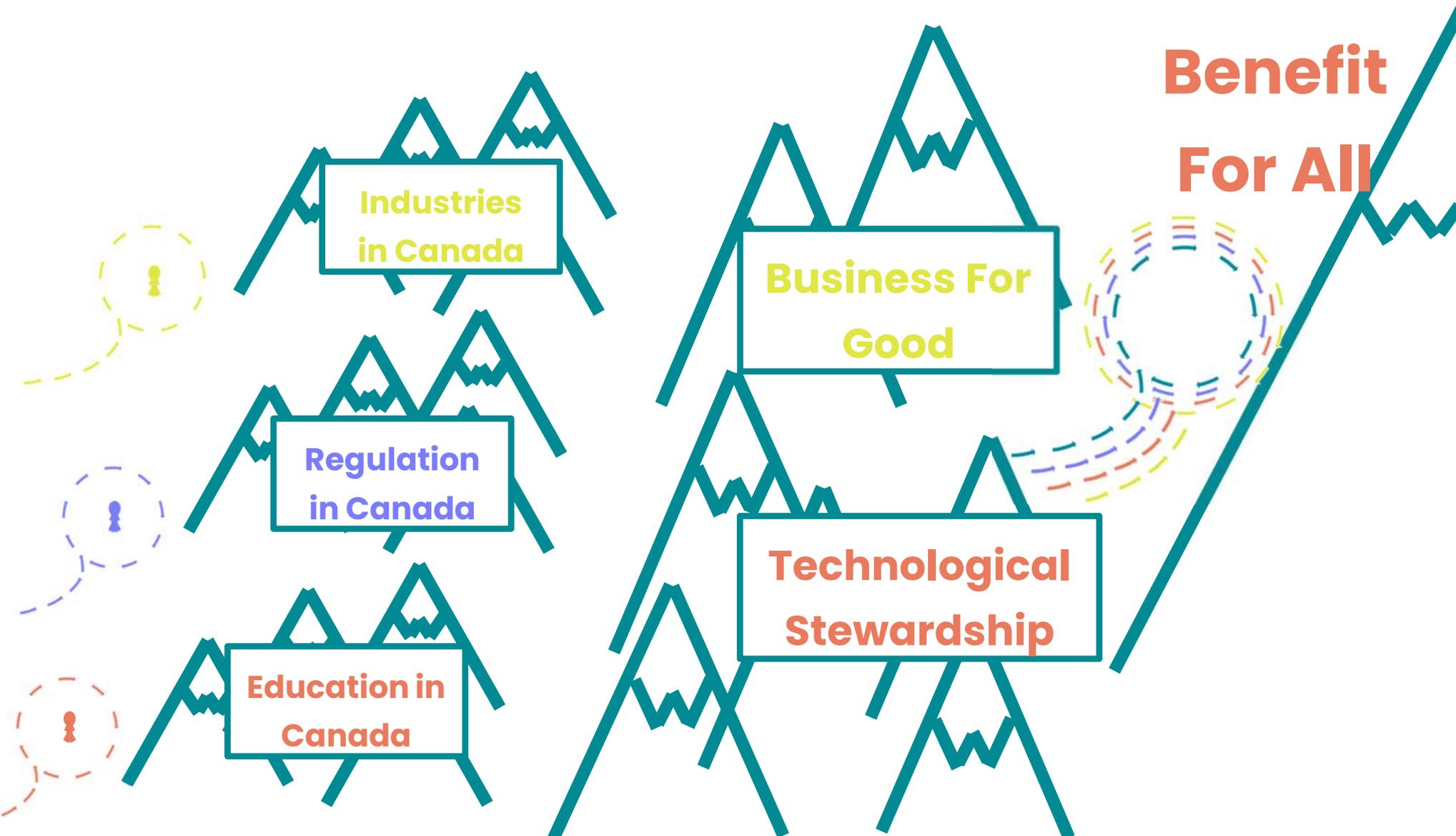
**Entire
Schools**

**Canadian Post Sec.
Education**

Companies

**Pool of
Consultants**





**Industries
in Canada**

**Regulation
in Canada**

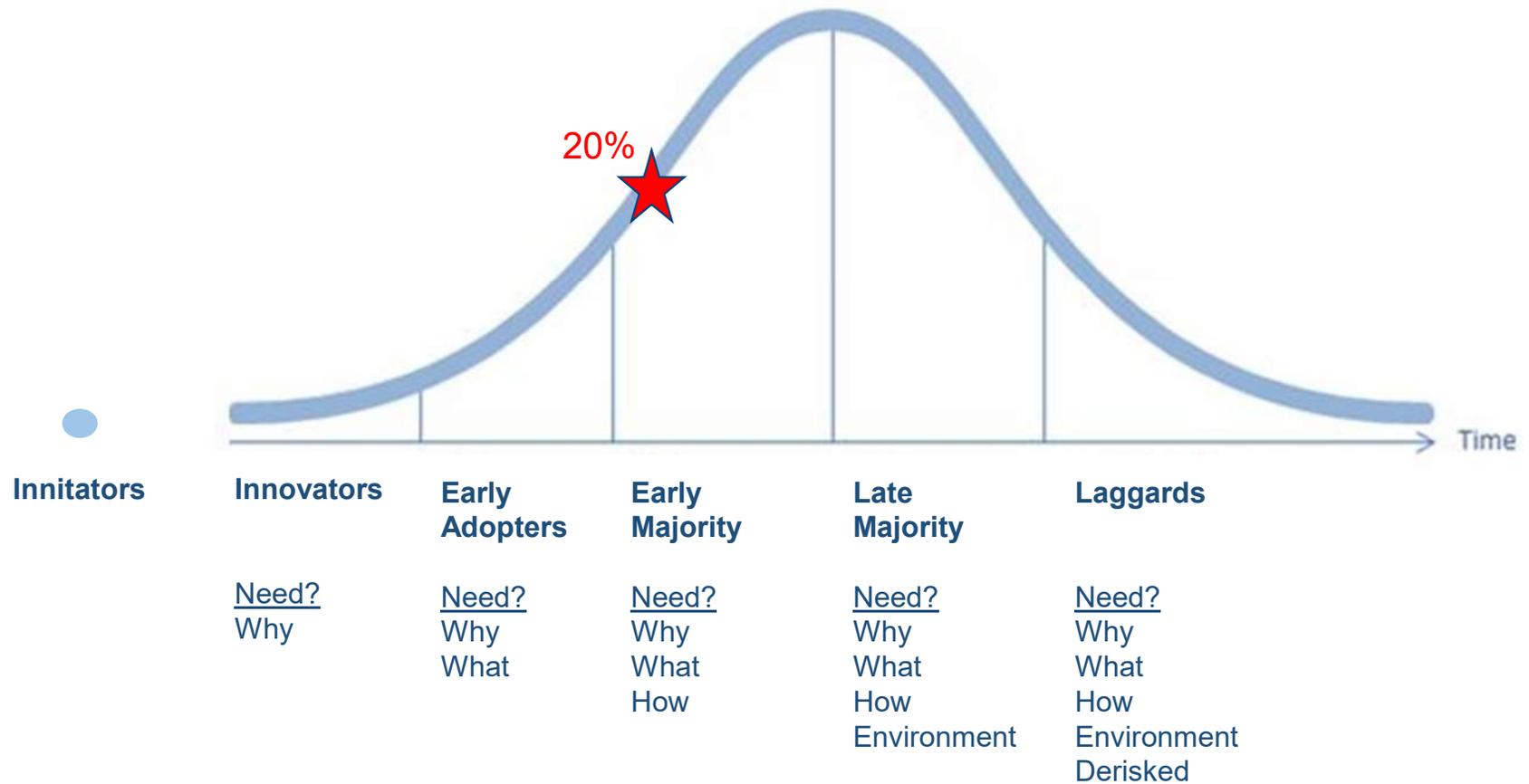
**Education in
Canada**

**Business For
Good**

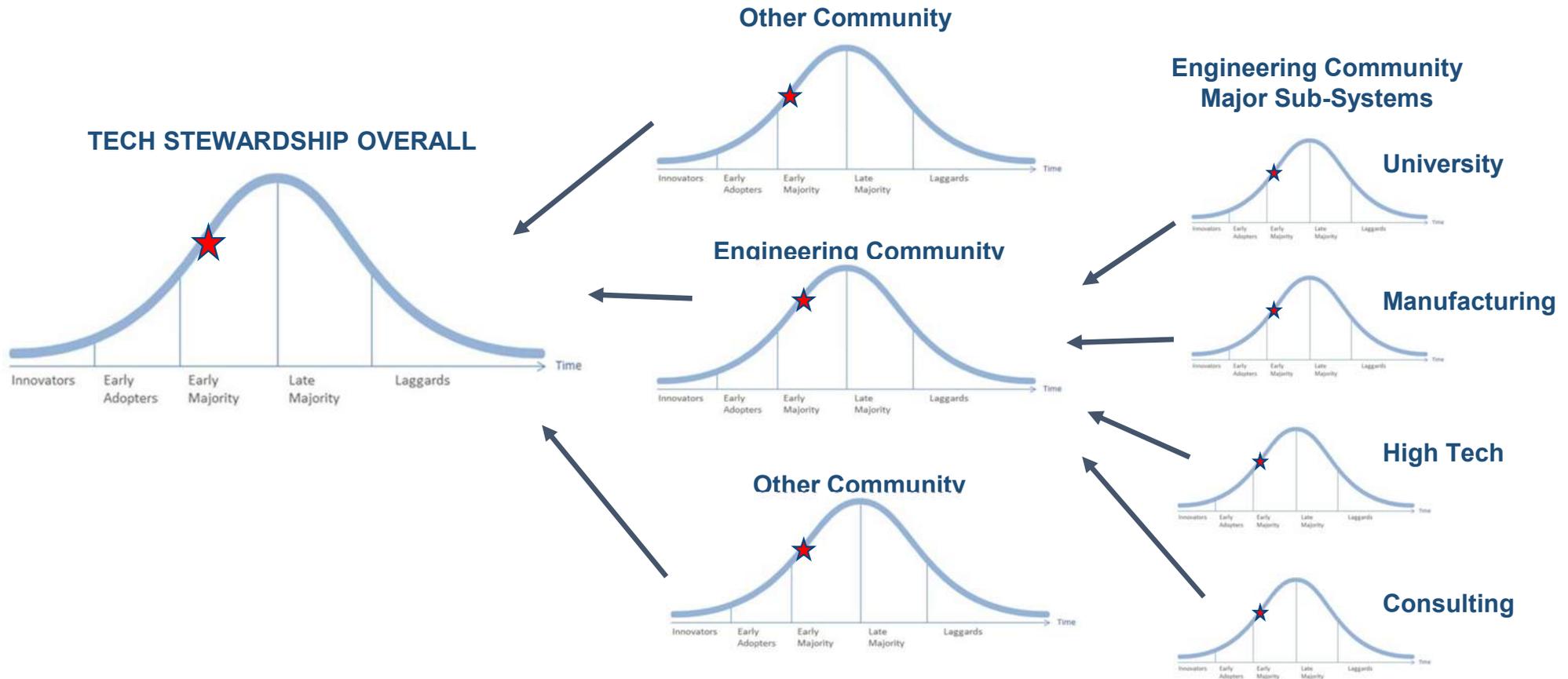
**Technological
Stewardship**

**Benefit
For All**

Innovation Adoption Curve (E. Rogers → Moore)



Visualizing The Change @ Different Levels



TS+ Core Commitments

Explore the three core commitments of tech stewardship: advance understanding, deliberate values, and practice behaviours.



TS+ Personal Stories

Tech Stewardship in action! Learn how individuals working in different contexts are integrating tech stewardship into their work.



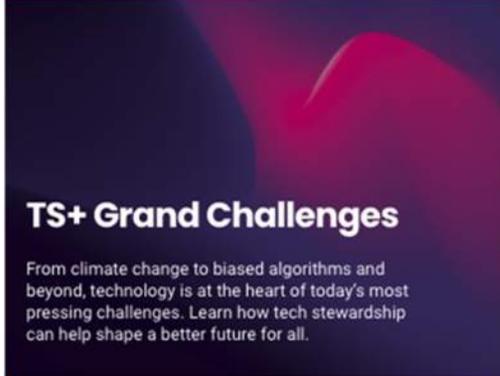
TS+ Aligned Initiatives and Organizations

Learn how leading teams are integrating tech stewardship into their cultures.



TS+ Grand Challenges

From climate change to biased algorithms and beyond, technology is at the heart of today's most pressing challenges. Learn how tech stewardship can help shape a better future for all.



TS+ Sectors

From mining to academia to banking and beyond, what are the unique tech stewardship challenges and opportunities facing different sectors?



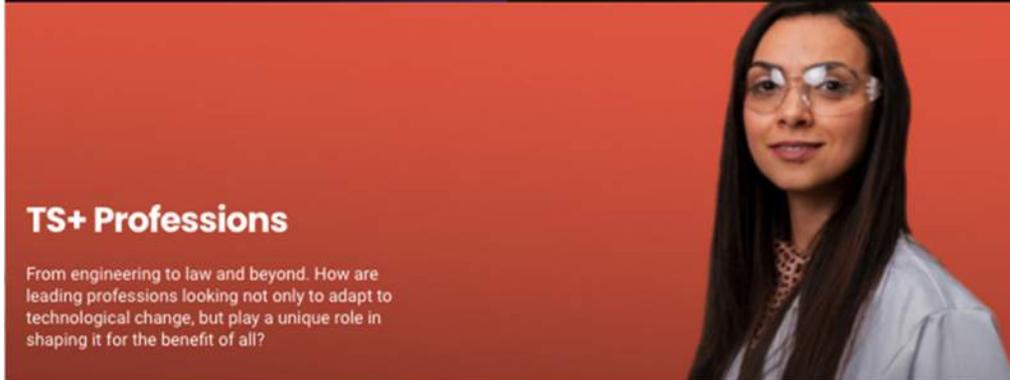
TS+ Specific Technologies

From AI to nanotechnology to CRISPR and beyond, technology is evolving rapidly. What are the unique tech stewardship challenges and opportunities related to specific technologies?



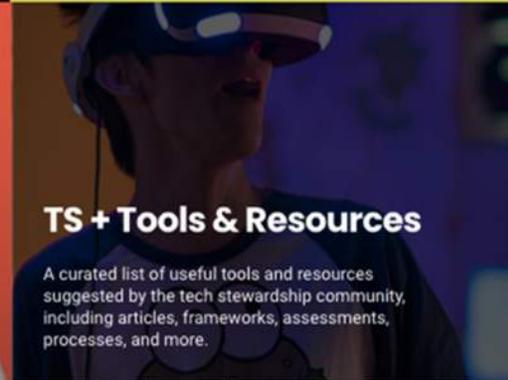
TS+ Professions

From engineering to law and beyond. How are leading professions looking not only to adapt to technological change, but play a unique role in shaping it for the benefit of all?



TS + Tools & Resources

A curated list of useful tools and resources suggested by the tech stewardship community, including articles, frameworks, assessments, processes, and more.



TS + Frequently Asked Questions



**Weaving just 40 hours of
tech stewardship practice
throughout the 4 years of the
undergraduate program of
all students will radically
transform engineering
for the benefit of all**

TSPP Post-Secondary Opportunity

- A. Promotion Partner** - offer the opportunity to your students
- B. Integration Partner** - integrate the TSPP into one or a few courses and programs
- C. Champion** - longer term strategic integration of the TSPP across faculties + visible leadership in the national movement

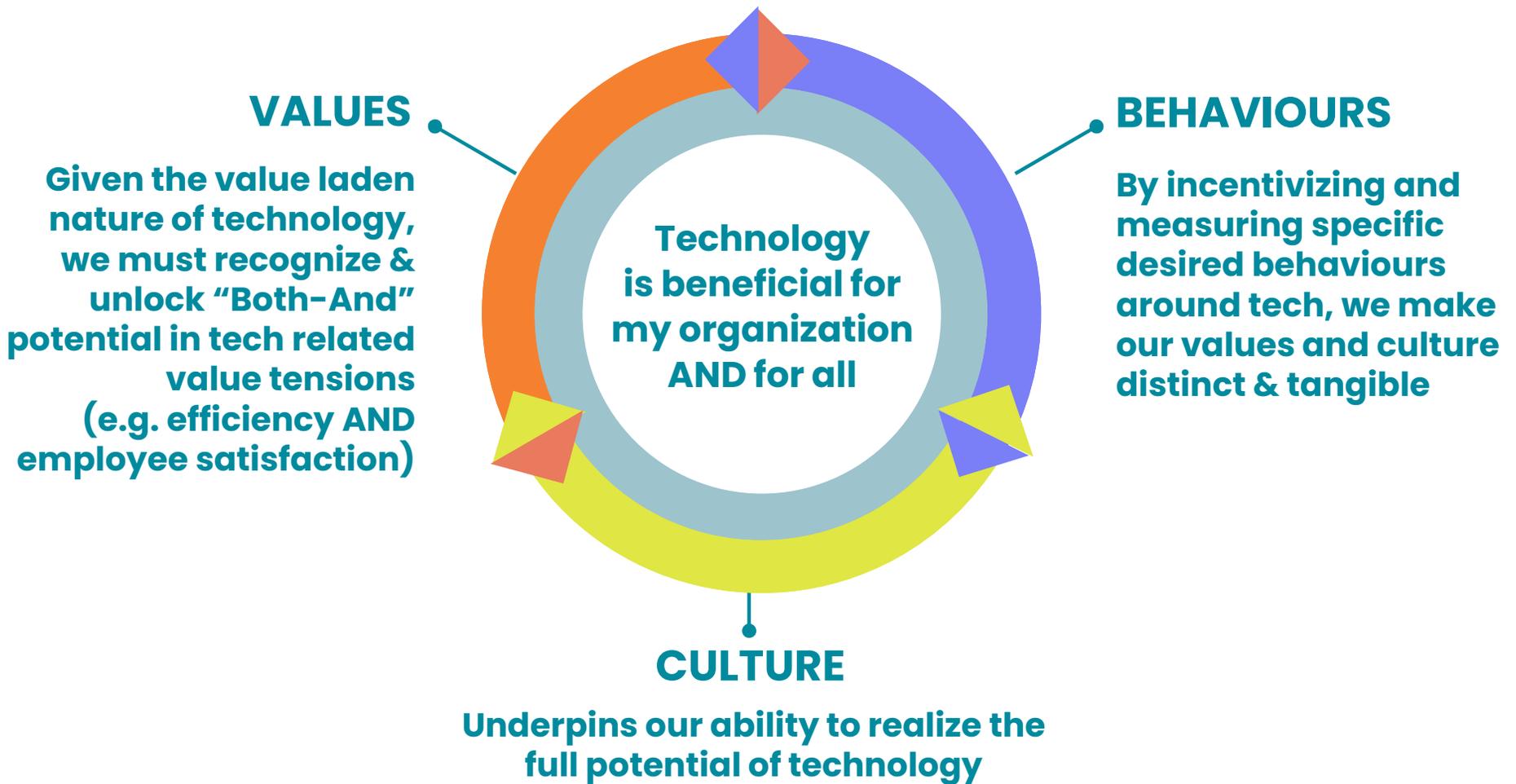


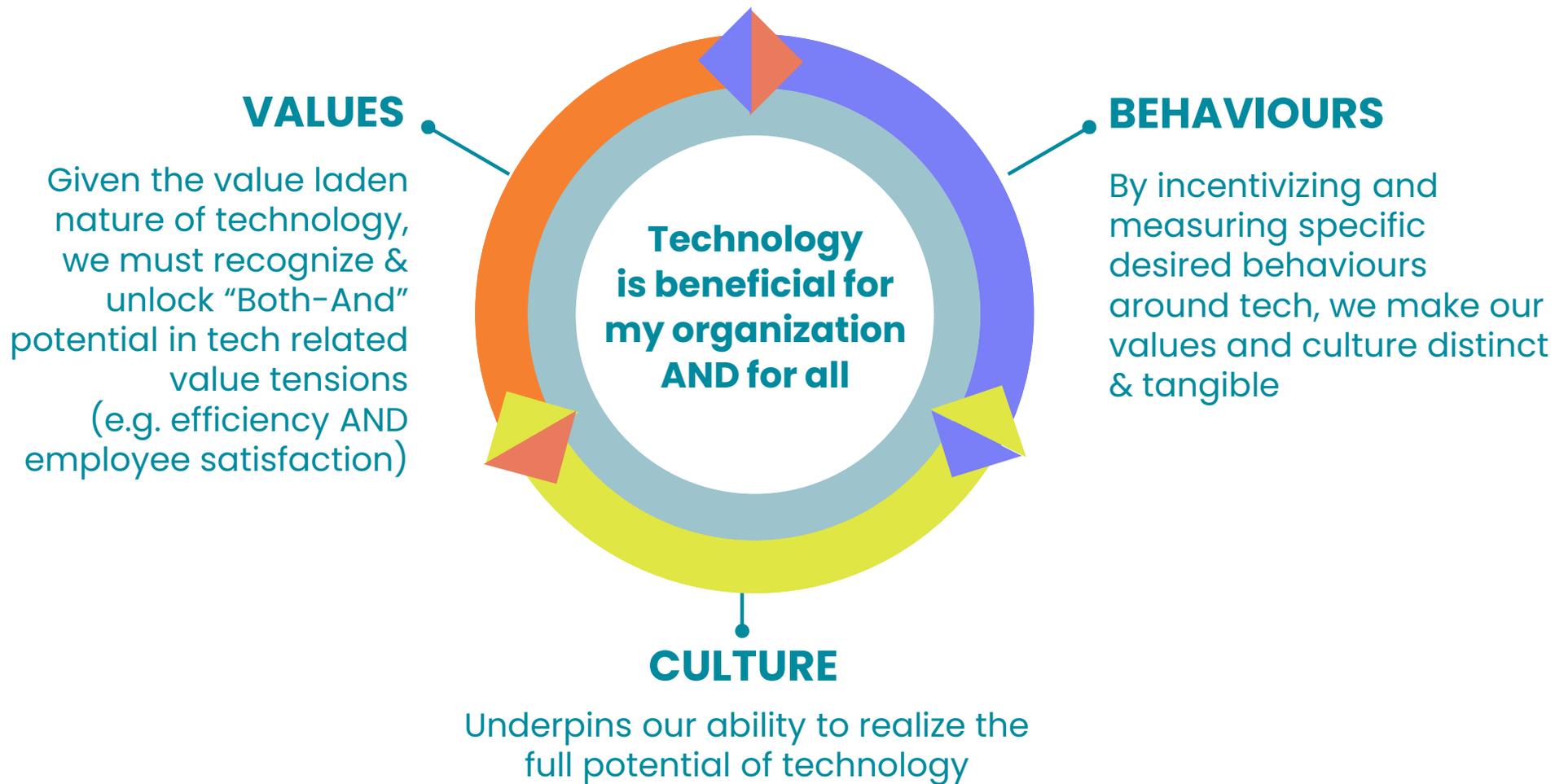
VALUES

Given the value laden nature of technology, we must recognize & unlock "Both-And" potential in tech related value tensions (e.g. efficiency AND employee satisfaction)



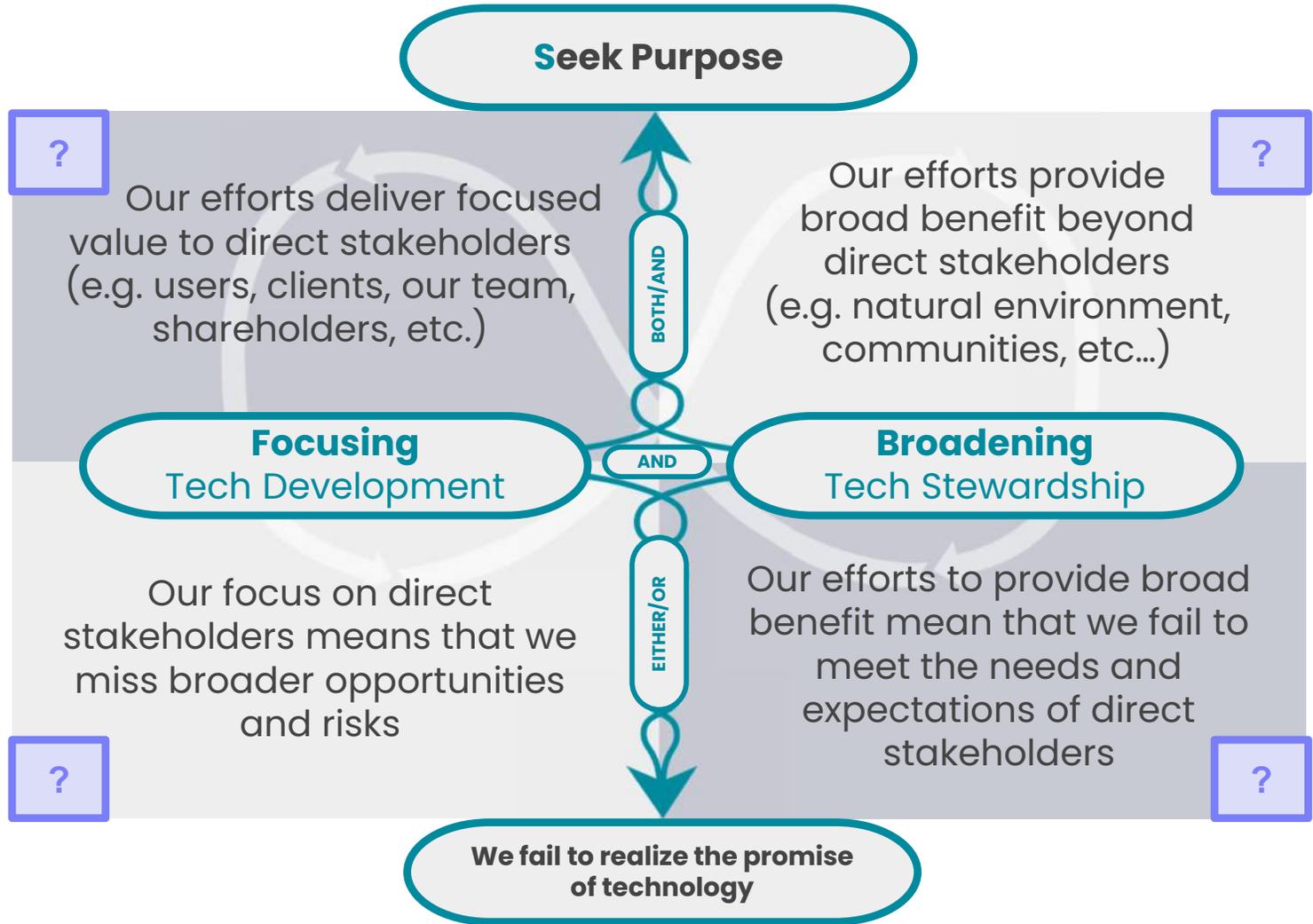






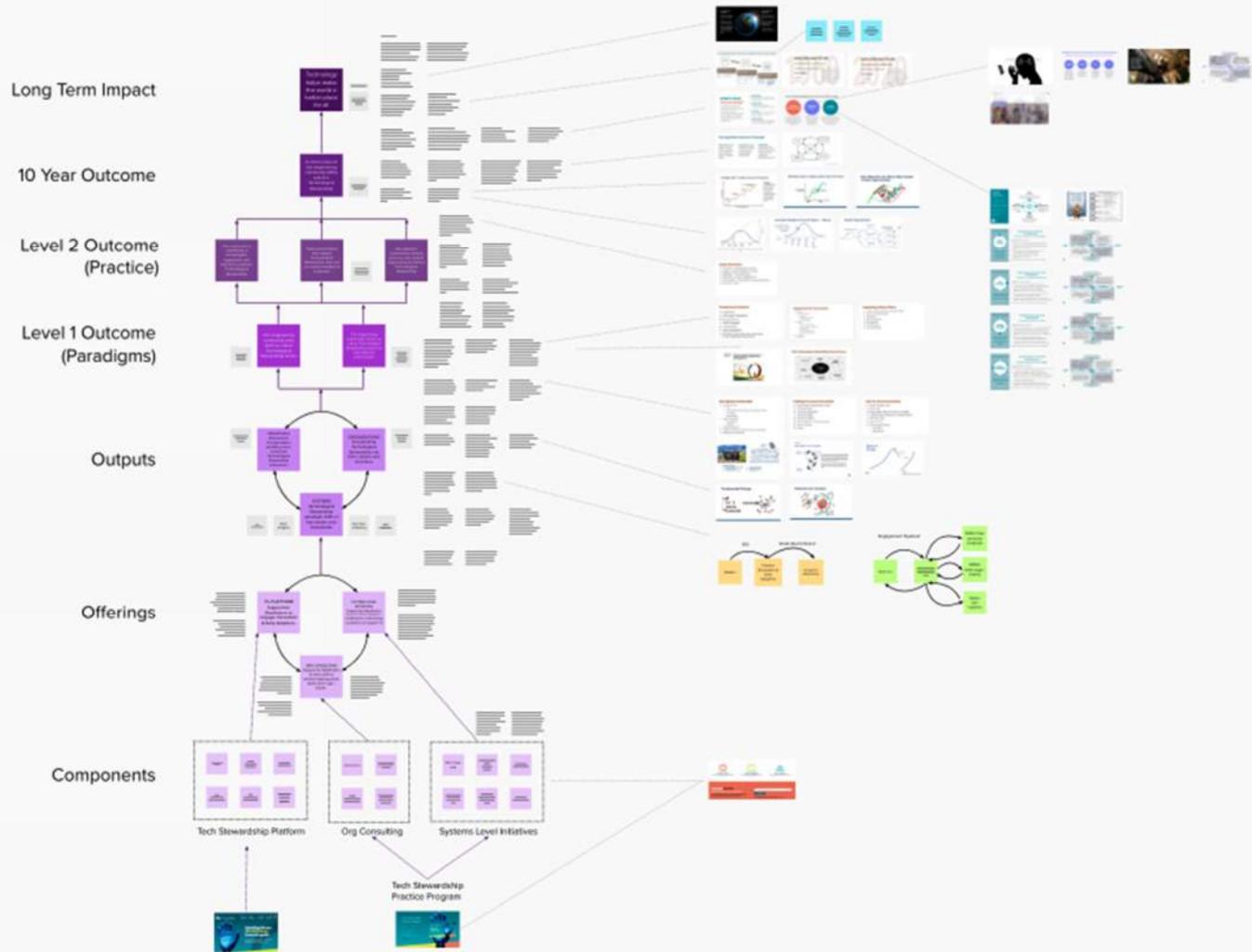
Rate each quadrant based on what you see in your team, organization, or community.

- 5 = Almost Always
- 4 = Often
- 3 = Sometimes
- 2 = Seldom
- 1 = Almost Never



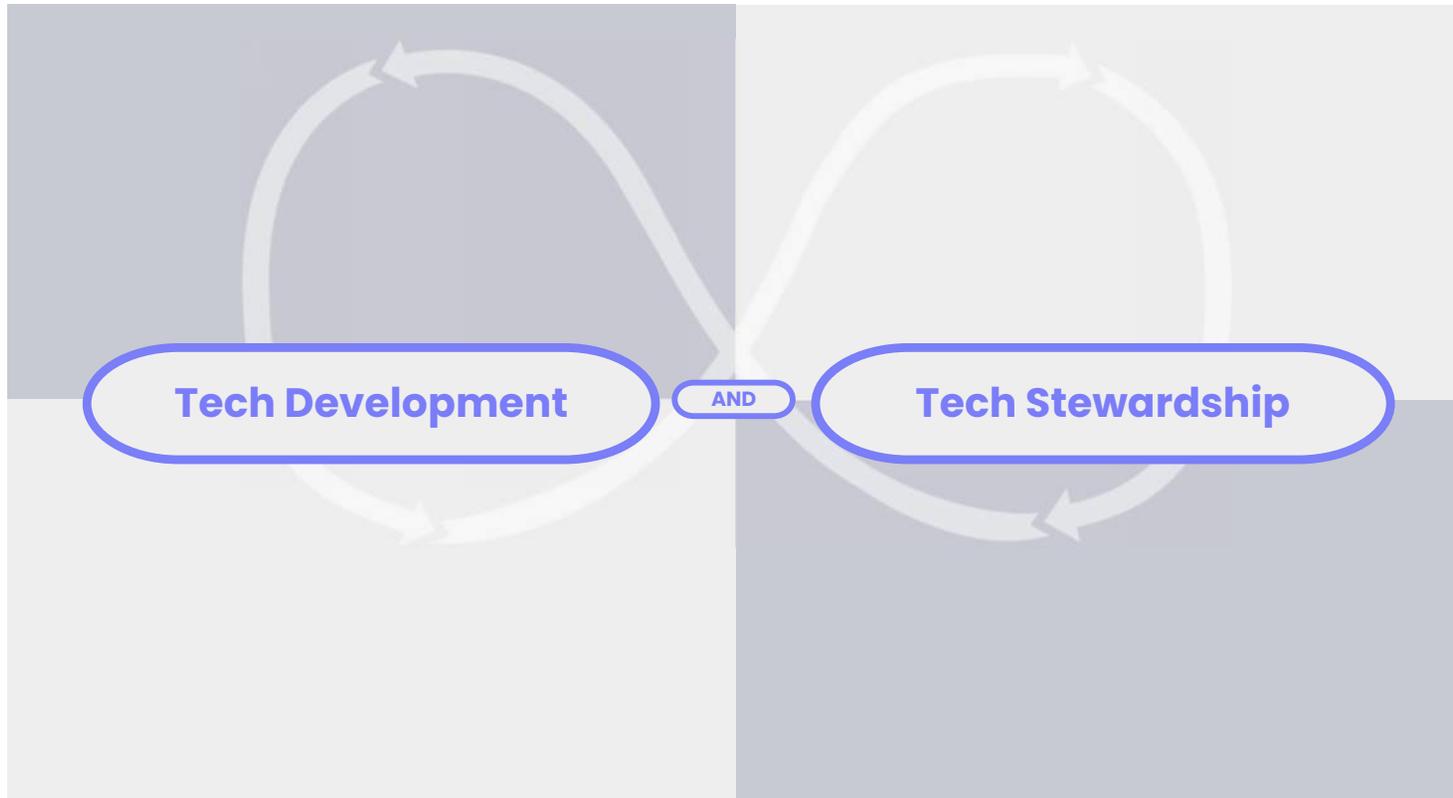


Engineering Change Lab Theory Of Change





**“Can we
do it?”**



**“Should we
do it?”**

Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Tech Development

AND

Tech Stewardship

“Can we do it?”

“Should we do it?”



Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Tech Development

Our tendency to jump to action too quickly in a myopic fashion results in unintended consequences and missed opportunities

AND

Tech Stewardship

“Should we do it?”

“Can we do it?”



Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Tech Development

Our tendency to jump to action too quickly in a myopic fashion results in unintended consequences and missed opportunities

Our **reflective** orientation and emphasis on **cultivating** systems allow us to make **broad** contributions to a **wide** range of stakeholders

Tech Stewardship

AND

“Can we do it?”

“Should we do it?”



Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Tech Development

Our tendency to jump to action too quickly in a myopic fashion results in unintended consequences and missed opportunities

Our **reflective** orientation and emphasis on **cultivating** systems allow us to make **broad** contributions to a **wide** range of stakeholders

Tech Stewardship

Our tendency to get lost in complexity and trying to ensure broad and wide benefits results in inaction and frustration

“Can we do it?”

“Should we do it?”



Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Our **reflective** orientation and emphasis on **cultivating** systems allow us to make **broad** contributions to a **wide** range of stakeholders

Tech Development

AND

Tech Stewardship

Our tendency to jump to action too quickly in a myopic fashion results in unintended consequences and missed opportunities

Our tendency to get lost in complexity and trying to ensure broad and wide benefits results in inaction and frustration

We fail to realize the promise of technology

“Can we do it?”

“Should we do it?”



Technology is beneficial for all

Our **action** orientation and emphasis on efficiently **utilizing** resources to achieve our **focused** purpose results in **deep** benefits for our direct stakeholders

Our **reflective** orientation and emphasis on **cultivating** systems allow us to make **broad** contributions to a **wide** range of stakeholders

Tech Development

AND

Tech Stewardship

Our tendency to jump to action too quickly in a myopic fashion results in unintended consequences and missed opportunities

Our tendency to get lost in complexity and trying to ensure broad and wide benefits results in inaction and frustration

We fail to realize the promise of technology

“Can we do it?”

“Should we do it?”

