CFES FCEG

Canadian Federation of Engineering Students | Fédération canadienne étudiante de génie

ENGINEERING CHANGE LAB – LAUNCHING WORKSHOP

|

LABORATOIRE D'INNOVATION SUR L'INGÉNIERIE – ATELIER DE LANCEMENT

By | Par

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TABLE OF CONTENT | TABLE DES MATIÈRES

Ce document n'est pas la transcription du Laboratoire d'innovation sur l'ingénierie ni une explication de ce qu'est un Laboratoire d'innovation. Pour plus de détails sur le processus qui a été utilisé durant cette fin de semaine, référez-vous au document Eng Change Lab Overview Document.

LAUNCHING OF THE CHANGE LAB | LANCEMENT DU LABORATOIRE D'INNOVATION

A social change lab is a place for the resolution of complex social challenges that involve a wide array of participants. The three main features of a lab are the social impacts it drives, their nature is experimental because the effort is continuous and repetitive, and their objectives are intended to be systematic rather than case specific. The subject of this lab was the future of engineering in Canada. The profession is losing popularity as well as competitiveness. Many different stakeholders met during the weekend, the list is attached. The objectives of the Engineering Change Lab are:

- Build a common understanding of the reality of the system
- Develop a first draft of initiatives to transform the system
- Continue the Lab, including a redefinition of the goal, the next steps and the engagements of the participants
- Experiment with the resolution approach in the Social Change Lab

PROGRESS OF THE WEEKEND | DÉROULEMENT DE LA FIN DE SEMAINE

The challenge resolution process progressed in three phases.

1) The observation phase
2) The understanding phase
3) The co-creation phase

To be more specific, the first phase is the opening of the mind towards a larger perspective in which challenges that will be faced are registered and a common language is developed between participants. The second phase focuses on immersion in the problem so that the initial understanding is reviewed and merged with the other participants' understandings. Finally, the third phase is where convergence of the ideas that led to a solution or several ways to address the challenge.

ISSUES RAISED | PROBLÈMES SOULEVÉS

Among the issues raised, the group notably mentioned a lack of professionalism and ethics, a negative perception of the profession by the public and even engineers, the general public and youth not knowing what work engineers actually do, a lack of competitiveness in Canadian engineering, a lack of a lack of leadership training, rigid and old-fashioned university courses, regulatory organizations that aren't evolving, and provincial professional orders rather than national ones that complicate mobility for Canadian Engineers.

Supplementary work was done by some of the volunteers to regroup these issues under several comprehensive categories. Several analysis schemes were made and are available in the complete report of the weekend.

INITIATIVES TAKEN | INITIATIVES PRISES

The initial group was divided into six sub-groups to develop experimental initiatives. Each group had a specific vision of solutions to apply as well as a different scope.

1) Communication Strategies (to change Perception)

This group was composed of several representatives from different sectors. The objective was to improve the communication network between industry, universities, regulatory bodies of the profession, and finally the general public. This was intended to be a response to the problem of public perception of the profession and to develop a sense of belonging in the profession.

2) K-12 Outreach

The idea was to make the engineering profession known to the youth. In addition to promoting certain well known jobs and profession, teachers would have the tools to inform students about this less known profession. The focus of this initiative was to have teachers (rather than engineering professionals) motivating future engineers and directing them to the engineering profession.

3) Diversity and Culture

The goal of this initiative was to promote attraction of minority groups in engineering through a mentorship program. It seems essential to have these models in place in this profession and that presenting female role models or role models from other minority groups could promote interest amongst young people. The same principle can allow the retention of these individuals in engineering programs.

4) Engineering Knowledge & Skills Alignment Lab

This lab acted to devlop an exploration platform for a new university curriculum for engineering students. The required courses according to the Canadian Engineering Accreditation Board (CEAB) are representative of the required qualifications to be an engineering in the 21st century. The objective followed was to develop knowledge associated to the engineering profession in addition to required technical knowledge. Specific changes to the curriculum weren't determined.

5) Community of Practice on Engineering Leadership

This initiative worked to improve opportunities for engineering students to become strong leaders and as well, for professionals to be able to get better leadership training.

6) Increasing Diversity in Engineering Student Population

This was the initiative I took part in. To find details on this, consult the conclusion section "Lab Continuation".

CONCLUSIONS & RECOMMENDATIONS | CONCLUSIONS & RECOMMANDATIONS

There are several types of recommendations that can be followed from this workshop. First, the continuation of work started by the participants, including my personal involvement in the initiative to break down barriers to Engineering Admission. Then, I have a few recommendations for future years of the CFES, the objectives to set for next year as well as possible solutions to some problems that interested us.

CHANGE LAB FOLLOW-UP | SUITE DU LABORATOIRE

CONTINUATION OF THE LAB | CONTINUATION DU LABORATOIRE

The participants of the Lab are committed to continuing this adventure. Missing players will be added that are considered essential for this pursuit and to the success of the initiatives started.

In coming weeks, detailed summaries of the six initiatives will be published. Action plans will be included.

The secretariat of the Lab will be held by Mark Abbott and Allen Stewart who will be in charge of putting the foot down on the future of the Lab thanks to an online exchange platform and a future meeting of the participants.

We should question ourselves as to what the CFES can bring to the table to help. What are its resources? Assuredly, many of those responsible for these initiatives will ask us to be their ally. We will have to do our best to help them if it relates to the work done by the CFES.

Given that I am personally inovlved, I would like to continue as the liaison on behalf of the CFES. If it is not the best interest of the CFES, we will have to do an effective transition so that the work done doesn't get lost.

INITIATIVE – INCREASE DIVERSITY IN THE ENGINEERING STUDENT POPULATION | ASSOUPLIR LES CRITÈRES D'ADMISSION

This is the initiative I am responsible for with Joshua Leon, Dean of Dalhousie University. My involvement will be limited however I am considered the assistant and responsible of it.

In brief, the goal is to accept more students into engineering coming from different backgrounds; students with less math and physics. This change in admission criteria would allow for a more varied type of students in engineering, increase diversity in programs and likely attract more female engineering students. Long term, the profession would benefit from becoming more diverse. Without detailing the full set of next steps, it is helpful to specify that this initiative is mainly under the guidance of the Dean. The Dean, in alliance with other groups, will be in charge of convincing local faculty councils the advantages of this transition. We will work cooperatively on this initiative with the group working on changing the engineering curriculum. Changing admission criteria is important but the path to becoming an engineer has to be engaging. This couldn't enter into effect before 2017 but the Dean of Dalhousie agreed to try the experience and convince other deans to do it.

CFES FUTURE | FUTUR DE LA FCEG

BILINGUALISM | BILINGUISME

The Engineers Without Borders Conference has given me several ideas on how to improve our bilingualism strategy.

First off, the Delegate Handbook was bilingual. The content in French and English wasn't exactly the same. The text follows everything will containing similar information, especially for introductions and thanks.

In addition, the speakers and presenters were often accompanied by a person speaking the other language which created a more dynamic presentation even though more organization was required.

Finally, what I believe to be the best idea was the CHAC (Comprehension Helpers/Aide à la Compréhension). These are bilingual individuals who wore a badge identifying them as facilitators to understanding of each language. I strongly recommend we adopt this idea for all our conferences and invite officers and delegates to identify as such. This would create a much more inclusive environment for all delegates.

For more information, please talk to Mark Abbott.

DIRECTIONS FOR 2015-2016 | DIRECTIONS 2015-2016

The CFES is in great power to improve the reputation of engineering in universities. All the participants of the conference noted the necessity to change the culture that prevailed in engineering both at the university level and in the workplace. In my opinion, we can collect more information on best practices. Not only by doing workshops but by publicizing them via our website, social media and maybe the Publication? In the same way, we should help other member associations to reproduce this success.

We should also look for more information from deans in administrations who have a lot to say. Both us and the member associations could look for construction criticism and potential solutions.

Many groups and organizations work on equality and inclusivity. I believe that we can find other partners that are interested such as NAPE – National Alliance for Partnership in Equity. I even believe that we should be looking into those that were invited to the EWB Conference. Maybe one of these groups would offer training on becoming a speaker on inclusivity/equality.

APPENDICES | ANNEXES

engineerscanada ingénieurscanada

From the office of the Chief Executive Officer / Du cabinet du chef de la direction

October 17, 2014

Mathieu Boutin-Delisle, President
Canadian Federation of Engineering Students (CFES)
737 Lasnie
Saint-Jean sur Richelieu, Québec 3B 4W4

Dear Mr. Boutin-Delisle,

Engineers Canada and Engineers Without Borders invite you to participate in the launch of an exciting new initiative - the Engineering Professionalism and Ethics Lab. The Lab will bring together 25 to 30 leaders representing a select group of organizations from all parts of the engineering profession in Canada: universities, associations, civil society groups, and companies. Together, we will build a "Change Lab" that will allow us to work together to unlock the full potential of our profession.

Change Labs are multi-stakeholder platforms created to address complex system challenges. The active participation of diverse stakeholders enables an experimental and systematic approach to designing solutions. The duration of a Lab typically runs for multiple years depending on the scope of its objectives.

Reos Partners (http://www.reospartners.com), world leaders in the Change Lab approach, will provide process strategy and design support. Reos has guided the successful launch of labs that have tackled a wide range of challenges, including, among others, accelerating innovation in the US electricity sector (http://www.rmi.org/elab) and developing the future of democracy in Brazil.

The Reos Partners team includes:

- Adam Kahane, author and leading organizer, designer and facilitator of processes through which business, government, and civil society leaders can work together to address such challenges. Adam played a key role in facilitating the Mont Fleur scenarios that brought opposing sides to the table to create a roadmap for South Africa's transition away from apartheid. His groundbreaking work was praised by Nelson Mandela.
- Monica Pohlmann, chair of the highly successful Natural Step Canada, a thriving non-profit organization focused on creating a sustainable society, who has over twenty years of experience in driving large scale social change.

Because of your organizations impressive leadership and dedication to improving engineering in Canada, we invite you to take part in a design workshop for the Change Lab during the Engineers Without Borders conference in Montreal from January 16-18, 2015. Over the course of these three days, we will work together to set the scope of the Lab's ambition, agree on a name, establish required commitment levels from participants, and discuss how we want to work together.

...page 2

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Engineers Canada is the national organization of the provincial and territorial associations that regulate the practice of engineering in Canada.
Ingénieurs Canada est l'organisme national regroupant les ordres provinciaux et territoriaux qui réglementent l'exercice du génie au Canada.

Joining the Lab will give your organization the opportunity to take a visible leadership role in helping to shape the future of our profession. You will make tangible and significant strides in enhancing the performance of our profession in key areas, such as, ethics and diversity and gain a perspective on the cutting edge of new initiatives and the leadership skills required for driving change in complex social systems.

Your minimum financial contribution to attend the design workshop will be your registration and travel expenses to attend the EWB conference. There are also opportunities for your organization to sponsor the overall EWB conference space, which will include open sessions focused on the engineering profession and will be an excellent opportunity to highlight your organization's leadership in the profession.

To accept our invitation to the design workshop, we ask that you nominate leaders from your organization to this initial convening event. This leader should have the following attributes:

- Ability to influence the actions of your organization
- Deep curiosity
- Passion for the engineering profession
- Ability and desire to commit the time required
- Comfort with ambiguity
- Trust in the process
- Links with other organizations and networks in the engineering profession
- Love of learning and desire to share their unique insights and experience
- Openness to the idea that if we want to change the system, we also need to see our role in it and be open to changing ourselves at some level.

We request that you only accept our invitation if you feel both your organization and the selected representative meet the bulleted criteria above. Our intentions for the workshop are to collectively develop a plan to create and participate in the Lab, and for the majority of the organizations and leaders who attend to commit to participation on the lab team and to continue to form the Lab.

If you would like to explore this opportunity further and discuss your potential involvement, please contact Allen Stewart (Allen.Stewart@engineerscanada.ca).

We have limited spots available and the participant list will be confirmed within the next few weeks.

Yours sincerely,

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