



ENGINEERS
WITHOUT
BORDERS
INTERNATIONAL

ENGINEERING
CHANGE
LAB

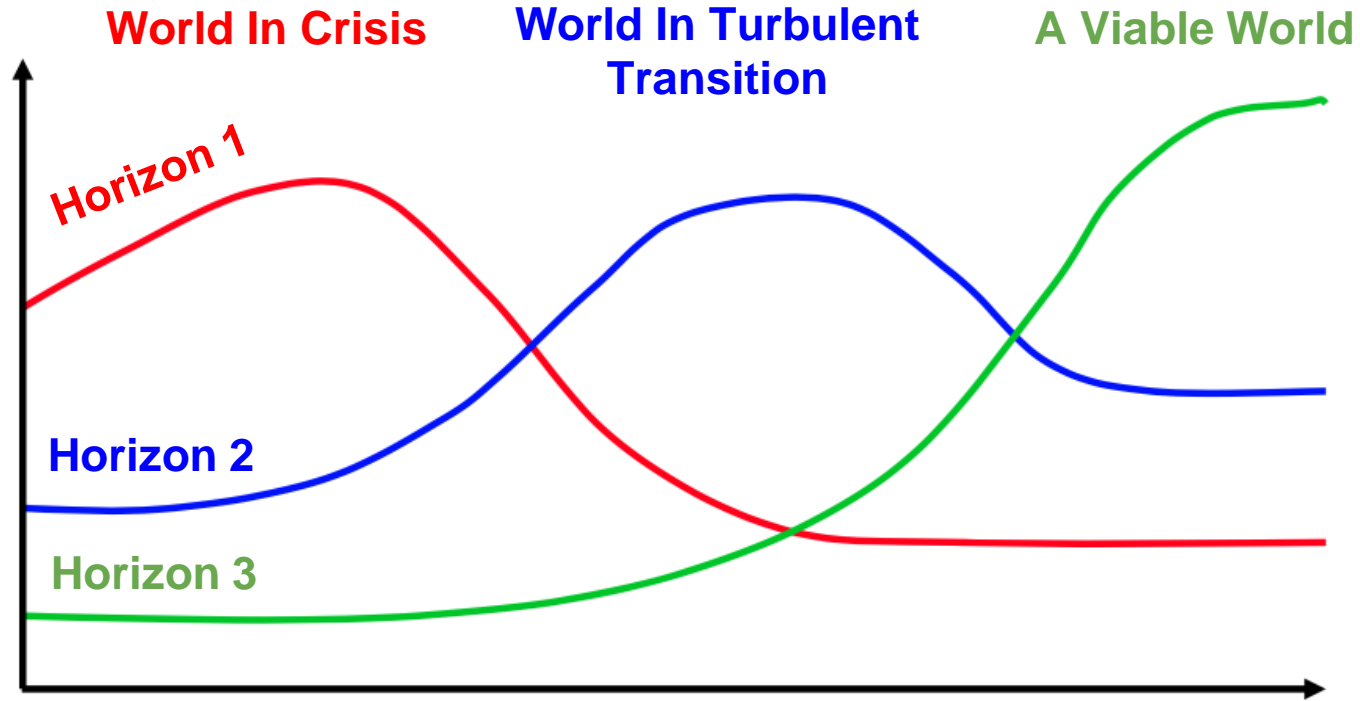


GACIP Summit Plus 2020

EWB International Open Letter on the Graduate Attributes

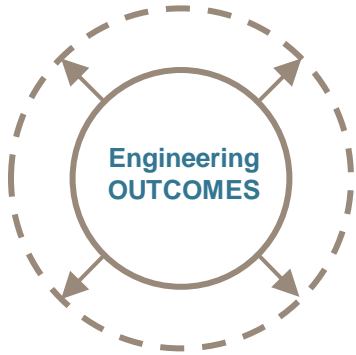
Presented by Mark Abbott, Engineering Change Lab

Context: Horizon 3 + What we educate



Context: IEA Consultation + EWB International

- Earlier this year, the International Engineering Association and World Federation of Engineering Organizations held a consultation on proposed changes to the Graduate Attribute and Professional Competencies benchmarks.
- The Engineering Change Lab represented EWB Canada in collaborating with Engineers Without Borders International on a coordinated response to the consultation and then followed up with an open letter.
- *“We applaud the proposed updates to the international framework on graduate attributes and professional competencies for engineers, and the recognition that engineers need to evolve in order to tackle 21st century challenges. But a key component is missing – to address this century’s complex problems, engineers must also be able to reflect on and think critically about the role of engineering itself.”*



Expanded understanding of the nature of the OUTCOMES of engineering

From

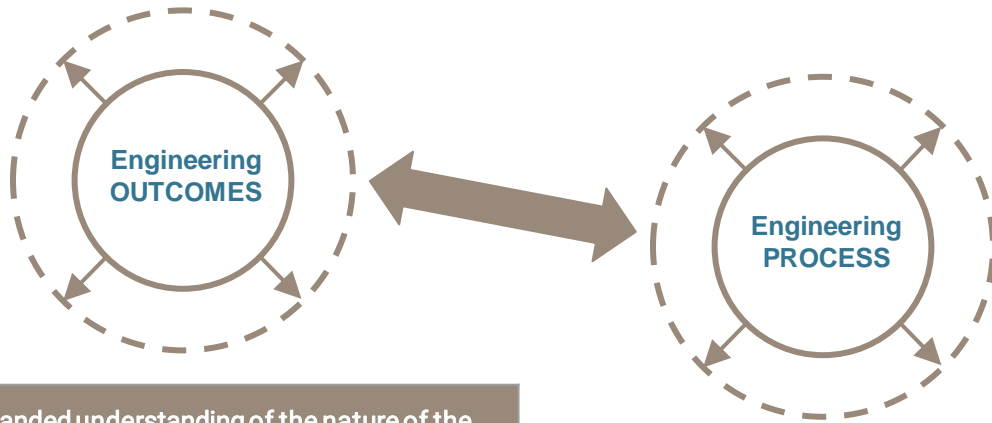
To

Neutral

-> Value Laden (not Neutral)

Artifacts

+ Social Construction

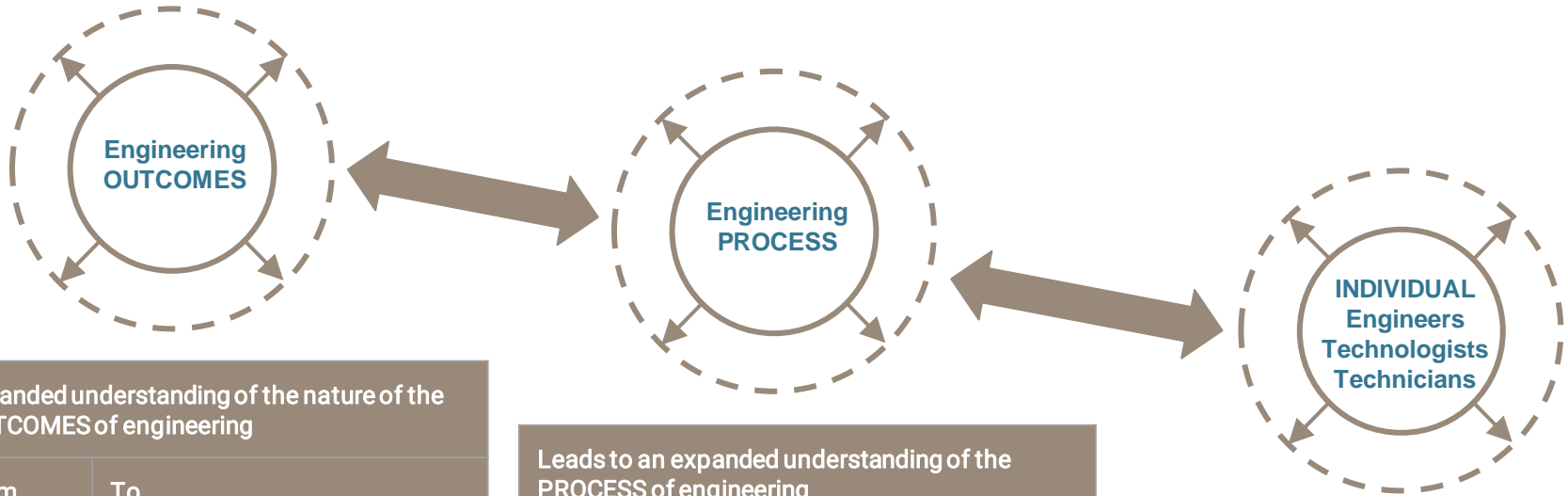


Expanded understanding of the nature of the OUTCOMES of engineering

From	To
Neutral	-> Value Laden (not Neutral)
Artifacts	+ Social Construction

Leads to an expanded understanding of the PROCESS of engineering

From	To
Right Answer	-> Best Answer (not Right)
Specialized	+ Integrated + Democratic
Micro	+ Macro
Analytical	+ Critical



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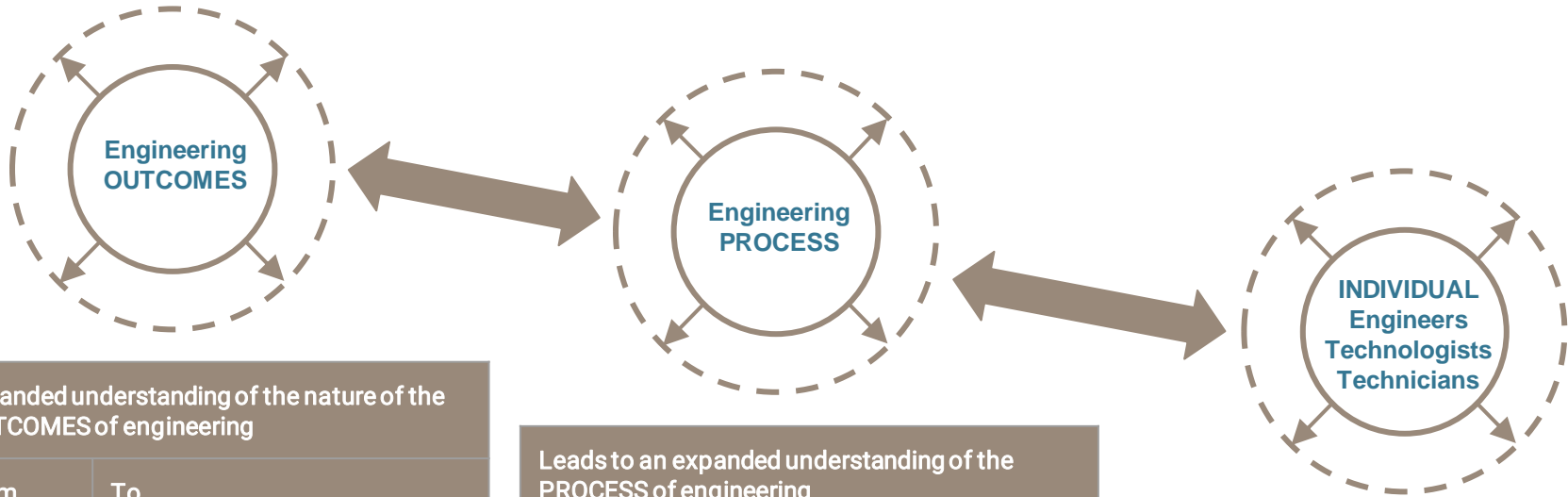
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Leads to an expanded understanding of the contributions of INDIVIDUALS

From	To
Default narrow interpretation of Graduate Attributes and Professional Competencies	More fulsome interpretation <u>founded on critical reflection about the role of engineering and its outcomes.</u>

Increased Benefit For All: a world that is more equitable, inclusive, just and sustainable



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GENDER

How the Imagined “Rationality” of Engineering Is Hurting Diversity — and Engineering

by Joan C. Williams and Marina Multhaup

AUGUST 10, 2017

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ISSUES
IN SCIENCE AND TECHNOLOGY

← VOL. XXXI, NO. 1, FALL 2014

PERSPECTIVES

The True Grand Challenge for Engineering: Self-Knowledge

BY [CARL MITCHAM](#)

Workshop Collects Individual Perspectives on Engineering Education

To what extent did (or is) your engineering education promote critical reflection about the role of engineering in society? *

Very Little 1 2 3 4 5 Very Much

Please explain:

Long answer text

What examples have you seen in engineering education of critical reflection about the role of engineering in society?

Long answer text

Section 3 of 7

Role of Engineering

Description (optional)

Image title

Key Argument:

As per EWB's Open Letter: "to address this century's complex problems, engineers must also be able to reflect on and think critically about the role of engineering itself."

Broad View Examples:

- How often were you engaged in significant conversations around questions like:
 - What is engineering?
 - What are examples of positive and negative impacts of engineering?
 - When is an engineering solution not appropriate?
 - How do I understand my personal relationship to engineering?
- How were you connected with research on the relationship between engineering and society? ie social impacts, unintended consequences, politics of engineering, values embedded
- Were you meaningfully connected to Social Scientists who study the relationship between engineering (or technology) and society?
- Were you introduced to different worldviews related to the nature of engineering and its relationship with society (i.e. Indigenous Worldviews)?

Next Steps / Opportunities To Collaborate

- **EWB International will likely soon be inviting non-EWB members (i.e. engineering faculties) to sign onto the letter.**
 - Let me know if you are interested in having your faculty sign
- **We have created a workshop to help students, professors and others associated with engineering education to engage with the core concepts in the letter and share their perspectives.**
 - Let me know if you are interested in running the session yourself.
(Note that the session would also yield useful feedback for your school)
- **The Engineering Change Lab is continuing to work on related efforts**
 - Email me if you'd like to discuss other opportunities
(markabbott@engineeringchangelab.ca)