2019 European Quality Assurance Forum

Supporting societal engagement of higher education

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Call for contributions: Paper submission form

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Please note that all fields are obligatory. For a detailed description of the submission requirements and Frequently Asked Questions please consult the Call for Contributions.

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Short bio (150 words max):

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She was dean of Polytech Orléans till 2012, she became member of CTI at this moment and then academic vice president of CTI for 4 years in charge of quality assurance, since July 2018 she acts as Advisor to the Presidency of CTI in charge of the process of audits. Since 2014 she has published many papers on SD and Accreditation in France and abroad:

AM JOLLY, Is it really the mission of an accreditation or/and quality agency dedicated to engineering education to introduce criteria related to society? SEFI Conference, 18 September 2017, Terceira (Azores)

AM JOLLY, C LEGER, JY CADOREL, Sustainable development in Engineering Universities: how accreditation agencies can help them in this demarche? SEFI Conference, September 2014, Birmingham

IMPORTANT: If you are submitting a proposal, please do not register for the event online until the results of the selection process have been announced. Papers selected for EQAF 2019 will benefit from one reduced fee per contribution, which will be applied through a special registration process.

During the Forum, the full text of all papers presented at the Forum as well as the associated Powerpoint presentations will be published on the Forum website. If you do not wish your paper to be published, please indicate so here. This has no consequences on the selection of the papers. Please however note that all Powerpoint presentations will be published, regardless of whether the full paper is published.

Title: How French CTI (Commission des Titres d'Ingénieur) supports societal engagement of institutions in the field of Sustainable development

Abstract (150 words max):

Sustainable Development(SD) is a major subject for society but also for Engineering education. Many citizens think that the consequences concerning climate change or reduction of biodiversity are the results of what engineers have imagined during the previous century. It is partly true but since the 90's many attempts exist in research and education to fight for ecology and social responsibility.

The accreditation agency in charge of Engineering education has the duty to help institutions to progress on those fields, in 2014, new criteria on SD have been introduced in our "Références &Orientations", they   concern many fields of accreditation but especially Quality Assurance and expected Learning Outcomes.

We had to put in place specific "Focuses" in 2016 and 2018. We have just got the results of the 2018's one and we can say that job is still to be done but we have the hope to have really helped institutions to progress.

Has this paper previously been published/presented elsewhere?

This paper is issued from a paper presented in a specific congress on SD: Engineering Education for Sustainable Development in September 2016, in Bruges (Belgium), however things have evolved since this period, it is why it has been redeveloped here.

Text of paper (3000 words max):

Introduction

Accreditation has changed all along the 20 previous years, accreditors don't any more act as constables but endeavor to make institutions progress. This is true on subjects having a strong importance for our society such as SD. When an engineering education agency is concerned this is particularly the case.
The first global teachings covering the 3 points of SD (Society, Economy and Ecology) inside engineering institutions can be considered as realized in TU Delft in 2002 (Ferrer-Ballas, 2011). A more detailed information on what happened from the Barcelona declaration to the surveys realized by "The Alliance for Global Sustainability" can be found in (Jolly, 2016).

1   What is CTI and how it works

The Commission des Titres d 'Ingénieurs realizes, in a mandatory way, accreditation of Public and Private Engineering Universities in France. This agency is member of ENQA (European Network for Quality Assurance).
Social responsibility is considered in France as a heavy challenge for engineers, and moreover, besides CTI's criteria concerning technical skills, there are criteria that concern soft skills: human and social fields of teaching must represent about 25% at the least of the program.
Eight years ago, the criteria concerning SD were not put in the mandatory ones, we had written a document called "Analysis and Prospective" which was available on our website to help institutions to orientate their evolution. Then, according to the process that will be described latter, they became part of the mandatory criteria (this norm is only strictly used when CTI accredits French Engineering Institutions).

1.1   A parity based organism

CTI includes professional and academic members, these members define and also make criteria evolve.
Very often, norms concerning SD were in application in companies for a long time (such as in chemistry or textile for example), this makes socio-economic members very receptive to problems linked to the domain of SD.
Furthermore, the consequences of the non-respect of SD can be observed in the society not only by people in research or education but also in everyday life, and especially in companies.

1.2   Reference and orientations

The set of rules corresponding to accreditation criteria is described in a document called References et Orientations (R & O), it evolves each four years taking into account the propositions of the stakeholders of CTI and more generally it follows the general trends of French or European society. CTI, as a member of ENQA, has to take into account those evolutions.
The set of criteria that must be taken into account by the institutions at each time is published and publicly available on the web site of CTI commission (R & O, 2016 and 2019).

2   The French attempts to make SD mandatory in engineering institutions

In France the problems concerning SD have been soon taken in account by students, as well as by organizations of deans such as Conférence des Grandes Ecoles (CGE) and by Ministries, some of them trying to act as positive lobbies. CGE is still very active in this field, it has recently edited a guide of skills concerning SD (Guide des compétences DD &RS) and its reflexing group is in charge of the French evolution of the Sustainable LIteracy Test (SULITE, 2016). CTI participates to both groups.
The network of French students for SD (REFEDD, 2008) realised in 2007-2008 a survey among the students (15 000 of them gave their opinion about SD and SD education). The outcome was that teaching of SD was either absent or very specialised in French education. The students expected more active pedagogies connected to the "real world".
One of their propositions was to make campuses exemplary and to define a minimal curriculum that should be taught to everybody. However, due to the autonomy of universities, it revealed very difficult for this group to make institutions evolve quickly. A first attempt to evolve faster has been the Green Plan, perhaps because it is based on a law but also because it includes many of the aspects considered in previous attempts in Europe.
We describe it more specifically because it is part of the quality system of an institution and so it is one fundament of CTI's process.

2.1   Green plan

According to a French law "Loi de Grenelle" of 2009, the Higher Education Institutions have to elaborate a Green Plan which is a plan intended for sustainable development including environmental preoccupations but also social and economic ones. In 2012, 100 institutions (among them 40% are engineering education institutions, that is 40 on the 206 French Engineering Education Institutions evaluated by CTI) had initiated this process.
With this experience we discovered that the success of a Green Plan needs:
-a SD strategy to be elaborated

-the institution mission to dedicate a person responsible for the animation, the setting and the evaluation of the SD process; this person must have human and financial resources.

A framework has been defined after promulgation of "Loi de Grenelle", it has been named Green Plan Reference system (Plan Vert, 2012): it is a toolbox aiming to help defining a SD strategy, its steering and its self-evaluation.
5 dimensions are to be considered for elaboration of the "Green Plan" of an institution:
-Strategy and governance,
-Teaching and education,
-Research,
-Environmental management
-Social policy and territorial management
With a sharper view it appears to be a specific application of ISO 26000, considering: accountability, transparency, ethical behaviour, respect of laws, recognition of the stakeholder's interests, international norms of behaviour, respect of human rights.
Communication about such a tool is quite demanding, and is realized by associations of deans and presidents of universities; it is difficult to imagine that institutions could have never heard of it.

2.2   Other possibilities offered to institutions

Furthermore, for institutions that want to go further than this legal basis, many organizations develop labels (EMAS, QUESTE…), tests (SULITE) or other actions (Rouvrais, 2013).
The organizers of these initiatives communicate with CTI so that we know which is developed and we can consider it in our audits.

3. Vision of CTI on SD
According to ENQA's ESG (European Standards and Guidelines), quality agencies have to take into account their stakeholders for the evolution of their evaluation procedures.

3.1   The Approach of SD's problematics

In CTI, this ENQA's requirement is fulfilled thanks to informal meetings with stakeholders that take place regularly on all topics linked to the heart of the evaluation. Inside engineering education institutions, many fields are in constant evolution regarding learning outcomes as well as teaching strategies or innovation.
In December 2012, it was decided to write immediately a new CTI's prospective document based on the Green plan reference which is, in France, considered as the norm for the SD field in higher education.
This prospective document was submitted to the organizations of students and then, one year later, the accreditation criteria of CTI were amended since the student's organizations were accrediting those proposals.
The idea to start from an existing reference (Green Plan) was intended by CTI not to penalize institutions having already begun their process towards SD, and because it was also becoming a national standard for general universities.
3.2   The CTI requirements
Usually criteria for French Engineering Institutions accreditation are only amended every 3 years, and consequently should have been launched in February 2015, but in February

2014, CTI, considering that social responsibility to engineers was a critical aspect for society and a duty for engineering institutions, decided to include immediately SD not only in the intended learning outcomes as it was previously, but also in the description of the global policy of the institution: this was an important evolution of the accreditation criteria (CGE, 2014).

The strategic guidance summary of the institution being evaluated had to include the orientation chosen by the institution regarding SD and particularly quote the Green Plan that describes the institution's strategy, its implementation and evaluation.

The strategic guidance summary is an important part of the self-assessment report because the institution's administrative council votes it.

A. General considerations

CTI wishes strongly that institutions really integrate SD through curricula in the education of engineers but also apply the principles of SD in their own management, working in an exemplary way.

When an institution is accredited or reaccredited, the implementation of Green Plan has to be explained within the quality process of the institution. CTI has quoted 8 dimensions of operational actions to be verified during the evaluation process:

-strategy and governance
-social management and local integration
-environmental management
-research
-curricula
-documentation
-industrial rooting
-quality management and continuous improvement

CTI stresses that a specific innovative active pedagogy has to be put in place for SD, this active pedagogy puts the engineering student in the situation of finding and building solutions to "real world" problems. CTI also specifies that the recruitment of students must guarantee diversity according to a policy concerning chances equity.

We observe that even if the items do not appear in the same hierarchy, the global considerations of CTI are the same as in other requirements concerning SD because all of them are somewhere related to the ISO criteria regarding SD.

B. Learning outcomes

Regarding the curricula, the major point of the accreditation audit is the observation by the experts of the expected learning outcomes that the graduates must possess at the end of the curriculum.

3 of them are in direct relation with SD:

- The capacity to take into account the stakes of relationships at work, of ethics, of safety and health in the work

- The capacity to take into account environmental challenges especially by application of principles of SD

- The capacity to take into account society's stakes and needs.

During the audit of programs, CTI's members have to check this conformity but also how these LO are really assessed in the program.

3.3 Some Results

The points developed by schools can reflect some local interest (if means of transport for example are part of the local Agenda 21 of the city, then they can become a specific point).

They are also linked with the specific activity of the school (teaching and research in the fields of chemistry and thermal motors make the school more concerned by those points). Some schools decided to imply as much staff as possible and the themes to be improved have been chosen by all of the employees (i.e. incitement and facilitation of the use of bicycles, reduction and waste sorting, teleworking, management of the car pool, biodiversity...). In another school, a self-assessment is realized each year on the SD approach, or in another the Green plan is led by the students instead of the staff.

The first results were however not completely satisfactory, because very often, either the dean of the school either the experts in charge of this audit had not realized that criteria had changed or do not know how to act. This can be seen in the recommendations that do not reflect this field at all between 2014 and 2018!

3.4. Evolutions

When the Self Evaluation Report of an institution arrives at CTI's staff, if the Main Reporter in charge of the audit of the institution advises the dean of the institution that the report is not as expected, the prospective elements that the school will use to put in place SD arrive very soon as a prospective document.

So as to face the inexperience of experts or even members, another meeting took place in CTI in the beginning of 2016, animated by specialists of SD, discussing and explaining the motivations of SD to experts and members, and the various forms it can take in education. We decided also to include experts, specialist of SD, in the teams of audit so as to be sure to ask the good questions and thus help the school to put in place a strategy of development in the field of SD. It revealed to be very positive but again still not enough!

4 Focuses realized in 2016-2017 and in 2018-2019

2.3   The concept

In February 2016, CTI decided to go further. Because some new points of view concerning engineering were out the traditional field of investigation of CTI, and because those points presented some difficulties, not only for institutions but also for experts, we decided to put in place what we call "Focus". This experience was renewed in February 2018.

A focus is a specific point developed by the institution in 3 or 4 pages; it will be delivered by the institution together with its Self-Evaluation Report. Each focus includes questions about a specific theme to which the school has to give its own answer.

In 2016 and 2018 the societal implication of schools had to be put in evidence through three different focuses:

-sustainable development

-health and safety at work

-innovation

The CTI, conscious of the work given to schools by these "focus", decided to submit in a mandatory way each institution evaluated in the year to only one of these 3 focuses. A school (out of the accreditation campaign) who decides to write a specific focus on one or more of these points is encouraged to do it. Our aim is also to collect best practices and then broadcast anonymously them to all the community: we know that the very different sizes of French institutions do not make easy the share of practices, organizations and pedagogies and we think that the fact that one institution read what another institution had imagined could be a good thing for all of them.

Each of the group of documents on a specific theme is analyzed by an expert of the domain and a specific synthesis work has been realized: 10 or more documents lead to each synthesis. Then the synthesis is broadcasted to all institutions: this communication can be done at the occasion of the annual conference of CTI where all the deans of French institutions can be present.

Our aim is also to show that there is not only one road to progress towards SD.

The fact that CTI's consigns are a bit fuzzy is something that is expected because according to the fields of activity, of the historic situation, of the recruited students, the path followed by institutions could be significantly different. One very important point is not to stigmatize institutions: the communication on the report on focus is of course anonymous.

2.4   The first focus on SD

The specific focus on SD especially includes 3 fields of questions to institutions.
- The first questions concern the vision and involvements of the institution:

-how the vision of Societal Responsibility is visible in the management of the school and in the profile of graduates?

-by who and how are defined the key competences of the pedagogical program in this domain?

-how do the Learning Outcomes defined by CTI concerning SD appear in the pedagogic program?

-how the organisation and functioning of the school are in resonance with the skills aimed for graduates?
- The second group of questions concerns the programs and pedagogic methods:

-has a specific pedagogic device dedicated to systemic societal questions been put in place in the first year in the school?

-are the great challenges of society (resources, climate, energy, biodiversity, health...) integrated in the teaching units of the other years? With which volume, with which pedagogy?

-are there projects corresponding to the notion of societal responsibility?

-are there associations of students operating in this domain?

-does the specifications of periods inside companies (internship, missions) include a work of the students on SD?
- The third point concerns assessment of those skills:

-are the students evaluated on SD?

-during which activities?

-are the students submitted to the SUlite test?

-how the skills assessed are presented in the global skill matrix?

2 5 The second focus in 2018-2019

In February 2018 we decided to ask institutions the same questions on the same focuses that we had asked 2 years before. We must say that not the same institutions were concerned: because of periodic evaluation we go in the same institutions only each 5 years.

However, on SD we could not discover a very great difference in the results; we were surprised because of energy and climate change subjects which are part of our everyday life should influence more strategies of institutions.

So we decided to go further concretely giving practical references to institutions but also broadcasting the results of the focuses to our members and experts: there is still a reflex that

if the accreditation audit says nothing, nothing has to be done which is a quite childhood way of acting! It is very strange that only a very specific point is always discussed during our plenary assemblies which is the social impact of digitalization, as a result of Factory 4.0 for example.

The decision has been taken during the last month to broadcast the results to all stakeholders of CTI through the letter that CTI publishes each month. In this time when young people are clearly very present on those fields, the combination of efforts of the accreditation agency and internal stakeholders must be a clear element for the internal quality system of institutions.

Conclusion

CTI is really wishing to make SD at the heart of the pedagogic process of engineer's education in France: from 2012, the attempts have been pragmatic ones, because we want that things really come from institutions, including in their processes all their stakeholders. There is not one unique demarche for this process that is why CTI wants to have a global idea of the evolution of things along the time in different kinds of institutions: we hope that focuses will help all institutions to better manage SD.

We also make comparisons inside international groups (Hollburng, 2017) so as to improve our approach. CTI also goes on with its participation with other French groups on SD research: for example, it participated in the works of the group of CPU-CGE concerning skills, whose expert for the second focus was the animator.

Agencies have to stay connected to all part of society!

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