Consultation on the Future of Accreditation 2016

Question 1: The purpose of accreditation is to accredit Canadian undergraduate engineering programs that meet or exceed educational standards acceptable for professional engineering registration in Canada. Do you think that the purpose of accreditation should be broadened?

Response	Chart	Percentage	Count
Yes		38.9%	14
No		61.1%	22
		Total Responses	**36**

The 20 response(s) to this question can be found in the appendix.

Question 2: Should governance of the Accreditation Board be separated from the promotion and support of the accreditation system?

Response	Chart	Percentage	Count
Yes		45.5%	15
No		54.5%	18
		Total Responses	**33**

The 24 response(s) to this question can be found in the appendix.

Question 3: What do you recommend to increase trust between the regulators, the Accreditation Board, the higher education institutions and Engineers Canada?

The 35 response(s) to this question can be found in the appendix.

Question 4: What do you suggest to make higher education institution workload more manageable?

The 34 response(s) to this question can be found in the appendix.

Question 5: Do you see value in continuing with the mandatory use of the AU system?

Response	Chart	Percentage	Count
Yes		64.7%	22
No		35.3%	12
		Total Responses	**34**

The 31 response(s) to this question can be found in the appendix.

Question 6: What suggestions do you have to strengthen and support the change management process?

The 32 response(s) to this question can be found in the appendix.

Question 7: What barriers to innovation within programs exist? How might these barriers be removed?

The 33 response(s) to this question can be found in the appendix.

Question 8: How can the increasing demands on students be managed?

The 32 response(s) to this question can be found in the appendix.

Question 9: What do you suggest to make the workload of the Accrediation Board visiting teams more manageable?

The 33 response(s) to this question can be found in the appendix.

Question 10: How can we better articulate the benefits of accreditation now and in the future?

The 32 response(s) to this question can be found in the appendix.

Question 11: Many accreditation bodies have formal reviews, and consultation and implementation processes. Does Engineers Canada need to develop formal processes? If yes, select the key stakeholders:

Response	Chart	Percentage	Count
Deans		84.8%	28
Regulators		90.9%	30
Faculty		63.6%	21
Students		57.6%	19
Industry		81.8%	27
Parents		3.0%	1
Engineers		72.7%	24
Other (please list)		39.4%	13
		Total Responses	**33**

Question 11: Many accreditation bodies have formal reviews, and consultation and implementation processes. Does Engineers Canada need to develop formal processes? If yes, select the key stakeholders: (Other (please list))

#	Response
1.	Employers who can point to a rapidly shifting global workplace, and professional and technical societies.
2.	Public members
3.	See below
4.	Board of Engineers Canada, CEAB (anonymous self-review by each person on the CEAB)
5.	Public at large
6.	Education and assessment specialists
7.	general public and government
8.	Professional Associations such as chapters of CSCHE, CSCE, CSME etc.
9.	Government, non-traditional employers of engineers (e.g., financial sectors)
10.	Washington Accord representative
11.	VP research, VP academic
12.	Public member(s) and key stakeholders such as government
13.	Government (FED & PRO who fund education and deal with the poor outcomes), International Engineering Graduates

If yes, what are the key considerations for the consultation and implementation processes:

The 28 response(s) to this question can be found in the appendix.

Appendix

#	Response
1.	Accreditation is all about the students. They need a high quality education that will permit to generate wealth in Canada, in addition to safeguarding the environment and Canadians
2.	An increasing number of graduates with engineering degrees pursue careers outside the licensed engineering profession. Therefore, engineering education must provide its graduates with a broad education to solve the complex problems of society that require knowledge and expertise other than just technical skills.
3.	Beginning in 2000, the CEAB broadened its mandate by including the following in its Terms of Reference: "The quality and relevance of engineering education will continuously improve." Prior to that, the CEAB generally did not attempt to tell institutions how to meet accreditation criteria except by setting boundaries. The 2013 criteria deleted this goal but state that the criteria "are intended to support the continuous improvement of the quality of engineering education." The rules (criteria and questionnaire) for implementing continuous improvement (outcomes-based analysis, 12 required attributes, detailed requirements for indicators, rubrics, averaging the numerical data) go far beyond "support" by specifying considerable detail and increased workload for all concerned. I would not recommend further broadening of the purpose of accreditation.
4.	I personally feel that there is sufficient information concerning the purpose of the accreditation.
5.	The question is not clear as to what is meant by "broadened". The purpose of accreditation should be to accredit Canadian undergraduate engineering programs that meet or exceed education standards.
6.	I think that "educational standards" should be broadly defined to include aspects such as diversity. If we truly believe that a diverse profession is a better profession, then diversity plans, programs and successes at the university level should form a part of the accreditation decision.
7.	This question implies there is a need that remains unaddressed or under serviced. I suspect this questions is perhaps based on some under estimating or over stating of our accreditation capabilities and needs. If the idea is to perhaps extend the 'service' to provincial associations, employers and individuals the probability of failures would likely increase as coverage would inevitably thin out.
8.	I believe that the purpose of accreditation could be broadened so that, in line with the switch to the graduating attributes, it isn't simply about exceeding acceptable standards, but actually on developing good engineering graduates, that can serve the public etc. I believe it should definitely be expanded.
9.	Facilitate career success of graduates.

10.	The purpose of accreditation is as stated in the question but there is an inherent need to stay abreast of the needs of the 12 regulatory bodies in Canada as well as reflect developments in other countries especially those in the Washington Accord.
11.	If the focus of accreditation is broadened, it will become unfocused and could pose a major burden to academic institutions. I think it also could lead to stagnation of the profession over the long term where the profession itself will not be able to evolve and respond to the changing world around us.
12.	I feel that the purpose is correct as it stands, however it seems that the requirements for registration should include a broader perspective with respect to practical applications and extra-curricular activities that will better prepare the graduate for the needs of industry as soon as they graduate. This opinion is based on anecdotal evidence as follows: The labour market studies always show a shortage of engineers yet it seems that new graduates have a hard time finding work in engineering. Employers are reluctant to hire new graduates as they need a lot of direction for some time after they begin engineering work.
13.	The broadening of the acquirement and application of engineering knowledge is fundamental to the improvement of engineering as a whole.
14.	Les prérequis pour qu'un programme pourraient être élargis. Afin de prendre en compte des critères de qualité de l'éducation et de condition de vie étudiante aussi.
15.	I. Add educational outcomes as well as educational standards ii. Expand on what accredit means (the purpose of accreditation is to accredit is unclear) iii. Remove 'undergraduate' to allow future expansion if necessary iv. Refer to the partnership between educators and the profession and the need for engineering education to meet the future requirements of the profession, e.g. The purpose of accreditation of Canadian engineering programs is to ensure that they meet or exceed the standards and educational outcomes endorsed for entry to practice by the engineering profession in Canada; and to provide a forum for educators and practitioners of engineering to explore ways to best address the future needs of he profession through engineering education.
16.	The current criteria conflate what would traditionally be seen of as components of an "education" (e.g. knowledge, skills) and less traditional components, such as professionalism and exposure to practicing engineers. If the goal is to (e.g.) install engineering values in graduates then the purpose of accreditation needs to go beyond "education". Or at least be labelled as such.
17.	It should also be the expectation of engineering departments that they bring an understanding of basic engineering concepts, and engineering professional practice and responsibilities to a wider audience both within their university and to the general public
18.	Broaden to include internationally educated students and provide guidance on the institutions from which they received their education. Also extent to include accreditation of professors at a University to ensure they have the education and experience necessary to teach the science.

19.	to include degrees from overseas and those that wish to take part of their degree program overseas.
20.	I am really unsure. I would need to understand the issue or problem that is trying to be solved with changes. If it ain't broke, don't fix it?

#	Response
1.	When accreditation was created it was appropriate to be a "management board". The program has evolved and the role of policy should be separated from operations.
2.	The purpose of the Accreditation Board should be to consult with a broad range of stakeholders and develop rigorous accreditation criteria. Currently, it conflates that important task with vigorous representation of the interests of licensure.
3.	It depends, really. Since 1965, the relationship between the CEAB and the universities has been occasionally more adversarial than might be desired. One way to smooth relations would be to support the CEAB jointly. I could see having, say, two members of the CEAB appointed by the NCDEAS. However, in Canada (in fundamental contrast to our Washington Accord partners) accreditation is a part of the exercise of the statutory powers of the licensing bodies. This is the root of CEAB authority and must not be nullified.
4.	The accreditation system should be part of governance of the Accreditation Board
5.	It is difficult to answer this question yes or no. Promotion and support are separate activities. Is promotion for justification of the CEAB or for marketing (to whom?) of the fact that programs are accredited? The governance should be in place to support the accreditation process.
6.	In my view broad governance policies (such as the mandatory inclusion of diversity as an accreditation item) should be set at the Board level. All operational aspects of accreditation should be at the CEO level. I would personally favor a model where the AB and QB would report to and be accountable to the CEO, but subject to broad policy direction from the Board.
7.	I don't know what you had in mind specifically on what some of the possibilities are. If those two things were separated, the governing team will get out of touch with its clients.
8.	This question has multiple interpretations. In my view, at present the governance of the AB is in fact separate from the support part. The AB is overseen by the EC Board, that approves changes in criteria. The AB provides the expertise to propose meaningful changes to the criteria, and the EC Board validates that expertise - but the two functions work together. EC's Secretariat and staff provide vital support and promotion to AB and EC Board. Without this strong operational and logistical support there would be no EC Board, AB not QB. The AB has some operational involvement, namely when performing the visits that constitute the cusp of the comprehensive evaluation system for the accreditation of engineering programs.

	In conclusion, the governance of the AB is already separated from the promotion and support of the accreditation system. The system as is works, although there is room for improvement: in particular, it is essential to increase the information flow to regulators and the transparency of procedures and processes with all stakeholders. The consultation process should not be a one-time instance, but it should be continual, just like program improvement.
9.	This should not be separated as it would lead to a more 'political' type structure rather than a functional driven system.
10.	This is a leading question. The Accreditation Board is in the best position to promote the accreditation system. The "support" aspect needs to come from the sponsors - the Reglators. The Regulators provide that support through their support of Engineers Canada.
11.	CEAB should report to Engineers Canada but accreditation decisions should be made at arm's length from Engineers Canada
12.	Not sure I understand this question. Governance of accreditation board by Engineers Canada board could be through the executive director, difficult for one board to manage another. Although the accreditation system is coupled to the governance of the AB these are two separate issues.
13.	The governance of the Board must consider new perspectives, new considerations. They should review occasionnaly the process and tools used for the accreditation. The promotion and support of the accreditation system should be more stable over time. The tools (questionnaires, visitor training kit, etc.) should not change so frequently and must be ready at a reasonnable time (too many delays these past years).
14.	The question is unclear. The Accreditation Board should be responsible for development and application of policies and accreditation criteria. The AB ahould act in the interest of the Regulatory bodies. The AB should be accounatble to the EC Board as to the level that it is fulfilling its mission. The AB shold be responsible for conducting accreditation visits and accreditation decisions. The CEO office should support the AB in that role. The AB needs a mechanism for regular consultation with the Regulatory bodies.
15.	I think that the role of the accreditation board should be to act as a bridge, acting on behalf of Engineers Canada, between regulators and higher education institutions to establish agreement on accreditation criteria and to support the evolution of those criteria over time as the profession itself changes. The process of assessing the accreditation of institutions should be an administrative function where Engineers Canada should mobilize the auditors etc. who will carry out the assessment and report back to the Accreditation Board where a recommendation will be made based on the results of the audit to Engineers Canada. The latter will then render the final decision. Much like in many institutions (where you have a Board, an Audit Committee, and an authorized Auditor), those that set the parameters of the

	audit and receive the audit reports should be separated from those who conduct the audit.
16.	Engineers Canada should play a larger role in the governance of the Accreditation Board.
17.	The Accreditation Criteria and Procedures document is policy so should definitely be under the purview of the Engineers Canada Board and should NOT be under the CEO. On the other hand, resourcing and supporting accreditation visits is a CEO function that can be delegated to the CEO under the condition that there is an Executive Limitation in the EC Board policies that will not allow the CEO to change the makeup or work of the Accreditation Board.
18.	We don't understand the question. We were not aware there was promotion for the accrditation. In Quebec to be accrditated is a requierment to be listed in the regulation (for the graduates to access the profession easyli), there is no need for promotion.
19.	The two go hand-in-hand. I don't see a reason to separate them.
20.	Not sure what this question is getting at - I need more information to answer.
21.	In the same way that in Ontario the PEO is separate from OSPE.
22.	To avoid conflict of interest, or perceived conflict of interest, separate into two functions - operation of the system and governance by a committee not directly involved (like a BoD).
23.	not sure how it works. So long as there is no possible conflict of interest leading to a lowering of standards across the board.
24.	Have no idea.

Question 3: What do you recommend to increase trust between the regulators, the Accreditation Board, the higher education institutions and Engineers Canada? |

#	Response
1.	A regulators liaison committee that meets twice per year with DLC and AB.
2.	Add 21st century employers to the mix, e.g., Google Canada, Tesla Canada, Bombardier, Ford Canada and so on at a level beyond simply regulation. Employers are adamant that educational institutions should produce leaders but the AB and regulators continue to conflate competency with content. The two are very different.
3.	Communication principally: Here are some examples: 1.Having a couple of NCDEAS-appointed board members might be feasible. 2. The dean of each institution considered in the June CEAB meeting used to attend, describe their institution, and answer questions, and thus would obtain a sense of CEAB thinking. The deans didn't like having to wait indefinitely while the CEAB then deliberated and voted, and CEAB members observed that, at times, the dean could not answer the questions; consequently, deans stopped attending. Attendance by conference call with knowledgeable people including the dean present could improve understanding and information flow. 3. In the past, the number of 6V, 3V, 3R, etc. decisions taken yearly used to be summarized in what is now called the Policy and Procedures document. This allowed institutions to see what their chances for obtaining each kind of decision were. In recent years, this information was no longer available and the CEAB began to be seen as a secretive body although, from time to time, the information has been put on the Engineers Canada website. Such information should be consistently and readily available to institutions.

4.	Each stakeholder group should have representation on the Accreditation Board
5.	That communication is transparent for all parties involved, that there is a feeling of respect, there point of view taken into account.
6.	Meaningful dialogue in which the regulators are equal partners with the HEIs and the CEAB
7.	Have a frank discussion around what the objectives are for the accreditation process. In following the recent discussion, it appears that different stakeholders have different opinions. More consensus building would be helpful. "Trust is not given, it is earned."
8.	Remove the Engineers Canada Board from any operational aspects of the AB and QB.
9.	Get rid of all unknowns. You can ask an HEI to meet a requirement only if that requirement is clearly defined and it is clearly laid out (in advance) how it will be measured. If you can't provide both of those things, then you can't make it a requirement (i.e. a critera). If a program fails to get accredited either the HEI was intentionally not listening to what is required (highly unlikely) or the requirement was not clearly communicated with mutual understanding confirmed (more likely).
10.	There are no regular meetings amongst the parties, and no formal training of engineering faculty in the Plan, Do, Check, Act system. Regular and formal training in quality systems would seem a good first step.
11.	See Question 2: a deliberate, responsive and disciplined process of consultation involving all stakeholders. The responsiveness of the process is of capital importance: providing rationales for decisions may be difficult, but it is important to ensure that everyone understands the principles and processes involved in the accreditation process, and that everyone is heard and acted upon - even if such action is simply a reconfirmation of the principles.
12.	What kind of question is this. :) Regardless, I would start with consistent demonstration of morals, integrity and care of our common good. Striving for self interest and political power rather than respecting and working together towards or common goal does little to accomplish what we need, or intend.
13.	Regulators should have less control over whether or not to accept. If they have control over the board, they should be willing to accept the recommended outcomes.
14.	Regular, frequent communication (as has been happening already). I suggest, in particular, that the AB ensures that professional regulators understand the accreditation criteria (especially AU). As a staff member heavily involved with accreditation I have been privy to conversations between ECAB, deans and professional regulators, and it seems that professional regulators do not quite understand the AU criteria (especially the minimum path). This seems to be blocking willingness to make the AU criteria more flexible.
15.	Follow proper implementation strategies when pursuing a new outcome-based assessment process... issuing vague reporting and measurement criteria with a new accreditation system undermines it's credibility. The results of the outcome-based assessment process currently do not have sufficient consistency to allow regulators to have confidence in the

	validity of the results
16.	I do not know any tangible changes that could be made to increase the trust, but I believe there should be a recognition of mutual benefit and shared goals. All of these organizations are working towards a better engineering present and future, and although there may be some differences of opinion, the overall goal should be the same and recognized as mutually beneficial for each organization as well as society as a whole.
17.	The Accreditation Board should serve a feduciary position to the Regulators and seek the input of the regulators relative to their needs. The higher education institutions can act in a consultation role.
18.	Transparency, accountability and communication. There needs to be mechanisms to ensure everyone is up to date with advances in engineering education practice.
19.	Level of trust between AB and HEI is good. More communication between regulators and AB/HEI. Possibly EC Board can play a role. EC board could gain a deeper understanding of accreditation process and evolving nature of engineering education and communicate this to regulators.
20.	Annual cunsultation meetings
21.	More concertation! We're all seeking the same goal: to garantee that new engineers are ready to embrace their profession and ensure public safety. Presently, I have the feeling that regulators are watching at what institutions are doing, that AB is doing the work on their own way, that the education institutions are fighting both regulators and AB!!!
22.	Provide a clearer communication link with the Regulators. Each of the Regulators has a unique structure but each of them could work to provide a voice to consults with the AB. An example is a means to structure something like the National Admissions Officials Group (NAOG) to act as a client group f to the AB.
23.	Trust can only be built up by regular interaction between stakeholders where they are asked to work together on issues of common concern. Trust can also be achieved by arriving at a series of agreed upon expectations for what is wanted out of the accredit ion process by all those involved (regulators, institutions, Engineers Canada, industry). And, finally, I think that trust can also be enhanced by establishing clarity on the respective roles of the stakeholders (e.g., institutions must not presume to tell regulators their business and regulators must not presume to tell institutions how to go about the business of education).
24.	More shared responsibilities and clear terms of reference for i) these 3 individual bodies, and ii) their interactions.
25.	An annual or biennial conference such as is being held this August which includes the Accreditation Board, the Regulators, Industry, the Deans and students.

26.	HEI and NCDEAS should not be invovled in the decision making process about the accreditation, they are in conflict of interest.
27.	Keep the kind of communications that is currently going on now ongoing. Conversation brings out difference of opinion (and potential controversy), and the need for understanding.
28.	Je me permet ici une comparaison entre la profession de génie et quelques autres professions pour expliquer mon point avec quelques exemples. (NB : Maxence Lenoir, un de mes prédécesseurs à la présidence de la CRÉIQ, est celui qui a recensé plusieurs de ces exemples et recommandations) GÉNÉRALITÉS : L'influence qu'exercent les ordres, ou les bureaux d'agrément, sur les programmes varie d'une profession à l'autre. Leur rôle est toutefois toujours le même : harmoniser la formation aux compétences nécessaires pour exercer une profession. Cette collaboration n'est toutefois pas toujours fructueuse. D'une profession à l'autre, la collaboration des partenaires en ce qui a trait à la formation dépend grandement de l'état des relations entre un ordre ou un bureau d'agrémennt et ses partenaires de l'enseignement. Chaque situation est différente et malgré l'intention du législateur de favoriser la contribution des partenaires, cela ne se fait pas toujours avec la même efficience. La collaboration ordre-université consiste essentiellement en un rapport de force entre l'un et l'autre. Lorsque la relation entre les deux est saine, les modifications de programmes sont proposées et effectuées en harmonie, alors que lorsque la relation est inexistante, voire malsaine, l'un ou l'autre des collaborateurs est moins enclin à se plier aux dispositions de l'autre. Quelques exemples tirés des relations des dernières années peuvent illustrer cette étrange relation. RECOMMANDATIONS : Il serait important de faire deux choses. En premier lieu, inclure les universités et leurs dirigeants en amont dans les processus de façon générale. Cela se fait souvent quand l'agrément est une compétence provinciale et a fait ses preuve chez les psychologues (EXEMPLE 1). En deuxième lieu, il faudrait que les prochaines fois qu'il y ait de changements à l'agrément, que le BCAPG lui-même définisse les critères d'évaluations, Une université ne devrait pas avoir à développer elle-même des outils d'évaluation ou des grilles des compétences. (EXEMPLE 2 et EXEMPLE 3). Enfin, le BCAPG doit faire attention à ne pas imposer un trop grand fardeau aux universités comme la fait l'Ordre des psychologues (EXEMPLE 4) EXEMPLE 1 : Le manuel d'agrément de la formation des psychologues découle plutôt d'une belle collaboration afin d'établir des normes de formation En 2009-2010, l'Ordre des psychologues a adopté un nouveau Manuel d'agrément de la formation pour les programmes universitaires menant à la profession. En plus des instances habituelles de l'Ordre, une réunion entre les universités et l'Ordre a permis d'atteindre un consensus ordre-université sur plusieurs points. Cette instance qui n'est pas prévue aux règlements

	mis en place par le gouvernement a permis une meilleure communication entre les partenaires, aspect important dans le système professionnel auquel ne répond pas le comité de la formation. Aussi, l'Ordre Des Conseillers Et Conseillères D'orientation Du Québec agit de façon similaire. Chaque année, il invite les directeurs de programmes des universités offrant la formation en orientation professionnelle à participer au comité de la formation. Ils contribuent notamment en fournissant à l'Ordre des données statistiques. EXEMPLE 2 : Lors de l'établissement de nouveaux critères d'assurance-qualité par le Bureau canadien d'agrément des programmes de génie en 2010, le bureau d'agrément a laissé le soin aux universités d'établir elles-mêmes les critères d'évaluation. Ce faisant, le BCAPG a donné une charge de travail supplémentaire aux universités. Celles-ci devaient maintenant répondre à des critères d'évaluation sans qu'un processus d'évaluation clair soit établi. Il en résulta que chaque établissement dut développer lui-même une grille d'évaluation en espérant répondre aux attentes du Bureau. Les établissements n'ont eu d'autres choix que de se plier aux exigences, bien que floues sans quoi ils auraient perdu leur agrément. EXEMPLE 3 : Lors de la fusion des professions comptables au Québec, il a fallu que l'Ordre revoie les compétences acquises au cours de la formation afin de faire un tronc commun suivi d'une spécialisation. Pour l'appuyer dans sa tâche, CPA Canada a procédé à la rédaction d'une grille de compétences à acquérir par les étudiants en formation universitaire. Cette grille devrait être utilisée de façon pancanadienne une fois les fusions complétées dans toutes les provinces. EXEMPLE 4 : Les universités offrant la formation en psychologie doivent rendre des comptes à l'Ordre tous les ans sous la forme d'un rapport d'évaluation. Ce rapport doit être fait pour tous les programmes de psychologie d'un établissement et il permet à l'Ordre de constater l'état des ajustements faits aux programmes à la suite de l'agrément. En plus de ce rapport annuel, une évaluation quinquennale est requise par l'Ordre des psychologues du Québec afin de maintenir l'agrément des programmes. Cette démarche implique une auto-évaluation de la part du département et une visite d'un comité évaluateur. Cette charge de travail doit être assumée par le personnel administratif du département. Bien que l'Ordre soit en droit de demander ces évaluations, il semble excessif que des ressources soient monopolisées chaque année au sein des établissements universitaires pour assurer le suivi des modifications faites aux programmes.
29.	An advisory board to the CEAB of Deans, CEAB member, employers and CFES representatives could assist in increasing trust and keeping the CEAB tuned to the concerns of educators and employers of our future members. Having the Deans at the CEAB meetings to participate in the dialogue is an improvement.
30.	Speaking only to trust between the Accreditation Board and higher education institutions, I recommend that there be (a) sufficient communication between these two parties that the institutions of higher education are able to feel confident that *this group* of accreditors and *the last group* are going to have similar interpretations of the criteria, and (b) an equivalent to the "Annotated Building Code" where the accreditation guidelines are

	annotated with as much information on the rationale and discussion for the criteria as possible.
31.	I think that a better and more transparent method of communication between the groups is required.
32.	The accreditation board needs to meet with more than the Deans of engineering, and the engineering faculty. I think meetings with the VP research or even VP academic is necessary to raise the importance of engineering, not only within the engineering schools, but across the faculty at each institution.
33.	Greater degree of transparency into what Engineers Canada does - publically available information on what the Accreditation Board does, how it does it, findings (positive and negative), and illustration of how "failures of the system" have been managed through changes to the accreditation process. I believe higher education institutions are only concerned with their ability to meet accreditation requirements, so trust is not primary. Regulators need to ensure competency, which constituent Associations have provided through Ethics and Practice reviews.
34.	theusual - complete open books and an agreed mission statement.
35.	Didn't know that trust was an issue.

Question 4: What do you suggest to make higher education institution workload more manageable? |

#	Response
1.	Have clear guidelines and leave less to subjective interpretation. It is very important that we not continue to require both input (or content) and output criteria in equal measure.
2.	Instead of using criteria similar to U.S criteria in 2000, specify fewer attributes as is currently proposed in the U.S. Note: counting AU as required by criterion 3.4 is a small fraction of the work required by criteria 3.1 and 3.2. AU tables only need to be changed when curriculum changes occur. Outcomes analysis requires significant, continuous effort. Tinkering with AU as currently proposed only complicates matters and will reduce workload not at all. Preparation of visit documents could also be simplified in specific ways.
3.	Less uncertainty or less perceived uncertainty in the accreditation process. Sufficient time and communication to address changes to evaluation criteria and interpretations of evaluation criteria.
4.	Hiring more staff, so there is an equal distribution of workload and be more manageable.
5.	There are several ideas ranging from electronic access to materials that only need to be updated between accreditation visits to the use of alternate techniques to measure outcome performance of graduates to partially reduce some of the current materials provided. For example the science/engineering science content could be measured through national exams while the engineering design, complimentary studies etc. are done through the visit.
6.	Create a plan and stick to it. The requirements keep changing from year to year. Significant changes to accreditation requirements (e.g., GA assessment approach, interpretive

	statement in lieu of 450 AU's) impact the administrative processes and data management and other support requirements.
7.	I do not have enough knowledge to comment on that question.
8.	Simplify the accreditation process. It is possible to have good measurement while keeping it simple.
9.	The universities have a habit of providing lots of information in answers, which is well in excess of what a reviewer needs to see. Part of this is training. Part of this is getting the universities to have policies and procedures, and to document when the do not follow the procedure. And, part of this is too have accreditation audit the exceptions to policies, rather than the norm.
10.	A centralized DB accreditation system maintained by EC would be the ideal engineering solution, but it would clash with the multiplicity of policies and procedures of each institution. I suggest a radical change in the accreditation process, still based on input and output parameters, but better ingrained in the institutional policies and procedures. Instead of making it a one-time reassessment of everything in a program, I would rather follow a statistical quality control approach: frequent and sample-based. A sufficiently varied and frequent number of samples would allow for a continuous validation process. Should this validation fail a predefined number of times, or should the process exceed the previously stated control boundaries, then there could be a full audit: essentially the analysis we carry out today. The process would have numerous advantages: there would not be the need to prepare extensive documentation; the data collection process could be targeted every year, thus requiring many fewer resources; a standardized procedure could be put in place for internal assessment and external validation, reducing or eliminating many of the onsite visit requirements and allowing for a better distributed workload; and the number of full-fledged visits would be greatly reduced. It is also better than an examination, because it has multiple check points instead of a single check point, which as we now from literature, has limited effectiveness in ensuring sustained good performance. I also wish to emphasize that the flexibility requirements currently being discussed have no effect on workload, and in fact they may raise the workload (at least temporarily) because of the change in collecting and computing requirements they would introduce.
11.	Clear understanding of roles and responsibilities and clear communications protocols, combined with my earlier comments would be a good start. From there professionals and academics alike can begin assessing what is effective and what isn't and what can and should be entrusted to others, colleagues and internal and external affected parties. Careful to remember what business you are in: many institutions, corporations and business have lost their underpinnings like that.
12.	Use one system not two. Either AU or graduate attributes. To assess graduate attributes throughout the program is very time consuming when performed correctly. Adding in the

	AU is double counting if the attributes are met. Currently with 2 systems, the AUs are emphasized and grad attributes glossed over. Instead, really require the attributes to be tracked and measured.
13.	Based on what I have seen in the requirements for recent accreditation submissions, the requirements for graduate attributes seem to be becoming more and more granular. The requirement to have HEI establish indicators for each attribute and collect data on each indicator and the requirement to justify each indicator (vs. each attribute) seems to magnify the workload unnecessarily (some 40-45 indicators vs. 12 attributes) and makes the data less reliable and meaningful; allowing more global, holistic reporting on the graduate attributes vs. indicators would significantly decrease workload.
14.	The curriculum review resulting from outcome-based assessments (i.e. curriculum maps) is quite valuable in planning curriculum changes to address skill gaps. measurement of outcome-based questions is more questionable... universities have been required to develop their own measurement systems with varying degrees of resolution, with little input from the accreditation board... this has exponentially increased the required workload of this system
15.	The major problem with the workload in engineering is that each professor basically treats their course as the only one the student is enrolled in, and expects you can dedicate the majority of your time to their course. In reality, there are 5 or more courses the typical student is involved in. The best way to solve this would be to start having cross-discipline and cross course assignments. Engineering is truly the integration of many different courses and fields of work, especially with relation to the undergraduate education. If there are assignments that manage to work and put some of these together, it will provide more benefit on a per work basis to the student, as well as decrease the overall workload. As well, some of the engineering departments at the University of Waterloo have their weekly assignments as optional and non graded. This allows students that are overworked by project load and whatnot to not be handcuffed by these weekly assignments. But the content is still available for those that wish to practice more and increase their knowledge in that way.
16.	The higher education institutions are equally bound by many of their own restrictions (unions, university senate and government) vs. the accreditation requirements. Some universities may be more influenced by arbitrary popularity rankings vs. meeting the needs of the regulators. Are there opportunities to use developing technologies to on teaching modes?
17.	- more clarity and consistency in expectations - defined rubrics of assessment for implementing the evaluation of graduate attribute assessment which articulates quantifiable expectations of the CEAB - eliminate collection of course materials, not necessary if following an outcomes based process - produce standards for methodology and tools, enormous replication of effort and variability in responses and expectations
18.	Workload with respect to accreditation: eliminate AU's.

	Workload with respect to delivering education outcomes: emphasize outcomes, minimize input requirements in accreditation, so HEI have flexibility to implement lower cost more effective ways of delivering outcomes.
19.	Simplify AU counts - transform to "Engagement hours" where students are engaged in learning activities. This provides a more fair assessment of all learning activities including labs, tutorials, flipped classrooms, outside classroom activities etc
20.	Review the AU process, which is no more representative of the reality (e-learning, flipped classroom, project based learning, diminution of attendances during lecture, etc.) and is very time consuming. Focus on the capstone project or some other significant productions. Stop asking to prepare all the documentation and avoid a solution where universities have no other choice than archive ALL the student production, in case of the visitors want to see it (in his small 3 hours allowed for that!). TRUST the education institutions to identify the most representative productions.
21.	The EC CEO needs to assist the Accreditation effort by providing training to assist the HEIs in preparation of a visit. Also improve the data management tools to make it easier for the HEI to complete the data gathering for the pending visits. Assist HEIs in vetting more efficient curriculum delivery modes. This should not result in lessening the curriculum requirements. The HEIs are taking advantage of alternate curriculum delivery modes but may be more confident if the AB were more responsive to requests to pre-approve the new developments.
22.	The current system is far too over-parameterized and, as a result, too data heavy. I think that this is the natural inclination of engineers who want to create numbers that can be measured against established quantitative benchmarks. We also need to get rid of questionable measures of quality (e.g., AUs) for which there is no evidence that achieving certain minima are a reflection of quality of learning. Furthermore, I question the value of "minimum path" that we currently use. It almost appears that we require a 100% quality control process on the part of each and every one of our students that would never be acceptable to industry who produce other products. And, finally, we should use measures in our accreditation process that are are in line with what universities already measure on a continuous basis (e.g., we measure credit hours, we give passing/failing grades to judge performance of individual studetns, we have course syllabi that specify learning outcomes for courses).
23.	1) The current dual-approach to accreditation must be replaced by a single-approach accreditation process. 2) Clear, objective, informative instructions must be given on the expectations. (This is currently not the case with the Graduate Attributes and Continual Improvement part of the accreditation process, and can lead to unreasonable approaches and excessive efforts being undertaken by HEIs.) That being said, the aforementioned "clear, objective, informative instructions" must not be overly specified, nor demanding. They just need to make it clear to HEIs what must be done to get (re-)accredited. At

	present, things are very vague.
24.	Work as quickly as possible on implementation of the Graduate Attributes. This does not preclude using Accreditation Units as part of the criteria.
25.	Simplify the process. Use the HEI credit instead of UA, accredit all the programs in one visit (if one programm is added in the middle of a cycle, the length of the accreditation should be reduced so all the programms are accredited in one visit). Apply the principle of continuous improvement to the visits process.
26.	Not knowledge enough in this area to give a value adding suggest.
27.	Voir recommandations à la Q3 sur les critères d'évaluations (EXEMPLE 2 et 3) et la charge de travail (EXEMPLE 4).
28.	We recommend that as a minimum, if nothing else changes in terms of accreditation units, the current process undergo an 'autopsy' to look for streamlining, reductions, the use of technology vs paper examination and try to achieve better value for effort in terms of process improvements. We also think it would make sense to consider different processes depending on risk level. So for example, does it make sense for a program like Civil Engineering at UBC which likely has had a rating of 6V for the past 40 years or more to have to have the same process as a new university program that is just undergoing its first or second visit? We suggest that the program should be modified so that a vastly streamlined approach be used for programs that are long standing and have been receiving high ratings consistently, an Accreditation Lite process. Additionally, if we move to a 1545 AU process (which APEGBC does not oppose), the audits of the 405 AU's could be treated separately for the first few visits to each HEI until there is confidence that the programs are delivering in compliance with the Interpretive Statement and Note 2. We would encourage consideration of a new Risk Based Accreditation Approach and would be willing to devote volunteers and staff to help evaluate or develop such an approach.
29.	This presupposes that the workload is not currently manageable. I will assert that the problem is largely that institutions tend to fail to amortize the workload thus making it seem unmanageable every 5-7 years when it takes place. In addition there is a presumption is that an "overwhelming mass" of data is more important to successful accreditation visits than "starting small and building". Again this is a function of communication and a failure of amortization.
30.	I do not know what the workload is other than the complaint from the hei that it is too much so I cannot comment on this.
31.	Engineering Faculty often have to do both a external review of their department, which is more public within the university system, and the confidential accreditation review. Maybe see if there is some way to combine these two processes. Moreover the CEAB report is confidential, which means it is not seen at university wide committees and hence can be ignored by the administration. Suggest the creation of a public version of the report (less detailed) that can be shared with external review committees and with wider univeristy

	systems.
32.	Suggest that the Accreditation Board provide information on what is required to meet requirements and provide feedback on curiculum that are "optional" or "additional" to accrediation requirements to help programs focus on core requirements. Also, with changing requirements within the profession for "non-technical" exertise in areas such as stakeholder engagement, consider the changing landscape for inclusion in program requirements.
33.	keep it simple and practical.
34.	Ensure Program Advisory Committees are working efficiently to provide "the voice of industry" at the education table and provide independent quality control of program graduates. Enlist former graduates as volunteers to help give back to their school? Don't expand engineering programs when only 20% of graduates get engineering jobs.

#	Response
1.	Simply prescribe minima in terms of content and allow HEIs to meet their provincial requirements for an honours degree.
2.	The AU system supports the "minimal path principle" under which licensing bodies can certify that every graduate has been examined on at least a specified minimum of specified material. Outcomes analysis does not. In 2009 a member of the ABET executive attended the CEAB September workshop and repeated several times that "Outcomes assessment is about teaching, not about accreditation" (This is an exact quote; his slides contained more formal written language). Put another way, AU can be used to demonstrate minimal accountability; outcomes analysis is best for program improvement. I strongly recommend the following, written by an assessment advocate who stresses the difference between accountability and improvement: http://www.learningoutcomeassessment.org/documents/PeterEwell_005.pdf The AU is closely related to the credit-hour widely used in the U.S., where there is current debate about its limitations. In 2015, the president of the AUCC summarized the discussion (https://tomprof.stanford.edu/posting/1236) and wrote, "...better ways of certifying what students are actually learning are still being developed, so we are not yet ready to just pull the switch on the old system, creaky and inadequate though it is. In truth, we are not even close to ready."
3.	It is a known and understood process. It should be retained until the outcomes approach becomes a known and understood process by all stakeholders.
4.	The institutions will have a base to lean on during an accreditation process. They will have a better idea and understanding on how the process is progressing and how they are doing.
5.	Until such time as it is replaced with another quantitative measure of the depth and breadth of the technical content within a program that can be linked to specific individuals.
6.	Provides a good input baseline and it not difficult to manage. Helps with tracking minimum path, especially with new programs.

7.	I do not have enough knowledge to comment on that question.
8.	The minimum of 1545 AUs combined with the minimum four-year degree (or equivalent) as proposed is easily understood. It is helpful in making an accreditation assessment more straightforward.
9.	There is no measure of curriculum content. If it is not contact hours (AUs) then what is reasonable? hrs per week and weeks/term?
10.	The mandatory AU system is connected to minimum path measurements and ensures that all students meet a minimum standard during their entire degree at the institution. This is extremely valuable. There could be alternatives to the current AU system, as I explained in the previous questions. The fact remains that we need to have a control system.
11.	Absolutely not. Note my previous comments. This would be an example of messing with fundamental underpinnings. Removing or dispersing the AU would appear to be throwing the baby out with the bath water, so to speak.
12.	Archaic and narrowminded.
13.	switching completely to an outcome-based system neglects the structural requirement and contact hours captured through an input-based system (the AU Count)
14.	I believe you should not use the acronym AU in the question here. I believe it stands for accredited university, but I am not sure. Regardless, this should be changed as the average person answering this survey may not be aware of this acronym. If it does stand for accredited university, then absolutely it should be continued. It elevates the profession to a higher standard immediately from the education, and ensures a higher quality of candidate for license.
15.	The AU system was developed over time and has a universality not found in university credits. If it is replaced there needs to be an equally credible (proven) alternative. Why replace it. It serves to measure minimum path and curriculum content.
16.	Outcomes based assessment is still too ill-defined and fluid. AU accounting could be updated to reflect increased importance of experiential learning.
17.	Could be modified, but in general provides objective measures of breadth and depth of programs. Also gives indications of extent of program which is difficult to measure in summative exam.
18.	The AU system came out of a need to maintain a consistent measurement towards the quality of the curriculum. It is not perfect but it has a degree of consistency that can be defended. It grew out of a number of attempts to best quantify the curriculum content. It's true that it is largely a measure of contact time vs. qaulity but the assessment during the accreditation visit is to verify the quality. Using university credits is inconsistent among HEI's.
19.	Maybe . It depends on the approach and cost to the end users .

20.	I see no value in this. I have seen no evidence that AUs correlate with the proficiency of graduates. They are an artificial measure where the time that a student spends sitting in a class/tutorial with a certain type of professor (scientist, social scientist, engineer, registered engineer) is supposed to somehow reflect the learning acquired by the student. Furthermore, the AU system does not encourage efficiency and innovation. Can you imagine if an industry was told that their product must spend a certain minimum amount of time passing through a factory before it can be acceptable? A good industry would look for ways to use the limited resources they have (personnel, equipment, space, time) in an innovative way to optimize their product quality. The same could be said of institutions where we want to use the limited resources of the institution and the time that we have with the student to provide them with the best quality of education for the sake of their own careers and their future employers or clients. This flexibility would also allow for some differentiation and innovation among the educational programs to meet the diverse needs of their students and prospective employers.
21.	The current AU system does not measure what students learn, only what they are taught. That being said, the current GA and CI aspect of accreditation is not an especially good measure of what engineering students either.
22.	AUs are quite easily measured, however they do not assure that the students actually attend classes. That said, there has to be a very good alternative way to measure a program's content if AUs are to be eliminated. To eliminate AUs, at the least, minimum syllabus requirements for each kind of program must be in the Criteria. This is a big job and is difficult for emerging disciplines. Further, this could be fairly constraining to the institutions.
23.	We believe the HEI credits are as good as the UA (in Québec, HEI credits are standards in all universities and programms)
24.	For all its good and bad points, it does provide a benchmark to evaluate towards.
25.	Cela assure que certaines matières soient couvertes et empêchent des universités de ne rien inclure au sujet de notions vitales pour la formation de l'ingénieur.
26.	We have also heard the Deans' concerns that they are required to prove compliance with not only the input requirement (the AU's that were to be phased out in favour of Graduate Attributes), but also the e outcome measure of Graduate Attributes. We support the eventual move to Graduate Attributes in favour of AUs and are of the opinion that this is a journey that both the AB and the Deans have to travel together in order to enable a successful transition. This can only occur if: a. the programs are given the flexibility to provide instruction and experiences so their students meet the Graduate Attribute requirements (we see freeing up the 405 program-relevant AUs as supporting the transition); and b. the HEIs experience collaboration and support from the Accreditation Board in facilitating their demonstration of achievement Graduate Attributes. The profession has tools to facilitate this including a competency framework that maps to Graduate Attributes and an online tool that might be used for this purpose. In fact, one BC institution has considered that student Graduate Attribute reporting, validation and assessment could be as Phase I of a two-phase continuum towards professional; with Phase II being the post-graduation competency-based assessment for registration.

27.	I will answer why, since the "how" is "largely the way its always been done". The AU system allows for significantly more flexibility within the classroom and the curriculum - assuming communication and reasoned discussion with the accreditation board and visitors. The attribute-based system, especially given the challenge of capturing meaningful longitudinal data given the self-leveling nature of grading, is significantly more constraining.
28.	Yes but perhaps with different AU values for programs that are not the traditional ones - such as biomed and engineering physics
29.	Qualified Yes: Value is in providing consistency in the education of engineers to maintain abilty for self-governance. Qualification is that the engineering programs are based on highly technical content at the loss of some important skills for todays environment. There is a need to keep current on requirements for engineers from both a technical and non-technical expertise perspective.
30.	can't have a free for all. How will employers know what they are getting and how will Engineers registration boards manage. the application process costs need to be kept really small.
31.	Can not comment intelligently

Question 6: What suggestions do you have to strengthen and support the change management process? |

#	Response
1.	Get employers involved. They are distinct from regulators. Currently, they do not have a voice in the process.
2.	Have a jointly sponsored annual conference on engineering education in Canada. This would allow for better dialogue than now takes place between the NCDEAS and the CEAB and neither the deans nor CEAB members are experts in teaching. In addition or failing this, at the very least, change management should include a charter: a statement agreed among stakeholders, stating the project goal, a realistic plan for achieving it, and criteria for project success. Other than imitating Washington Accord partners and very recent passing mention of program improvement, there has been no stated goal to recent changes. Despite a lack of a statement intended outcomes (other than the introduction of a process), to its great credit, the CEAB has devoted essentially every September meeting since 2006 to determining the implications of the new criteria published in 2008.
3.	Perseverance, persistence and a clear uniform message.
4.	An extensive knowledge and training on the accreditation process.
5.	Change management must involve all the stakeholders. the role of the regulators has been through the EC board and as a result has not involved the people actually doing the licensing. this needs to change.

6.	What change management process? Can you be more specific?
7.	Give responsibility for that process to the Engineers Canada CEO.
8.	Use consultants who have proven competence in change management where the stakes are high. Some of the high stakes include the very competitive environment where the HEIs are competing for funding as well as high calibre students who can attract more funding. Due to these factors, it creates a politically charged environment to make change within.
9.	Training - universities do not train faculty in this regard. The faculty need to understand the needs of a quality management system.
10.	Handle change fatigue. Every year changes are introduced, and often more than once. This is very difficult to accept and implement for institutions. Whereas, for example, the change to 1950 AUs was effected in a deliberate and prepared way, many of the criteria changes for GAs have occurred too rapidly, which has created a weariness in institutions. It is imperative to avoid creating further weariness and fear of change in the future. This can be achieved, for example, with a long-term plan that is well supported and explained, and then followed.
11.	There are a multitude of change management techniques and case studies and experts. Which will likely lead to identifying what has to change, why and to what benefit. I would suspect there are a number of internal and external drivers that need to identified and removed from the discussion as irrelevant.
12.	Expect more change faster. Universities move at the pace you allow.
13.	clarification of the minimum resolution required for outcome-based measurements... for example, many of the outcomes based on fundamental sciences could be assess solely through a gpa mapping, while soft-skill assessments would require more detailed assessments. right now, there has been very little in the way of management of change from the accreditation board.
14.	Change management with regards to changing accreditation, or changing university programs? This question would help from being clarified slightly. I do not know how to answer this question as I am unsure of what specific change management process it means.
15.	In the case of the CEAB accreditation system the support for change needs to come from the Regulators vs. the Deans or Engineers Canada. That case has yet to be made. In the latest Washington Accord review of the CEAB criteria they considered the Canadian system as the "gold standard". We can't sit on the laurel but where is the pressure to change? The moves suggested by the Deans would have a major likely negative change.
16.	Unclear question, in what context do you mean change (at CEAB? at institutions?). Some stability in CEAB processes would be welcome.
17.	Accept the fact that the status quo is not an option, establish shared vision for where we want to go, then identify steps to get there, adopt principles of continuous improvement in

	accreditation process. Executive leadership with appropriate consultation, in place of leadership by committee.
18.	Take HEI through GA process to get better buy-in.
19.	No idea at this time...
20.	Remove barriers but that should not be at the expense of quality. Suggestions put forward to date have largely attempted to reduce the curriculum requirements. From a non-academic viewpoint introduction of Graduate Attributes / Continuous Improvement has been very difficult for everyone involved. It's difficult to see, at this point, what benefits it is bringing to the profession.
21.	All key stakeholders need to: (1) achieve agreement on what is ultimately expected and not expected of an accreditation process; (2) achieve agreement on their respective roles and stake in the process and going forward; (3) achieve agreement on a process of evolution of accreditation over time. We also all need to be engaged in the change process. Any group that sits on the sidelines and then only pronounces their verdict (i.e., veto) of proposed changes after we have gone down a long path will undermine the trust that must be built out of this process.
22.	There needs to be better communication by the stakeholders (HEIs, regulators, Accreditation Board, Engineers Canada, etc.). It is not at all clear that all parties involved fully appreciate the details of, and efforts involved in, maintaining an accredited program.
23.	Perhaps a thorough critique from a select group of other accreditation bodies such as ABET from time to time would help to support changes.
24.	Develop a standard consultation process. The decision about a change in the accreditation should be approuved by the associations only and deans, teachers and people working for HEI should not be involved (they should only suggest improvements to be analyzed by the associations)
25.	I refer back to my point of continual dialogue on the topic. Solutions come form discussion, not speculation.
26.	Advisory Board as mentioned in answer to Question 3
27.	Balance the privileging of "data" with the professional judgment of educators. We are engineers, not applied scientists, and as such professional judgment should be respected. So long as trust in that judgment has been earned.
28.	It should be managed using engineering project management principles, frequent reporting to all interested groups. This wouldinclude an agreed definition of the desired outcome. It should not take years to find out the project is in trouble.
29.	How about proposing the development of software tools available across all universities that track the metrics and AUs

30.	Not clear - in regards to the accreditation process or in general? Accreditation process - greater transparency on the change and the change process (communication greater than at constituent association level).
31.	use MBAs who have the tools
32.	I do not understand the need to change.

Question 7: What barriers to innovation within programs exist? How might these barriers be removed? |

#	Response
1.	The CEAB accreditation process is high stakes and the rhetoric from regulators emphasizes that the minimum AU criteria be exceeded. This makes HEIs very conservative in changing their curricula to meet the demands of the 21st century for fear of losing accreditation and the immense workload required for a repeat visit.
2.	The biggest barrier to innovation by far is workload. In the past, CEAB criteria and decisions have allowed a wide range of program content and delivery: among the current 275 accredited programs there are 74 distinct names. At the same time, accredited programs have an identifiable engineering identity because minimum-content criteria have been enforced. Now however, all 275 programs are being required to practice a specific teaching philosophy that requires considerable ongoing work, on pain of denial of accreditation. At the very least, attention should be paid to proposals for reducing the number of required attributes in the U.S.
3.	The inability to transcend traditional disciplinary boundaries in evolving programs and restrictions/constraints imposed on program naming and "content". Such views are inherent within many stakeholders.
4.	This is a question for the HEIs not the regulators. For example students not planning to become registered members can certainly reduce the barriers!
5.	The current system allows for flexible use of the 450 AU's that are currently being looked at for the interpretive statement. The major barrier is in programs having the confidence to use this flexibility given the historical interpretation of visiting teams and the CEAB around these AU's. The key to removing barriers is to ensure that the visiting team members are "enlightened" in this regard.
6.	I think the biggest barrier is the lack of diversity within certain programs. I think this can and should be addressed through the accreditation process. It can also be partially addressed through more diversity on the AB and QB Boards themselves - i.e. leadership by example.
7.	Obvious ones are time restraints (4-year program) and funding. I don't work for an HEI so cannot comment further.
8.	The greatest barrier is the lack of interest of the faculty members. They are rewarded for their research - and not for their instructional innovation - hence, there are none.
9.	The main barrier to innovation within programs is the perceived difficulty to justify the value of innovative activities that might not be lectures in the context of the AU system. This probably stems from the fact that providing such justification is perceived to be very hard

	work, and additionally that the k-factor calculations rely on academic credits, a measure that recently has been related both to tuition and effort. Thus, often credits do not accurately reflect the amount of work associated with the course (including lectures, laboratories, tutorials, study hours, project hours etc.) but rather they decide how much money should a student be paying for the course proper. In the current economic climate, this distinction makes it really hard to create flexibility using the k-factor.
10.	One of the greatest barriers to innovation is trying to teach innovation. Again, remember the primary roles and responsibility and facilitate access to where what you produce may or may not apply and innovation will occur regardless of how much we try to stop it. I could use an economic development analogy here but I won't bother you with it right now...
11.	The AU system and profs used to working the same way for too long. Make the switch to grad attributes and it will flow through the system.
12.	The AU system is one barrier to innovation within programs. Loosening the AU requirements, or moving to another measurement of contact hours (credits, terms), would help make room for more innovation.
13.	the typical ones... funding, industry engagement, aging infrastructure and increasing enrollment and their impact on program quality, etc.
14.	The largest barrier to innovation is the existing curriculum. There is so much that the professor has to cover in any given course, that to introduce innovations is to normally add additional workload, rather than be able to modify existing. I believe that professors should be able to switch to a similar output based model for courses, whereas rather than students needing to learn a, b and c in this course, coming out of this course students must be able to DO d, e and f. This will provide professors that are seeking to try innovative techniques the freedom to do so, and truly allow courses to be catered to how the students ill be coming out of them
15.	I am not an academic but perhaps the universities could learn from one another or from alternate delivery modes such as Athabaska University. Could Virtual Labs be designed to force team collaboration. The universities could approach the Accreditation Board to determine acceptability of these modes.
16.	Outcomes based measures are often considered qualitative and we need to build trust in the process. The criteria are not the impediment but more how it is interpreted by the community.
17.	Excessive credit hour requirements (AU's) favour curriculum bloat, poor learning outcomes, student dissatisfaction and make innovation difficult. Replace AU's with outcome requirements and qualitative measures of curriculum content. Unclear governance structure for AB is a barrier to innovation.
18.	Imposed from above via Provincial Governments. Lobby province to open edcuational opportunities
19.	AU process is very constraining. To remove it, that will help.

	Taking individually, the different accreditation criterias make sense. Taking all together, they become very constraining. A global review of them would help, based on many experience conducted across the country.
20.	Simplify the Graduate Attributes/Continuous Improvement expectations. Evaluate more efficient curriculum delivery modes.
21.	The current accreditation process involving AUs presumes a form of teaching and learning which is rapidly becoming antiquated. For instance, it presumes a value of learning that comes from class versus tutorial time which does not match reality. It also does not reflect the high degree of independent learning that is required outside of the classroom. And, furthermore, it presumes that a certain amount of time is required to learn a certain subject area. And, finally, the minimum path approach creates a conservative risk-averse response from educators. We need to create a system of accreditation that allows for innovation, experimentation, risk-taking, and sharing of best practices. Barriers can be removed by creating flexibility within the degree programs to allow for students to explore complementary avenues of education (management, entrepreneurship, arts, etc.) and experiential experiences (coops, internships).
22.	Barriers: 1) Lack of flexibility resulting from the current context of the AU system. 2) Lack of trust that HEIs, who have been training engineers for multiple decades, if not longer, do have some understanding of how to educate engineers.
23.	Application of the k-factor to a program at the time of an accreditation visit means that there is a chance that a program can be put in jeopardy after it is underway which could leave students in a very bad position and will have major consequences in the HEI. The k-factor thus has a level of uncertainty for institutions so they may be reluctant to innovate. On the other hand, negotiation of an appropriate k-factor between the AB and the Dean as a course is being developed could be useful. This is moot if indeed AUs are eliminated however this does not appear to be imminent.
24.	Protection of the public should be the first concern. The engineering programs have innovated in the last years (they are more project-based and they use IT tools for example). The accreditation can be a constraint, but it is possible to innovate and comply with the accreditation.
25.	University and accreditation groups acting in silos.
26.	Certaines normes d'agrément. Par exemple, dans le cas de la formation à distance ou de la pédagogie inversée, il est difficile d'innover. Il pourrait au contraire y avoir des incitatifs à ce genre de mesure.
27.	1. This is a question for the Deans 2.Please see the answer to Question 5.
28.	In short, and as referenced previously, the almost complete lack of trust that institutions have that visitors will engage in reasoned debate and discussion regard any innovations.

	And over a single 72 hour period with huge potential consequences, I concede that there isn't much time to actually engage in meaningful discussion. But without discussion there can be no trust and without trust no innovation.
29.	I do not know.
30.	CEAB accreditation needs to allow exceptions to be proposed for special programs.
31.	Accreditation process limits the time available for the education process to fulfill all technical requirements in addition to non-technical skills relevant in the current environment. Barriers can be removed by ensuring that technical skills are provided based on the work expected of engineers in industry today - perhaps a base accreditation with some technical and some non-technical requirements as the "base engineer" with levels of credentials that would then allow an engineer to work in specific areas would be appropriate for todays needs (and changing needs).
32.	?
33.	Cannot comment intelligently.

Question 8: How can the increasing demands on students be managed? |

#	Response
1.	This is a very important issue. If we are to add to the degree content then the accreditation criteria must allow us the flexibility to take something else out. A study at my institution revealed that when engineering and science students took the same Math class, the engineers' overall score was lower. This has been attributed to the very high academic workload required of engineering students as opposed to those in other disciplines. The AB must realize that increasing the content will not necessarily improve students' and graduates' competencies.
2.	This perennial question has no absolute answer but student engagement through projects, competitions, co-op experience, and active learning should be encouraged. An engaged student is a student who is learning.
3.	Programs must be designed that allow sufficient time for qualified students to adequately develop and practice the skills necessary to reach and demonstrate required competencies. If sufficient time is not provided then students will resort to desperate and sometimes unethical activities in demonstrating competencies.
4.	This question assumes there is measured evidence of increased demands. Perhaps if we look at this evidence there may be ways of mitigating the "increased" demands.
5.	We don't see the direct connection between CEAB requirements and the workload of the students. The curriculum improvement process through Graduate Attributes should help faculty consider the balance required from a student workload perspective.
6.	I do not have enough knowledge to comment on that question.
7.	1) Know what is humanly possible and don't ask for more than that. For the students who

	struggle, mentoring and counselling can be offered. 2) Students can receive training and guidance in self-awareness. For example, some stress is caused simply by having the wrong perspective.
8.	If we use the AU system, we can install a maximum cap as well as a minimum cap. No program can exceed XX hrs/wk of instruction or YY AU per term.
9.	Perhaps it is time to value not just the time a student spends on an activity, but also the type of activity the student spends time on. High quality activities would have higher value. If students spent more time in high quality activities, then overall their workload would decrease while still achieving the required program value (right now it would be AUs).
10.	Now we are back to the management of change question. Is it serving the student demands that needs to be managed or is it the students demands that need to be managed. I propose the latter. Over recent years there has been increasing discussions on where one's sense of 'entitlement' comes from and how it affects the need for institutions, employers and governments to satisfy rather than perform.
11.	Pick one system not two.
12.	Programs are becoming longer, with more contact hours, due to the increase in Total AU. In our programs, we have had to increase contact hours simply to meet the new requirements, resulting in longer programs and heavier student schedules, with little real improvement in the program in terms of pedagogy. Lowering the AU and focusing on more effective teaching and learning will help.
13.	through clearly defined minimum and maximum contact hours expected. this is an issue which needs to be addressed within individual universities... students will normally feel that they are over-worked in their program regardless of the nature of mitigating factors employed.
14.	The increasing demands on students can firstly be managed by the decrease in workload. That is the largest demand on students, and many universities do not have other demands of their students other than the coursework. I cannot off of the top of my head think of other demands on students at the typical engineering university, but I am more than happy to provide ideas if there are other demands seen across the country
15.	5 year programs are becoming a norm but would be expensive to the student.
16.	Investigate international models for education and licensure.
17.	Demands on students in terms of quality of work, depth of understanding, creativity of outputs responsibility for their own educational development, needs to go up. Demands on students in terms of shear volume of low level activities (attending classes, unchallenging assignments, cookbook labs, learning outdated material).
18.	Measure "engagement hours" instead of AU.
19.	I'm not aware that demands on students are increasing regarding the accreditation process.

	Maybe I don't understand the question?
20.	The tendency of the AU system has been to bolt more and more onto the educational requirements of our students. We need to back off on this long list of requirements and distill them down to the essentials. We also need to allow universities to innovate in such a way that they can optimize the teaching and learning, to free up time for students to either reduce their workload or use the extra time to pursue other complementary interests.
21.	The increasing demands on students are a result of the increasing demands imposed by the accreditation process (e.g. the increase from 1800 AUs to 1950). This is leading to quantity of learning vs. quality. A more reasonable accreditation process, in which HEIs have leeway to teach engineering curricula covering the essential materials as they see fit, would hopefully alleviate some of the demands on students.
22.	Perhaps students could be given some academic credit for extra-curricular activities. There is a lot to be learned by organizing events on campus and/or sports activities.
23.	We don't have any indication that the demands on students have increased.
24.	I don't necessarily see this as increasing demands on students. More a focus on what they will need in the future.
25.	- Mieux répartir la charge de travail (exams, labos, etc.) sur la session de façon répartie - Mieux répartir la charge de travail (exams, labos, etc.) sur les 4 années du diplôme de façon répartie - Accroître le nombre de professeurs ou le temps libre des professeurs pour aider leurs étudiants - Offrir des ressources supplémentaires de soutient aux élèves (aide à l'apprentissage, tutorat, soutien psychologique, aide à la gestion du temps, etc.) - Évaluer avec plus de justesse la charge de travail associée aux cours (certains cours de 3 crédits par exemple prennent bien plus de temps que d'autres cours de 3 crédits) afin de cerner les cours à problème
26.	This is a question for the Advisory Board
27.	• Acknowledge that a University program cannot, and should not, be expected to provide all of the education necessary for an engineering graduate • Pressure the provincial licensing bodies (and governments) to accept a "3+2" system (since we are at a professional disadvantage from being one of the very few "first entry professions")
28.	I do not know what is increasing other than the program's seem to be reduced by one year so cannot answer this.
29.	In science, and the arts, the basic undergrad courses change very little with time. By comparison engineering undergrad courses are always expanding because technology needs and tools are changing rapidly. This means that accreditation must constantly reduce demands on student knowledge in older areas, while expanding the new concepts.
30.	See Question 7.
31.	make the course less expensive so they have more time to do course work

32.	Lower the demands. Do 4 years in 5 years?

Question 9: What do you suggest to make the workload of the Accrediation Board visiting teams more manageable? |

#	Response
1.	This is an issue of the AB's own making by requiring evidence of input (content) and output (attributes) and can be solved by it simply.
2.	I have been on CEAB visits either as team member or chair or as a consultant almost continuously since 1977. I have submitted suggestions to the policy and procedures committee, including details of the following: 1. Make the questionnaire easier to read by separating instructions from report contents. 2. Revise the course information sheet to include the information required to verify the accuracy of the claimed AU per course and totaled in the report tables. 3. Allow institutions to use their existing course syllabi provided they contain the required CEAB content. This would allow better checks before documents are received and remove ambiguities between official syllabi and information required for visits. Also remove ambiguity by not requiring institutions to present each course as if it contained only three curriculum categories. 4. Separate laboratories from tutorials in course sheets so that the number and size of labs is readily available to the visitor. 5. Improve the instructions for the minimal path calculations. 6. Clarify the visiting team report template.
3.	Reduce the volume of data to be reviewed. My perception is that only a small fraction of all of the data provided for our previous accreditation visit was actually critically analysed by the visitors - because there was not enough time to go through all of the data.
4.	My suggestion is that a member from the Secretariat is present during the visit, to facilitate their tasks and this way the visiting team members can focus more on their duties.
5.	See previous question
6.	Better education of the visiting team members and the host institution. For example, I rely on my past experience as a visiting team member. Perhaps developing new visiting team members through an improved observation process, like is done for visiting foreign delegates.
7.	I think the accreditation process has simply grown over the years to the point where it has simply become too cumbersome. I think an independent review from a "value-added" basis would be useful.
8.	Pursue opportunities to simplify. Start by examining what exactly each thing you are asking for will prove.
9.	Historically, the audit is of documents, and to interview faculty. If the visiting team checked documents, checked with students (customers), checked on exceptions to policies - then the number of faculty interviews can be greatly reduced. We don't need to speak with ever

	faculty member in order to get a feel for the program.
10.	See my previous answers.
11.	Clear roles and responsibilities and even more clear combinations. Early establishment of trust and commitment to common goals. Its not just a test to pass, as so many increasingly say. One party is demonstrating capability the other is facilitating the due diligence documentation of the same. To put it another way, I suppose the Accreditation Board (which is spelled wrong in the question above...) is in many ways Canada's (our public's) Owners Engineer.
12.	Giving incentives for using management systems such as Vena. That allows for summary and randomized reviews.
13.	One suggestion is to require HEI to report on graduate attributes (common to all HEI), not on the individual indicators (unique to the institutions).
14.	electronic, searchable information databases, prior identification of courses to be reviewed,
15.	I was not aware that there was a heavy workload of the Accreditation Board. I believe that they should be stringent in their visits to ensure the highest quality of engineering education in Canada. Perhaps an increase in the number of teams? I am not certain how often each program needs to go through accreditation, I believe it is every 5 years. If so then perhaps it could be lengthened. The bottom line is that most of the engineering programs, from an accreditation point, do not change unless prompted. It might lessen the workload quite a bit if Engineers Canada kept a record of changes to the programs, and went to do an accreditation visit upon large changes being made to the program. A set schedule of every 10 years or so would still exist, but then an early visit could be made if there are changes of the actual accreditation requirements, or if the program at the University goes through a substantial change. This would lessen the workload on the visiting teams; however, it would require that there be a full time staff that is in touch with the universities and keeping track of their internal changes. As well, it may create incentive for universities to make less changes, as they would not need to go through the accreditation process as often. But you hope that they still want to improve themselves and remain competitive.
16.	I really have a problem with this question as there appears to be no difficulty in finding visitors. The issue is often the presentation of informatiom by the university. More training would help. Also could make use of the ABET training moodules. The criteria differ but the processess have more similarities than differences.
17.	Increase maximum accreditation period and/or alternate visits with reports.
18.	Much of visiting team's time is spent on clerical work, checking that the AU's are properly accounted for. It would be a more effective use of their time if instead they focused their attention on topics requiring their professional judgment such as whether the graduate attributes are being achieved and whether the course material, labs and project courses are up to date, at the required level and cover appropriate topics.

19.	Let CEAB decide this issue. Provide training for VT
20.	To help them on focussing on critical aspects of the program. To offer them a proper training regarding the outcome process. To ask education insitutions to pre-identify potential visitors that are interested and have some expertise in program evaluation.
21.	Complete the introduction of the forms and software to make it easier for the HEIs to complete the data entry. That would reduce the need for the visiting teams to find the pertinent information. Provide training to the visiting team to help them know what is expected and how to focus on the important information.
22.	Reduce the amount and granularity of the data that is required to the bare essentials that are required to meet the needs of accreditation. At present, there is too much material and too many measures for visitors to digest and understand. Furthermore, this also means that institutions must collect and prepare this data for their consumption. We need to simultaneously focus on reducing workload of both the visiting teams and the institutions.
23.	This is not an especially important concern, in my opinion -- especially in the comparison to the workloads required by HEIs to prepare for an accreditation visit.
24.	I have not done a visit so cannot say too much. On the other hand, I'm sure that it would be useful to have all data electronically before a visit (if it isn't already) so that it can be reviewed enroute to a visit by those flying in.
25.	For the general visitors, a lot of the meetings at the agenda are not useful (too many meetings with deans, deputy, principal, associate deans, etc... not enough visits of labs, students committees) If the universities could use the standards documents that could help too. A training is also needed for both the visitors and university employees on how to present and evaluate the qualities. OIQ sent a letter covering this subject on september 8, 2015.
26.	Potentially need a larger accreditation board that can split up the workload.
27.	We have heard first hand from BC universities and from our volunteers who have been involved with accreditation visits that the process is very cumbersome, largely a paper based exercise, with little actual value added. The universities are forced to expend a huge effort in terms of staff time, resources and funds to prepare and support accreditation visits. Volunteers who are involved in the visits also have to dedicate a large amount of time (away from their normal day jobs) and read huge volumes of materials. We cite 2 recent BC examples that support our concerns about a process that is out of scale with its intended . We recommend that as a minimum, if nothing else changes in terms of accreditation units, the current process undergo an 'autopsy' to look for streamlining, reductions, the use of technology vs paper examination and try to achieve better value for effort in terms of process improvements. The role of the General Visitor should also be reexamined as it does not seem to be as value-added as intended.

28.	• Amortize the workload by scheduling annual or semi-annnual visits. • Make "visited and critically assessed a peer institution" a recognized service activity (ideally as one course relief) for academic faculty • Trust (albeit with limitations) peer academic visitors
29.	I do not know what is included in the workload so cannot comment.
30.	Having been on a CEAB team it everything seems very rushed. Giving some information in advance, eg electronic versions of course files, might allow the team to prepare for the visit and concentrate on important questions.
31.	I suggest that this should become more cumbersome versus less to achieve goals.
32.	work with VR
33.	Not aware this is an issue.

Question 10: How can we better articulate the benefits of accreditation now and in the future? |

#	Response
1.	If we put society and its wicked problems in the middle of the accreditation process then we can show how we are being relevant. See http://ecologicalsociology.blogspot.ca/2010/04/energy-biggest-problem.html, and http://www.engineeringchallenges.org/challenges.aspx Let's not play small ball by insisting on a K-factor here or an AU there.
2.	This is another difficult perennial question. Emphasize to teaching faculty that accreditation is largely an evaluation by peers. Emphasize to students that graduation from and accredited program in Canada gives exemption from further technical examinations such as in the U.S. I wish the PEO and other licensing bodies would grant automatic application for the engineering license on graduation from an accredited program rather than requiring the graduate to take the initiative.
3.	Regular communication - with clear and uniform messaging assembled by all stakeholders.
4.	Keeping the information available on our website, in continuous communication by the various means available, promoting engineering and demonstrating the benefits of accreditation.

5.	Develop quantitative and qualitative outcome measures of Canadian engineering graduates compared to internationally trained ones.
6.	Knowing where to direct the message is key. Benefits readily apparent to the educational institutions and the regulators. From a student perspective it is dependent on workforce viewpoint. With respect to the workforce this requires messaging to come from industry.
7.	I do not have enough knowledge to comment on that question.
8.	State the benefits and purposes of accreditation in the Accreditation Criteria and Procedures document. The benefits and purposes are the outcomes. Have the outcomes of accreditation stated in the document.
9.	This goes back to training in quality management processes. The goal is to improve education quality, and what gets measured gets managed. So - target what is the most important to measure and manage.
10.	One way to do so is to create a comparative cost-benefit analysis of the two scenarios: one with accreditation, and the other without.
11.	Continually demonstrate the priceless value and need for solid engineering underpinnings in our past successes, current needs and future challenges. Our world is going to change substantially and at an increasing rate for some time to come. None of the future science and technologies can survive without fundamental underpinnings to work from and with. Once an engineer has succeeded in pocketing the fundamental tools and understandings we have seen time and again what can be accomplished in a myriad of related and unrelated directions.
12.	People understand the necessity for an accreditation system. Focus more on accreditation and less on communication.
13.	No suggestion.
14.	I believe that people see the value in accreditation. What is of concern is the depreciation in value which results from lack of consistency across educational institutions.
15.	I believe that the benefits of accreditation are well articulated. The students I talk to that know about accreditation know that it allows the entire profession to be of a higher standard, and the universities know that because of this standard, they need to be accredited or they will be left behind. I feel the benefits are fairly self evident.
16.	The CEAB accredited university programs stand out as having strong programs. Having worked with many engineers from foreign institutions and can clearly indicate the Canadian graduate is competitive with all of these.
17.	We believe that the benefits are currently well articulated. Every effort should be made to maintain the relevance of the process to the profession and society.
18.	Before attempting to do a better job articulating the benefits I recommend first trying to do a better job on accreditation, then it will be easier to articulate the benefits.
19.	show direct connection to P. Eng.
20.	I think that focussing more and more on the attributes process, to get more confident on this process is the key.

	Learning outcomes are easy to evaluate. They means more to the students than a simple mark on the academic file. CEAB should have take a stronger leadership to define them, to decline them through criterias and, ultimately, to propose minimum, mean and excellence levels for all of the attribute criterias.
21.	The CEAB has been a main force towards Canada having a very high quality (gold standard) engineering education system. The employers know that they can depend on the fact that hiring a graduate from any CEAB accredited program provides a skillful EIT.
22.	Each stakeholder group needs to specifically state (from their own viewpoints) on the purpose and benefits of accreditation. This then becomes part of our respective communication strategies in our own local circles (i.e., we in educational institutions will use these benefits as a selling point to attract the best and brightest of students).
23.	Currently, the Regulators and students are viewed as the beneficiaries of accreditation. It's easy to enunciate for the Regulators as it streamlines their registration process without requiring confirmatory exams and for the students, it means that they don't have to write confirmatory exams. Perhaps industry needs to be viewed as a beneficiary in that they get a consistent product (engineering grad) from accredited programs... But if this is the case, the consistent product must reflect industry's needs which seem to include more practical training than is currently offered by a purely academic program (as opposed to co-op programs and possibly technical school programs where a technology certificate is part of the training).
24.	The benefits are simple : the graduates don't have to pass technical exams to access the profession.
25.	Explaining that accreditation will be based on what you have learned, not what you have been taught.
26.	1. Ask the proposed Advisory Board 2. See http://www.apa.org/ed/accreditation/about/about-accreditation.aspx , 'Why is Accreditation Important?' for an example
27.	Quite frankly I don't think that you can, in a general way, given the differences across the disciplines. Civil Engineering is not Software Engineering, and those practitioners (and industries) quite simply see things differently.
28.	Not sure. It seems that we all know that ensures consistent quality of our students. From the student perspective it means that they can be assured of the level of the education that they are receiving and removes the element of having to write exams when the regulator does not trust the accreditation system as in the US.
29.	The importance of accreditation needs to be made clear to both the public, the government and the universities.
30.	Storytelling/case studies of the accreditation system - how it works and what happens when it fails.
31.	communicate more
32.	A good communications plan.

If yes, what are the key considerations for the consultation and implementation processes: |

#	Response
1.	Begin with a workshop of key stakeholders. The U.S. is an example, see https://www.nae.edu/Publications/Bridge/ReformingEngineeringEducation/TheChangingFaceofEngineeringEducation.aspx. In 1994, with funding from NSF and industries represented on the ABET Industry Advisory Council, ABET sponsored three consensus-building workshops to address these concerns. More than 125 individuals, including university presidents, deans, and faculty members; industry leaders; private practitioners; professional and technical society liaisons and executive directors; state registration board members; and government researchers and regulators in technical fields participated in the workshops with ABET leaders, commissioners, and board members. Recommendations from the workshops, published in A Vision for Change in early 1995, became catalysts for the development of new accreditation criteria, which were circulated to the engineering community a few months later. Following a period of public comment, the ABET Board of Directors approved Engineering Criteria 2000 (EC2000) in 1996. The new criteria radically altered the evaluation of undergraduate engineering programs, shifting the emphasis from curricular specifications to student learning outcomes and accountability. Under EC2000, engineering programs must define program objectives to meet their constituents' needs. Rather than taking a cookie-cutter approach, the new criteria accommodate differences and innovations in programs. To ensure accountability, each engineering program is required to implement a structured, documented system for continuous improvement that actively and formally engages all of its constituents in the development, assessment, and improvement of academic offerings. Programs must publish specific goals for student learning and measure their achievement to demonstrate how well these objectives are being met. ABET was one of the first accrediting bodies to implement such a radical change in its accreditation philosophy.
2.	I do not understand what is meant by "formal review" in this question. The CEAB is a standing committee of Engineers Canada and so is subject to its board. There have been two systematic reviews by the parent body to my knowledge: one which resulted in the creation of the CEQB, many of the duties of which had been formerly delegated to the CEAB; and one general review conducted in the mid 1990s at the proposal of a constituent body as a result of an accreditation decision. There is an annual review in the sense that the CEAB chair presents an annual report to an Engineers Canada meeting and questions may be asked. If this is not sufficient then Engineers Canada could institute other proceedings. In addition, the September CEAB meetings have always concentrated on internal review of CEAB processes and current issues, often employing outside experts, consultants, and in recent years, workshops.
3.	Clear articulation of the duties and obligations of each stakeholder.
4.	Interviews, training, learning, knowledge.
5.	There should be ongoing regular discussions that allow the stakeholders to understand the issues of the others. For example, the regulation of engineers involves both CEAB graduates and Internationally trained graduates so the regulation process must be viewed as fair and

	equitable for both.
6.	The question is not clear regarding the target of the process. Is this for the actual accreditation needs or the process of accreditation? Other?
7.	Identify objectives and benefits of accreditation. Identify the indicators and measures of successful fulfillment of the benefits and objectives. Then measure every year or every few years. Each stakeholder can be consulted for feedback on the performance in meeting the objectives.
8.	The accrediting body needs to link between the end use customers (engineers and industry), and the users (students). It then drives the universities to ensure the program gets better. It is no different than any other quality management process (eg, environmental, food safety, process safety).
9.	The process should be based on representatives, but it should involve everyone. My suggestion is a loose pyramid structure. At the top, we should have Regulators, the AB and Deans. Regulators would be responsible to collect feedback from Engineers and Industry. Deans would collect feedback from Faculty, Students and Parents - perhaps overlapping some Industry feedback as well. All should be open to feedback from the Public at large. AB members should make an effort to receive feedback from these groups as well, and regulators in particular since many of the AB constituents are supposedly their representatives: we must strengthen that link. Suggestions received should be recorded and made available to all stakeholders. Answers and actions should also be associated to the suggestions, to encourage and support trust among stakeholders.
10.	Deans, Regulators and Faculty are the roles making this all happen. The students, industry, and engineers are on the receiving end, benefitting from what the first three are creating and facilitating.
11.	Consistency across schools.
12.	- Sustainability / feasibility of systems in terms of workload and reporting - Ensuring all stakeholders other than the AB understand the current accreditation criteria before entering into any debate of pros and cons
13.	I think the most important stakeholders would be the Industry and the Engineers. They are the ones that should have a finger on the pulse about where the profession is going, and what the engineers will need to know 5 and 10 years down the road. Engineering, especially now, is an extremely quickly changing field, and the bottom line is universities do not and cannot keep up. Accreditation remained unchanged for a very long time. There should be a process so that the engineers can ensure the engineers of the future are learning the skills they will need to be successful
14.	Deans should have a regular interface with the Accreditation Board but one needs to be mindfull that the academic community is highly represented on the AB. The balance is already in favour of the univesities.

15.	We assume this is a review of the goals of the process and its outcomes.
16.	Focus should be on the public interest, one of the most important elements of which is the benefit to the students. Is the engineering accreditation process improving engineering education or is it holding it back? Is the accreditation process facilitating the efficient cost-effective delivery of education outcomes? Is engineering education supporting national goals such as inclusivity in a diverse society and the national innovation agenda? Is engineering education enjoyable and inspiring for students and does it encourage them to continue on with graduate education in engineering? Mean time to graduation should be closer to 4 years. Does engineering education provide reasonable value to the large number of graduates who move on to careers in other areas?
17.	public safety in providing eningeered solutions
18.	The HEI should be consuting with regional industry to determine whether they are meeting their needs. There is room for that within the AB curriculum requirements. Deans should be able to voice the findings from that consultation - vs. broad requests to adjust requirements. A bad example is the recent uproar about workload had no basis against what the Regulators, Professions, Government or Industry were requesting. There was no such request. The NCDEAS appeared to be working in a bubble-isolated from the stakeholders.
19.	As I mentioned in earlier responses, the key goals are to achieve agreements on the objectives of the accreditation process, the roles of each of the stakeholders, and a common understanding on processes for engaging multiple stakeholders with each other over time.
20.	Let's make sure that accreditation results in programs that meet industry's needs as well as the regulators.
21.	Public protection
22	Ensuring stakeholders have opportunity for input, that is aimed at constant improvement of

2.	the basic engineering skills, which is the foundation of an engineering profession.
23.	Au sujet de la place des étudiants lors de la modification d'un programme : Les étudiants sont invités à nommer des représentants qui siègent sur les différentes instances universitaires. Même que dans les comités de programmes, il y a souvent autant d'étudiants que de professeurs si on regarde en dehors du génie. Ces étudiants servent de vigie et peuvent, lors de modifications de programme, ou même lors d'évaluation de programme, exprimer le point de vue étudiant et la réalité vécue de l'autre côté de la salle de classe. Ainsi, le programme peut continuellement s'améliorer et répondre davantage aux besoins des étudiants. Enfin, les besoins des étudiants soient mieux considérés pour qu'ils soient soutenus dans leur réussite.
24.	Standards Development; Standards Measurement; Planning and Performance; Training and auditing of Assessors; Quality Performance; and Risk Management; Focus on Public Interest and the needs of the profession; Compliance with Washington Accord rules and procedures ISO 17021 - 3 : Competence requirements for auditing and certification of quality management systems might provide additional guidance
25.	I'm honestly shocked and dismayed that Engineers Canada does not have formal processes. Be that as it may. • We are here to *lead* industry, not to follow it (thus "engineers" and not "industry" should be present) • Breadth across the disciplines (given the vast differences between them)
26.	The key consideration for the consultation process is are the graduate attributes adequate and are the students meeting them.
27.	At least at my institution there is not a clear understanding of the importance of accreditation at the higher levels of the university. More contact with those higher levels is needed.
28.	Consultation has to be more than a checkbox exercise - it has to be meaningful. Feedback on the findings of the consultation should be shared - what was considered and what was not considered and why for both.