



Commission des
Titres d'Ingénieur

CTI's Self-Evaluation Report

EXTERNAL REVIEW FOR THE RECONFIRMATION
OF CTI AS A FULL MEMBER OF THE EUROPEAN
ASSOCIATION FOR QUALITY ASSURANCE
IN HIGHER EDUCATION

JANUARY 2014



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INTRODUCTION

This report contains the results of a self-evaluation process carried out by CTI with the objective of analyzing its compliance with parts 2 and 3 of the European Standards and Guidelines. This self-evaluation report has been prepared in the context of an external review organized with the objective of reconfirming CTI's full membership to the European Association for Quality Assurance in Higher Education (ENQA).

CTI is a full member of ENQA since 2005. In June 2009, after an external evaluation coordinated by NVAO, CTI's ENQA full membership was confirmed. On the basis of this external evaluation, in November 2010, CTI was included into the European Quality Assurance Registry for Higher Education (EQAR). Two recommendations were addressed by the EQAR Register Committee concerning the future external reviews of CTI:

- › The fitness for purpose of the quality assurance processes conducted by CTI should be specifically addressed in a future external review (ESG 2.4)
- › The full implementation and effectiveness of CTI's recently adopted policy to publish full reports should be addressed.

A progress report was sent to ENQA in July 2011 in order to present a follow up of the main initiatives conducted by CTI between June 2009 and June 2011 so as to address ENQA's recommendations; this report was endorsed by the ENQA's board.

The 2014 review coordinated by ENQA is a type A review, as defined in the Guidelines for external reviews of quality assurance agencies in the European Higher Education Area.

CTI has implemented a thorough internal quality system. The preparation of its self-evaluation report has heavily relied upon the continuous work done during the last years to improve CTI's processes and stakeholder service. The preparation of the report has been a privileged opportunity to take stock of the developments since the last review.

A working group addressed by CTI's board has been appointed to elaborate this report and coordinate the self-evaluation process. Several meetings have been scheduled including CTI members and stakeholders, depending on the topics under consideration. The methodology of the self-evaluation process as well as a list of the meetings conducted is provided at [annex 1](#).

A number of support documents are mentioned along the text in order to illustrate CTI's compliance with the European Standards and Guidelines. The links to these documents, which are accessible through CTI's intranet, are provided in [annex 4](#).

The report has been approved by CTI's general assembly on the 7th of January 2014.

GLOSSARY

CTI: Commission des Titres d'Ingénieur

« **Titre d'Ingénieur diplômé** »: Master degree in Science and Engineering which can be delivered only by HEI's which have been assessed by CTI

ABET: Accreditation Board for Engineering and Technology (USA)

AEQES: Agence pour l'Evaluation de la Qualité de l'Enseignement Supérieur (Belgium)

AERES: Agence pour l'Evaluation de la Recherche et de l'Enseignement Supérieur (France)

BNEI: Bureau national des Elèves Ingénieurs (France)

CDEFI: Conférence des Directeurs des Ecoles Françaises d'Ingénieurs (France)

CEFDG: Commission d'Evaluation des Formations et Diplômes de Gestion (France)

CIEP: Centre International d'Etudes Pédagogiques (France)

COS: Conseil d'Orientation Stratégique (CTI's strategic advisory board)

CPGE: Classes Préparatoires aux Grandes Ecoles

Grandes Ecoles: Higher education Institutions (public or private) which are entitled by the Ministry of Higher Education to award degrees (usually Masters), most often in Engineering or Business

ECA: European Consortium for Accreditation (Europe)

QROSSROADS: ECA's European programmes database (Europe)

ENAAE: European Network for the Accreditation of Engineering Education ; this association is responsible for the EUR-ACE® label (Europe)

EUR-ACE®label: A quality accreditation label for engineering programmes developed by ENAAE (Europe)

EQAR: European Quality Assurance Register for Higher Education (Europe)

HEI: Higher Education Institutions, includes universities

IESF: Ingénieurs et scientifiques de France (France)

INQAAHE: International Network for Quality Assurance Agencies in Higher Education (international)

IUT: Institut Universitaire de Technologie, deliver degrees up to the Bachelor grade (France)

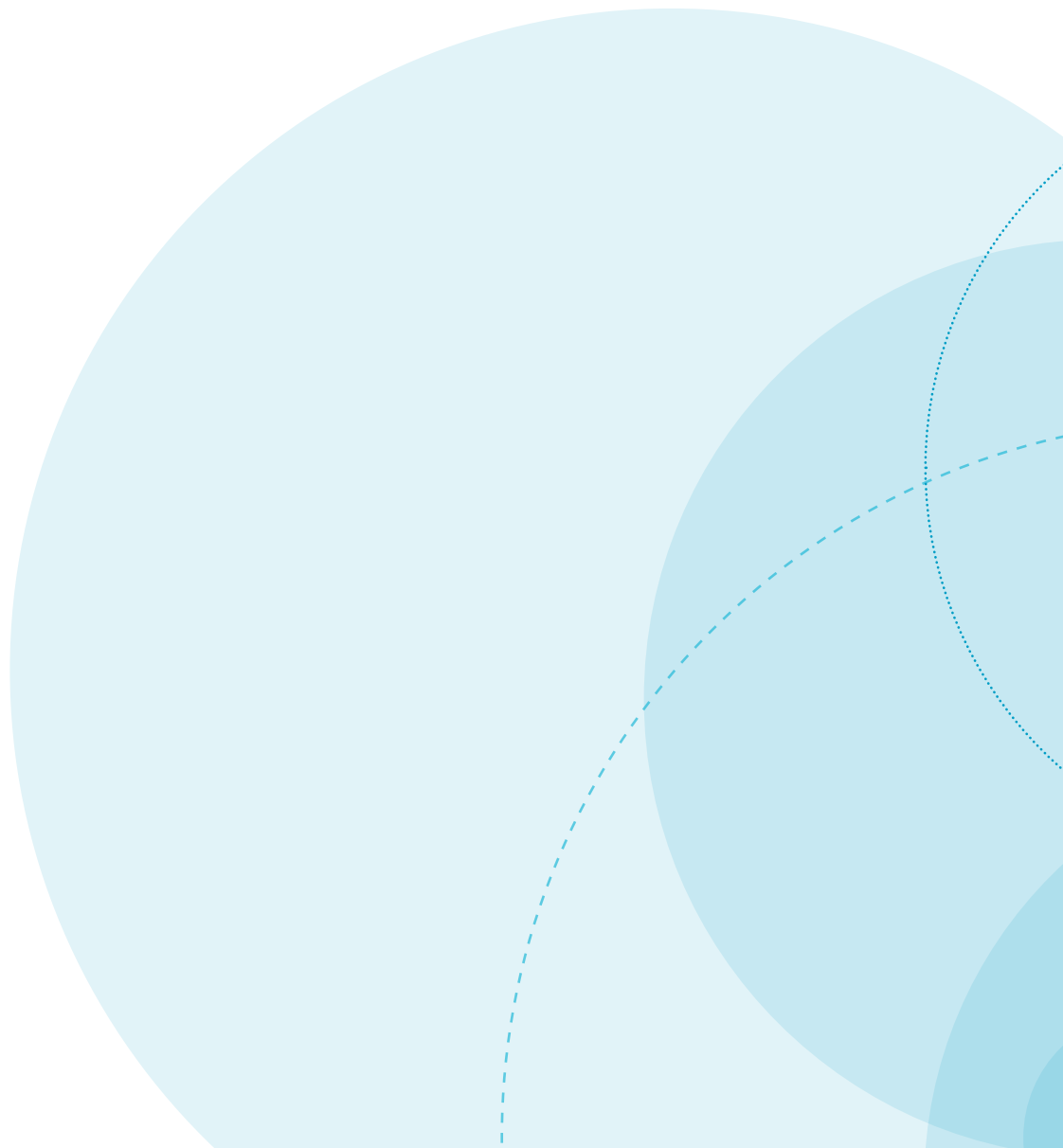
NVAO: Accreditation Organization of the Netherlands and Flanders
(The Netherlands and Flanders)

OAQ: Organe d'accréditation et d'assurance qualité (Switzerland)

PDCA: Plan-Do-Check-Act

RNCP: Répertoire national des certifications professionnelles (France)

VAE: Validation des Acquis de l'Expérience (France)



ANNEXES

Annex 1: The self-evaluation process

Annex 2: Description of CTI's internal quality assurance system

Annex 3: Description of CTI's programme assessment and accreditation process

Annex 4: List of evidences

Annex 5: The international missions and activities of CTI

Annex 6: Selection of the main legal texts concerning CTI's missions and activities



0. THE HIGHER EDUCATION SYSTEM IN FRANCE

0.1. THE HIGHER EDUCATION SYSTEM IN FRANCE

In France, the higher education system (HES) is regulated by the Ministry in charge of the Higher Education (in 2013, « Ministère de l'Enseignement Supérieur et de la Recherche »). Other Ministries such as the Ministries of Industry, Defence or Agriculture, are often responsible for institutions in their technical domain. The provinces (« Régions ») have no direct competencies in the HES, although they support the institutions and research centers in their area.

Higher education covers all studies after the "baccalauréat" ('A' level equivalent). Two systems exist side by side:

- › An open system in the universities. Most students study under this system. All baccalauréat holders have the right to enter this system without any prior selection procedure. The universities offer an extremely wide range of studies.
- › A selective system with a limited number of places. Admission is by competitive examination. This is the system in use in the « grandes écoles » (top graduate schools), such as the Ecole Nationale d'Administration (French Senior Civil Service School), Ecole Nationale Supérieure (national post-graduate school), the « Ecoles d'ingénieurs » (Engineering graduate schools), top business schools, the « Instituts universitaires de technologie » (IUTs, university institutes of technology). These institutions train mainly public-sector and private-sector senior and middle managers.

0.2. TYPE OF INSTITUTIONS

In France, Higher Education Institutions can be created and run by both public and private actors; however, the « student status » (access to grants, special social security regime,...) is given only to the students having a special visa from the State.

There are two main categories of HEI's (visaed by the State):

- › Institutions (private or mainly public) which are allowed by law to deliver degrees recognized by the State, such as Bachelor, Master, Doctorate, or master « Titre d'ingénieur diplômé »
- › Institutions which can only deliver their own degrees.

To deliver national degrees, the institutions need an authorization ("habilitation") by the Ministry of Higher Education, based on an officially-recognized periodical assessment. As an example, the « Titre d'ingénieur » is a master degree which can only be delivered by authorised institutions whose programmes have been assessed by CTI.

Higher education is offered by a variety of institutions: universities, colleges, « grandes écoles », Technology Institutes ... Tuition and fees are usually low in public institutions (a few hundred euros including social insurance) and are more expensive in private schools (ranging from 4000€ to 15000€).

0.3. THE FRENCH DEGREE SYSTEM AND THE “DIPLÔME D’INGÉNIEUR”

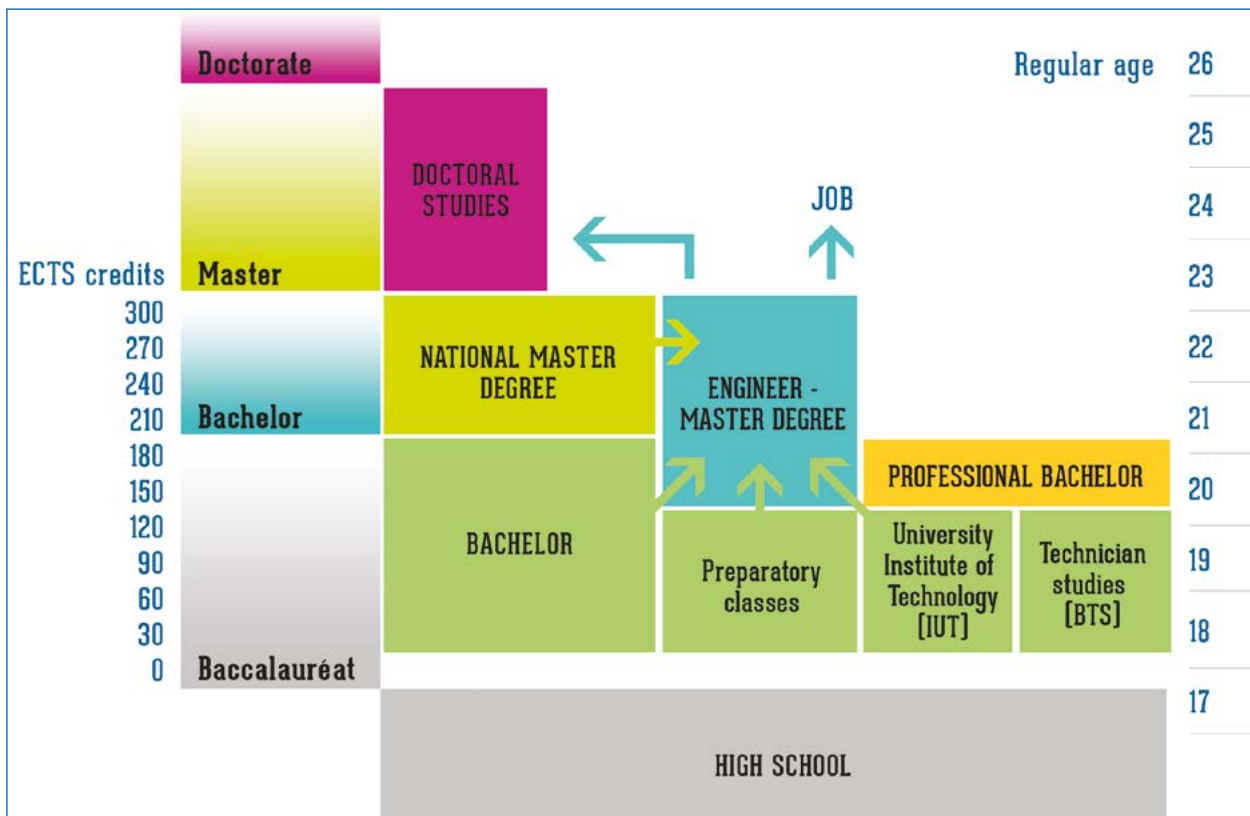


Figure 1. The “diplôme d’ingénieur” in the French higher education system

The French HES fully complies with the European standards:

- > The three-level BMD system: Bachelors/Masters/Doctorates.
- > The European Credit Transfer System (ECTS)
- > An organization into six-month periods and teaching units (modules)
- > The Diploma Supplement delivered to the graduates.

The main higher education degrees currently operating in France are:

Bachelor’s degree (180 ECTS): « Licence » : Bachelor’s degree with academic orientation opens the way to the master programme ; « Licence professionnelle » : Bachelor’s degree with professional orientation.

Master’s degree (120 ECTS): Master’s degree with professional or academic orientation, open to the Bachelor’s holders.

Integrated master-level degrees (300 ECTS), such as the “diplôme d’ingénieur”, delivered by institutions (universities and “Ecoles”) accredited by an official organism (CTI in the case of the “diplôme d’ingénieur”).

PhD’s degree: Doctorate programme, delivered after three years of post-master studies and the preparation of a doctoral thesis.

Figure 1 shows the place of the “diplôme d’ingénieur” within the French degree system. Engineering degree programmes (“Diplôme d’ingénieur”) aim to provide students with the knowledge, capacities and theoretical and practical skills necessary for engineering work over five years after the baccalaureate degree. Since these degree programmes are career-oriented and since all establishments are different and encouraged to be diverse, engineering degrees are established within each establishment rather than at the national level.

As master degree holders, all “ingénieur diplômés” may apply for a doctorate programme.

CTI criteria and procedures respect institutional autonomy and diversity. Nevertheless, all CTI accredited programmes should be able to produce graduates satisfying the following general profile:

- › **Long term adaptability and analytical capabilities**
 - » A strong and broad basis in fundamental sciences is essential in order to guarantee analytical competence and the capacity for adjusting in the long term to the demanding evolution of engineering and management activities.
 - » Therefore, graduates should recognize the need for, and have the ability to engage in, independent, life-long learning.
- › **Short term adaptability to professional activity within a branch of engineering**
 - » Graduates should be able to adapt effectively in a relatively short period to professional activity within a branch of engineering. To enable this, the programme should provide the necessary understanding of engineering knowledge and tools as well as the required practical skills.
 - » The programme should also provide the necessary services (career counselling...), activities (internships, projects, simulations...) and conditions (interaction of students with industry and professionals) so as to ensure effective transition from the academic to the professional world.
- › **Research and innovation**
 - » Engineering graduates should have the appropriate preparation and competences in order to be able to incorporate a research and innovation dimension to their engineering work (critical analysis of scientific information at the forefront of the branch, experimentation, innovative problem solving and engineering design...).
 - » Graduates should be able to carry out PhD studies after finishing the programme
- › **Business culture and economic, social, environmental and ethical awareness**
 - » Together with a scientific and technical cultural approach, engineering graduates should also have an understanding of business culture; they should also be aware of economic, social, ethical and environmental challenges.

› **Communication skills and international awareness**

- » Engineering graduates should be able to communicate effectively in a professional context at national and international levels. Graduates should have the capacity to work in multidisciplinary and international contexts.

Most engineering degrees are organized according to an initial founding two-year cycle (preparatory cycle; "cycle préparatoire") followed by a subsequent more specialized three-year cycle (engineering cycle; "cycle ingénieur").

After the baccalaureate degree, students may take different courses to prepare for engineering degrees: two years in CPGE (grandes écoles preparatory classes) and entrance exams ("concours") to an engineering HEI; two years in a preparatory cycle directly organized by an engineering HEI, two years of IUT (technological university institute) or scientific university (general or possibly professional bachelor's degree) training then test or application entrance exam. Most engineering HEIs are opened to all types of applicants, but each engineering HEI has its own preferred application system.

In addition, a large portion of students - especially international students - are recruited through exam-based applications.

After reaching an engineering degree, most young engineers immediately start working, and some continue their education to get another degree, perhaps in a more advanced technical field or in sales or management. Finally, some of these graduates go on to doctoral studies in France or abroad, immediately or later on, in varying proportions depending on the field.

0.4. QUALITY ASSURANCE IN FRENCH HIGHER EDUCATION

Although CTI as a field specific accreditation organization has been established 90 years ago (see [section 1](#) of this report), a global quality assurance agency for higher education has been recently set in response to the requirements of the Bologna process.

AERES ("Agence d'Évaluation de la Recherche et de l'Enseignement Supérieur") has been created in 2006 to evaluate institutions (universities and other HE institutions), research laboratories and organizations, HE programmes. The field specific accreditation agencies such as CTI for engineering programmes or CEFDG ("Commission d'Évaluation des Formations et Diplômes de Gestion") for business programmes, have been confirmed in their missions and work in cooperation with AERES.

In the case of CTI, after some years of working together in order to clarify their respective missions, a framework collaboration agreement with AERES has been established in 2012. The main objective of this agreement is the collaboration towards a coordination in the evaluation and accreditation of engineering programmes and institutions.

1. CTI'S MISSION AND ACTIVITIES

1.1. MISSIONS OF CTI

The “Commission des titres d’ingénieur” (CTI) is a quality assurance organization established by French law in 1934. CTI is the de jure and de facto the cornerstone of engineering programme accreditation in France. Its mission includes:

- › The accreditation of all French higher education programmes leading to the French engineering degree title of “Diplôme d’ingénieur”; State-owned HEIs are authorized to award the engineering degree (“habilitation”) by the HEI’s supervisory Minister(s) upon receipt of CTI advice. Private HEIs are authorized by the Minister of higher education upon receipt of a CTI accreditation decision.
- › On receipt of a request from foreign higher education institutions, the accreditation of engineering degree programmes outside France. Up to the current moment, CTI has accredited engineering programmes belonging to ten institutions outside of France in six different countries (Belgium, Bulgaria, Burkina Faso, China, Vietnam and Switzerland)
- › The publication of position statements on all issues related to engineering degree programmes. In particular, CTI sets the criteria and procedures for the accreditation of engineering degree programmes and contributes to their continuous improvement, in a European and international context.

CTI does not award engineering degrees to individuals. Neither is the ranking of higher education institutions or engineering schools part of its mission.

CTI is composed of 32 members, appointed upon legislative order, coming from different origins (public and private higher education institutions, employer organizations, professional engineering associations and trade unions). This composition brings together individuals from engineering education, professional and corporate world, top labour organizations and engineering associations as well as experts in the field of engineering.

CTI accreditation activities are carried out using an extensive network of national and international experts as well as CTI members. The names and affiliations of the members and experts of CTI are periodically published on its web page: <http://www.cti-commission.fr>. (evidence 1.1 A) [Annex 3](#) provides a complete description of CTI’s programme accreditation process.

CTI has implemented a thorough internal quality assurance system in order to guarantee that its activities are carried out under the best conditions. A description of CTI’s internal quality system is provided in [Annex 2](#).

CTI is a full member of ENQA (European Association for Quality Assurance in Higher Education) since 2005 and it is registered in EQAR (European Quality Assurance Register) since 2010. CTI is also a founding member of ENAEE (European Network for the Accreditation of Engineering Education) and is one of the agencies authorized to deliver the EUR-ACE®

label (a quality accreditation label for engineering programmes developed by ENAEE). CTI also participates in the works of ECA (European Consortium for Accreditation).

Evidences and references

Evidence 1.1_A. Names and affiliations of members and experts

Annex 2. Description of CTI's internal quality assurance system

Annex 3. Description of CTI's programme assessment and accreditation process

1.2. CTI SPECIFICITIES AS A EUROPEAN QUALITY AGENCY

This report aims at demonstrating that CTI fully complies to the European standards for Quality Assurance in higher education. However, when compared with the majority of the quality agencies in the EHEA, it presents significant distinctive features which have to be taken into account:

- › CTI is a **field specific** agency; such agencies constitute a minority among ENQA member agencies.
- › CTI's members **contribute to the on-site assessments**. As members, they help to define CTI's reference frameworks, they take into account the evaluation reports in order to produce the accreditation decisions. As experts, they normally serve as chairs of the expert teams, and assume the supervision of the report. They bring their knowledge of their agency's reference system and audit methods and they ensure the global consistency of the evaluations.
- › CTI has **full responsibility** for the definition of the accreditation criteria.
- › CTI membership comprises an equal representation from the corporate world (50%, with 25% appointed by employers' organizations and 25% appointed by trade unions and engineering associations) and from academia (50% of members); then CTI is **both an academic and professional organization**.
- › CTI's members are appointed by their own organizations; their involvement in CTI represents a significant (voluntary and unpaid) part of their professional duties (from about 50 working days per year for the « ordinary » members, to a full half-part time for the board members and a two thirds time for the president).
- › CTI has a very significant **international** accreditation activity in Europe and worldwide ([See Annex 5](#)).

[Annex 6](#) contains a selection of the main legal texts regarding CTI's missions and activities.

Evidences and references

Annex 6. Selection of the main legal texts regarding CTI's missions and activities.

2. COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE OF HIGHER EDUCATION [ESG PART 2]

2.1. USE OF INTERNAL QUALITY ASSURANCE PROCEDURES

External quality assurance procedures should take into account the effectiveness of the internal quality assurance processes described in Part 1 of the ESG

The ability of the institutions to assure and improve the quality of their programmes is an essential factor for a successful CTI accreditation.

CTI's vision regarding how internal quality should be managed within a higher education institution is consistent with the European Standards and Guidelines, although somehow larger. All criteria of the ESG part 1 are taken into account in CTI's criteria regarding internal quality; however, due to its particular double academic and professional nature (see [section 1.2](#)), CTI pays special attention to stakeholder involvement. As far as CTI is concerned, institutions need to guarantee and improve quality with respect not only to stakeholders inside the institution (students and faculty), but also outside the institution (institutional and industrial partners and alumni), which are not explicitly taken into account by ESG part 1.

Quality issues are taken into account throughout the whole accreditation process (self-assessment, assessment, site visit and accreditation).

CTI has elaborated a self-assessment guide addressed to the institution ([evidence 2.1 A](#)), which includes a section devoted to its internal quality management system.

Even in those cases in which institutions have undergone external accreditation or certification processes of their IQ systems (such as ISO9001), a specific section of the assessment report prepared by the CTI expert team is devoted to this issue, as well as a specific time slot during the site visits.

Finally, quality issues are an important part of the discussions and a fundamental factor for the decision during the plenary meeting.

Self-evaluation

The effectiveness of the internal quality assurance processes is indeed taken into consideration by CTI and it is an explicit accreditation criteria. Throughout the different accreditation campaigns, CTI has stressed specific aspects, such as the assessment of teaching quality by the students, and has witnessed clear improvements.

However, in practice, the importance of internal quality is perhaps not equally perceived by all CTI members and experts. Even though these personal differences are somehow leveled at the plenary assembly meetings, a greater awareness regarding internal quality issues from certain CTI members and experts would be welcomed.

Evidences and references

Evidence 2.1_A. Section F of the self-assessment guide addressed to the higher education institutions (English version)

Section 1.2 of this self-evaluation report

2.2. DEVELOPMENT OF EXTERNAL QUALITY ASSURANCE PROCESSES

The aims and objectives of quality assurance processes should be determined before the processes themselves are developed, by all those responsible (including higher education institutions) and should be published with a description of the procedures to be used.

Since CTI's creation in 1934, the external accreditation processes put in place by the agency have continuously evolved to respond to the new challenges faced by engineering higher education institutions in France.

These evolutions can result in the development of new ad-hoc external accreditation processes, changes in the accreditation criteria or in the expected learning outcomes for a graduated engineer established by CTI; some significant examples of these developments are:

- › The development of specific accreditation procedures and criteria ([evidence 2.2 A](#)) for engineering programmes delivered to students under apprenticeship status (*formations en apprentissage*). In these programmes, whose number has greatly increased over the last few years ([evidence 2.2 B](#)) the students are employed part-time by different companies, where they acquire some of the expected learning outcomes ([evidence 2.2 C](#)).
- › The introduction of new accreditation criteria regarding the level in foreign languages of engineering graduates; specifically, a minimum B2 level has been imposed for all engineering graduates ([evidence 2.2 D](#)). A B1 level of a second foreign language is strongly recommended. These criteria emerged from a need of the companies, which in 2000 complained about the English level of the graduates not being satisfactory. After a number of years of implementation, CTI is currently considering to raise the exigency level up to C1, which constitutes an example of how CTI tries to encourage the continuous improvement of French engineering HEIs.
- › The development of a specific procedure and criteria for the recognition of prior learning processes (VAE-*Validation des acquis de l'expérience* – [evidence 2.2 E](#)).

COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE OF HIGHER EDUCATION (ESG PART 2)

- › The development of a specific accreditation process for engineering programmes delivered abroad ([evidence 2.2 F](#)).

The development of these new processes is always conducted in collaboration with all concerned CTI stakeholders. CTI has put in place different discussion and feedback mechanisms (see [Annex 2](#) - Description of CTI's internal quality assurance system; for a thorough description), particularly three monthly working groups which cover issues related to engineering education, academia-industry relationships and international affairs. These working groups include representatives of the main CTI stakeholders (particularly HEIs, students and companies) ([evidence 2.2 G](#)).

At the strategic level, the president of CTI holds periodic meetings with the president of the Conference of Directors of French Engineering HEIs (CDEFI - *Conférence des Directeurs Françaises d'Ingénieurs*), the National Engineering Students Association (BNEI - *Bureau National des Éléves Ingénieurs*) and the French Engineers and Scientifics Association (IESF - *Ingénieurs et Scientifiques de France*). These meetings are the occasion to exchange and discuss on the current trends on engineering education and profession in France.

CTI external accreditation processes and criteria are described in the document References and Orientations ([evidence 2.2 H](#)). This document, accessible through the website, is updated every three years according to the following procedure:

- › An ad-hoc working group prepares a draft of the new version of the reference framework based on the conclusions of the above mentioned working groups.
- › After a number of discussions within the CTI's board, the draft is presented to the plenary assembly, which, after a discussion session, endorses the document.
- › The new document is made public through CTI's website. A formal letter is sent to the deans in order to inform of the release of the new version.
- › The new version of the reference framework is formally presented during CTI's annual colloquium in February, where a specific presentation is devoted to this issue. This colloquium, which serves to launch the annual accreditation campaign, includes more than 300 representatives from engineering HEIs and other significant CTI stakeholders. A number of workshops during this colloquium are devoted to discuss on the developments concerning the accreditation process and criteria.
- › The quality loop closes with a survey filled up by deans and experts every year in which a specific section on CTI's accreditation processes and criteria is included.

Self-Assessment

The different mechanisms described above (monthly thematic working groups, periodic strategic meetings held by CTI's president) enable effective stakeholder involvement in the development and updating of CTI's processes and criteria, without putting at risk CTI's independence.

Concerning the publication of processes and criteria, much effort has been devoted to improve the form and usability of CTI's reference documents. The last 2012 version of CTI's reference framework is now presented in a navigable format through CTI's website. The results of the annual survey ([evidence 2.2_I](#)) addressed to the Deans show the fact that CTI's reference documents are highly appreciated.

Evidences and references

Evidence 2.2_A. RetO, section about apprenticeship

Evidence 2.2_B. Bernard Remaud's article about apprenticeship

Evidence 2.2_C. CTI Infos about apprenticeship

Evidence 2.2_D. RetO, section about foreign languages level

Evidence 2.2_E. RetO, section about *Validation des Acquis de l'Expérience*

Evidence 2.2_F. RetO, section about French State Admission

Evidence 2.2_G. CTI's by-laws section regarding the working group processes

Evidence 2.2_H. RetO

Evidence 2.2_I. Results of the satisfaction survey

Annex 2 Description of CTI's internal quality assurance system

2.3. CRITERIA FOR DECISIONS

Any formal decisions made as a result of an external quality assurance activity should be based on explicit published criteria that are applied consistently.

All CTI formal decisions are based on explicit and public criteria. All CTI processes and criteria are described in the document References and Orientations ([evidence 2.2_H](#)).

Consistency of decisions is assured thanks to a number of structural and functional elements:

1. **CTI's plenary assembly:** in order to favour consistency of decisions, all CTI accreditation decisions are made by the Plenary Assembly. All discussions during Plenary Assembly meetings are recorded by the secretary of the session, and recordings are used to prepare a complete written account of the meeting. The minutes ([evidence 2.3_A](#)) are sent to all CTI members and are formally approved during the following General Assembly meeting. It should be emphasized that the report from the site visit is not published and is just considered as a work document for the CTI deliberations (see [Annex 3](#) - description of CTI's accreditation process). During the plenary session, all members discuss the report, bring in their past experience; in this way, a collective memory is built which helps to avoid discrepancies between decisions for similar situations.

COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE OF HIGHER EDUCATION (ESG PART 2)

- 2. Presence of CTI members during the on-site missions:** at least two CTI members (one from the academic world and other coming from industry) are appointed to be a part of the assessment panel at all CTI visits. The presence of CTI members helps to ensure that the information gathered during the mission is sufficient to support CTI's general assembly decisions, which is essential to ensure consistency.
- 3. Development and documentation of new jurisprudence:** during the Plenary Assembly meetings, an important place is devoted to the discussion on the accreditation criteria so as to assure a common understanding by all CTI members. These exchanges serve to clarify or detail certain criteria. The conclusions are published through CTI's website upon the name of "deliberations" ([evidence 2.3 B](#)).
- 4. Member renewal:** CTI members are appointed for a term of 4 years, renewable once. In order to assure continuity and to limit knowledge loss, just a third of the commission is renewed every two years. Ancient members who have played a preeminent role at CTI often continue to be linked to the organization as experts or advisors.

Self-Assessment

Since 2010, a new CTI information system enables to track all information and documents regarding CTI's accreditation visits (see Annex 2 - Description of CTI's internal quality assurance system). This tool, which is essential for CTI's daily operation, offers many possibilities in terms of analysis. Particularly, CTI's system could be of great use to conduct a formal analysis on the consistency of CTI's decisions over the last four years.

Evidences and references

Evidence 2.3_A. Example of a Plenary Assembly minutes

Evidence 2.3_B. Example of a *deliberation*

Also see evidence 2.2_H. RetO

Annex 3 Description of CTI's programme assessment and accreditation process

2.4. PROCESSES FIT FOR PURPOSE

All external quality assurance processes should be designed specifically to ensure their fitness to achieve the aims and objectives set for them.

CTI has conceived a standard accreditation process according to the self-evaluation/site visit/draft report/published report/follow up model of review (see [description of the accreditation process CTI in Annex 3](#)). The objective of CTI's programme accreditation process is two-fold:

- › To make sure that the intended learning outcomes of the programme are consistent with the general profile defined by CTI for all engineering programmes (see [section 0.3](#))

[of this document](#)), as well as the efficiency of the programme in order to achieve these learning outcomes.

- › To make sure that the institutional environment of the programme is appropriate, so as to ensure a minimum level of quality (governance, organization, external links and partnership, quality assurance system, resources, information systems...).

In order to achieve this double objective, CTI pays a great attention to institutional aspects. This focus on institutional environment has consequences in terms of process organization, as CTI operates according to a principle of institutional clustering. This means that all engineering programmes delivered by an institution are accredited at the same time (rather than applying other possible clustering principles preferred by other agencies, such as clustering by study field).

In order to avoid unnecessary burden for both CTI and the HEIs, CTI's accreditation processes and criteria are applied with different intensity depending on the maturity of the programme and the institution under accreditation (see [section 2.6 of this document on follow up processes](#)). Institutions which intend to deliver an engineering programme for the first time are subject to a thorough accreditation process, whereas engineering programmes already in operation are subject to a much lighter procedure, which focus on the improvements and evolutions of the programme between accreditation rounds. CTI has defined 6 different types of accreditations demands, which assures the efficient and adapted treatment of the different cases ([evidence 2.4 A](#)).

Apart from these general characteristics, a number of elements enable to ensure the validity, reliability and fitness for purpose of CTI's accreditation processes:

1. **Composition of CTI's plenary assembly:** the main stakeholders in the context of engineering higher education in France are represented (see [section 1.2. on the specificities of CTI as a European Quality agency](#)). They constitute a highly representative and legitimate plenary assembly (see [Annex 6](#)).
2. **Selection of experts:** apart from CTI members, CTI's assessment activities are carried out using an extensive network of national and international experts. The list of CTI experts is updated every two years. Experts are proposed by the different CTI stakeholders and appointed by CTI's board. One of the members of the board is in charge of analysing the needs of CTI in terms of expertise in view of the new accreditation campaign ([evidence 2.4 B](#)). Appointed experts must follow a training session and sign a deontology chart ([evidence 2.4 C](#)).
3. **Members and experts training mechanisms:** since September 2010, a training addressed to all CTI members and experts is annually organized in order to clarify all aspects related to the evaluation and accreditation missions of CTI. Other than that, training of CTI members is assured through thematic sessions during the General Assembly meetings and during the monthly working groups.

4. Use of international experts: CTI's expert pool includes 16 international experts both from the academic and the corporate world. The participation of international experts in CTI's accreditation missions has steadily increased since 2010. During the period 2011-2012, a 20% of CTI's accreditation missions have included an international expert ([evidence 2.4 D](#); [evidence 2.4 E](#)).

5. Participation of students:

- » In 2010, CTI established a collaboration agreement with the French Engineer Students Association (BNEI). Since this moment, CTI systematically nominates student experts in all its national periodic assessment missions. Students participate on the basis of the conditions defined in the collaboration agreement ([evidence 2.4 F](#)).
- » CTI has established a list of student experts that is renewed annually. This list is built on the basis of propositions made by the BNEI and is validated by CTI's general assembly after proposition by the CTI's board. It is composed of 31 experts from various institutions, covering a large range of expertise and academic tracks ([evidence 2.4 G](#)).
- » A specific training session for student experts is periodically organized and specific internal procedures (including a specific deontology chart – [evidence 2.4 H](#)) have been developed. The training session is co-organized by CTI and the BNEI; participation to this session is a mandatory condition for being nominated as an expert.
- » Apart from their participation in the site visits, students are invited and usually take active part in all CTI's working groups.
- » Recently, CTI has started to include students in accreditations outside France. Specifically, CTI has brought in the inclusion of students in the joint CTI-AEQES mission to evaluate and accredit engineering degree programmes from the French Community of Belgium in 2013 (at the moment of the designation of the expert panel of this joint mission, AEQES didn't include students experts as part of their standard process) ([Evidence 2.4 I](#)).

6. Recognition of the importance of institutional improvement and enhancement policies as a fundamental element in the assurance of quality (see [section 2.1](#) of this document).

7. Mechanisms for ensuring consistency of decisions (see [section 2.3](#) of this document).

8. Support documents for experts and members: CTI has produced a set of documents describing the procedures associated to the evaluation and accreditation process. These documents constitute an expert's toolkit ([evidence 2.4 J](#)) describing the chronology of the evaluation process, the organization and logistics of audit visits, the preparation of assessment reports, the presentation of audit reports to the general assembly and the

role of the different members of the audit team. Other than that, The CTI information system provides the experts with information on the previous evaluations and accreditations, as well as other context elements regarding the institutions under evaluation.

Self-assessment

Engineering programmes and institutions in France are highly diverse, particularly in terms of specialization and characteristics of the institution (size and status). CTI also accredits engineering programmes outside France (see [annex 5](#) on CTI's international activities). CTI's accreditation has been successfully applied to many different regional and institutional contexts since the creation of CTI in 1934, while maintaining a permanent core of values and principles.

CTI's focus in the institutional aspects of the accreditation (among them, the institutional clustering) is one of CTI's identity features. However, to find the right balance between institutional and programme components when accrediting an engineering programme remains challenging. CTI is currently analyzing these aspects, specifically how to efficiently evaluate the achieved learning outcomes during the accreditation exercise. To this objective, CTI actively participates in different international working groups and forums (ECA's working group 4, ENAEE's working groups); a specific workshop on the matter has been organized in collaboration with the American Accreditation Board for Engineering and Technology (ABET) in February 2014 ([evidence 2.4 K](#)).

In addition to this, CTI is currently working on a number of initiatives in order to improve the reliability and robustness of its processes.

Due to the fact that CTI's members and experts work on a voluntary basis and are not paid, CTI has had some difficulty to engage international and professional experts. CTI has started to give a monetary compensation to experts and members who participate in the site visits from September 2013 ([evidence 2.4 L](#)).

The annual training session for experts and members as well as the other training mechanisms in place (working groups and thematic sessions during the plenary assembly) are highly appreciated by the participants. However, there are still important differences in the level of preparation and awareness of the different members and experts regarding quality assurance matters. CTI is currently working on completing and improving the expert tool-kit.

As far as the accreditation process is concerned, for the time being, the main weakness concerns the delay between the plenary session when the vote took place and the publication of the executive report (see [evidence 2.4 E](#)). A decision taken by CTI in May 2013 proposes a new process of preparation of this executive report (a first draft of the executive report will be prepared by the president of the evaluation team); CTI hopes this new process will lead to substantial improvement of the delays within the next months.

Evidences and references

Evidence 2.4_A. CTI's different types of accreditations

Evidence 2.4_B. CTI's by-laws section regarding experts

Evidence 2.4_C. Experts' deontology chart

Evidence 2.4_D. List of international experts

Evidence 2.4_E. 2011-2012 dashboard

Evidence 2.4_F. BNEI/CTI collaboration agreement

Evidence 2.4_G. List of engineering student experts

Evidence 2.4_H. Engineering student Experts' deontology chart

Evidence 2.4_I. Joint AEQES/CTI paper *Working together to take quality forward*

Evidence 2.4_J. Expert toolkit

Evidence 2.4_K. Programme of Abet-CTI joint workshop

Evidence 2.4_L. CTI's deliberation regarding experts and members monetary compensation

Annex 3. Description of CTI's programme assessment and accreditation process

Section 0.3 of this self-evaluation report

Section 1.2 of this self-evaluation report

Section 2.1 of this self-evaluation report

Section 2.3 of this self-evaluation report

Section 2.6 of this self-evaluation report

Annex 5. CTI's international activities

Annex 6. Selection of the main legal texts concerning CTI's missions and activities

2.5. REPORTING

Reports should be published and should be written in a style which is clear and readily accessible to its intended readership. Any decisions, commendations or recommendations contained in reports should be easy for a reader to find.

CTI's accreditation reports have been conceived to respond to the needs of the main CTI stakeholders (higher education institutions, Ministry of higher education and general

public). The approximate length is three pages per engineering programme and they are structured as follows ([evidence 2.5 A](#)):

- › Brief introduction on the characteristics and history of the institution and of the results of past CTI's accreditations.
- › Brief description of the engineering programme and its evolution.
- › Follow up of CTI's recommendations.
- › Analysis and result of the accreditation.

All CTI's accreditation reports are transmitted to the concerned institutions and published at CTI's webpage together with the minutes of the General Assembly meetings ([evidence 2.5 B](#)). The reports for each institution are also accessible through CTI's research engine ([evidence 2.5 C](#)).

Apart from CTI's webpage, a number of additional publication mechanisms are in place:

- › The official list ([evidence 2.5 D](#)) of programmes accredited by CTI and authorized by the French government is published every year.
- › CTI participates in ECA's QROSSROADS initiative, an European data base containing information on accreditation programmes and institutions ([evidence 2.5 E](#)).
- › CTI also contributes to the update of the EUR-ACE® data base (data base containing the information on all EUR-ACE® accredited programmes – [evidence 2.5 F](#)).
- › Under the control of the CTI, the main features of the accredited programmes, in particular the expected competences, are published in the "Repertoire National des Certifications Professionnelles", RNCP, in www.cncp.gouv.fr ([evidence 2.5 G](#)).

Self-assessment

Over the last five years, CTI has made considerable effort in order to develop effective and transparent publication mechanisms. The results of the annual survey to the Deans show that CTI reports are judged as highly satisfactory (see [evidence 2.2 I](#)).

Evidences and references

Evidence 2.5_A. Examples of accreditation reports

Evidence 2.5_B. Link to CTI's website - accreditation reports

Evidence 2.5_C. Link to CTI's website - research engine for accredited programmes

Evidence 2.5_D. Official list of programmes accredited by CTI and authorized by the French government

Evidence 2.5_E. Link to ECA's QROSSROADS database

Evidence 2.5_F. Link to ENAEE's EUR-ACE® database

Evidence 2.5_G. Link to RNCP's database

Also see evidence 2.2_I. Results of the satisfaction survey

2.6. FOLLOW-UP PROCEDURES

Quality assurance processes which contain recommendations for action or which require a subsequent action plan, should have a predetermined follow-up procedure which is implemented consistently.

All CTI's accreditation reports include a SWOT analysis and conclude with recommendations for action. The follow-up of these recommendations by CTI is of a different intensity depending on the type of problems detected during the accreditation process and the level of maturity of the programme (see [evidence 2.5 A](#)).

- › **Mature programmes and no major problems detected:** Mature programmes in which no major problems are detected are accredited for 6 years. Follow up of the recommendations is normally analysed during the following CTI's accreditation and no intermediate formal control is conducted.
- › **New programmes or significant problems detected:** New programmes or programmes where significant problems are detected are normally accredited for 3 years. The length of the accreditation could be shorter if important difficulties are found. The minimum accreditation length for a programme which is already in operation is 1 year.

Regardless of the accreditation length, in some cases, CTI demands the HEI to report on the implementation of certain recommendations by submitting an interim report ([evidence 2.6 A](#)). A CTI expert or member is appointed in order to analyse the progress report and presents his/her conclusions to the general assembly.

When problems or difficulties are detected at this stage, a meeting with the representatives of the institution is normally organized. These meetings can also be organized at any time between two accreditation processes upon request of the concerned institutions.

Self assessment

Even though they are subject to a periodic accreditation process and must fulfill a set of minimum criteria, CTI tries to allow sufficient independence and freedom for institutions to innovate and develop their own pedagogical projects.

The fact of issuing different accreditation lengths enables an efficient follow up of recommendations and allows a closer look in the case of new programmes or when major problems are detected.

Evidences and references

Evidence 2.6_A. Example of interim report

Also see 2.5_A. Examples of accreditation reports

2.7. PERIODIC REVIEWS

External quality assurance of institutions and/or programmes should be undertaken on a cyclical basis. The length of the cycle and the review procedures to be used should be clearly defined and published in advance.

CTI started to conduct periodic accreditation in 1997. Before this date, French engineering programmes were only subject to an initial licensing process. Currently, engineering programmes are accredited at least every 6 years (see [Annex 6](#)). New programmes or programmes where significant problems are detected are normally accredited for 3 years. The length of the accreditation could be shorter if important difficulties are found. The minimum accreditation length for a programme which is already in operation is one year.

Subsequent rounds of CTI external reviews take into account the progress made by engineering HEIs, as well as specific general challenges or difficulties faced by the system at a specific time. As an example, since the implementation of the Bologna process in France, CTI has paid special attention to the implementation of the competence/learning outcome approach within the engineering HEIs. Since 2008, after a massive survey ([evidence 2.7 A](#)) addressed to engineering graduates conducted in collaboration with the *French Association of Engineers and Scientifics* ("Ingénieurs et Scientifiques de France"- IESF), CTI tries to encourage the development of international and societal competences and the awareness of the engineering graduates ([evidence 2.7 B](#)).

CTI accreditation procedures and their periodicity are described in the document *References and Orientations* ([evidence 2.7 C](#)). All documents are made accessible (CTI secretariat, website) to the engineering HEIs, are regularly updated and presented at the annual CTI's meeting with the deans for the launching of the accreditation campaign.

When CTI conducts accreditation processes in collaboration with other agencies abroad, periodicity of accreditation can be modified so as to adapt to the constraints and regulations of the foreign country (i.e. 7 years in Switzerland, where a joint accreditation process has been conducted with OAQ; 10 years in the French Community of Belgium, in order to adapt to the regulatory framework of the Belgian agency AEQES).

Self-assessment

Following a change in the periodicity of the Higher Education Ministry's contracts with public higher education institutions from 4 to 5 years, CTI is currently considering a modification of

its accreditation periodicity from 6 to 5 years. Indeed, CTI's accreditation results are used by the Ministry as a basis for establishing these contracts and the change in periodicity would allow for a better synchronization.

The influence on the quality of internal and external evaluations and their cost increases have to be estimated. A working group has been set in September 2013 in order to analyse this issue.

Evidences and references

Evidence 2.7_A. 2008 joint survey CTI/IESF

Evidence 2.7_B. Bernard Rémaud's article *European perspectives on the competences of engineering*

Evidence 2.7_C. CTI's contribution to WEC *Training engineers to face global challenges: the role of accreditation agencies*

Annex 6. Selection of the main legal texts concerning CTI's missions and activities

2.8. SYSTEM-WIDE ANALYSIS

Quality assurance agencies should produce from time to time summary reports describing and analysing the general findings of their reviews, evaluations, assessments etc.

Over the last 5 years, CTI has produced a number of publications of general interest ([evidence 2.8 A](#)).

- › Two biannual CTI's activity reports (2006-2008 and 2008-2010) ([evidence 2.8 A](#)).
- › Three CTI's information notices, CTI Infos 4, 5 and 6, informing on all CTI's news.
- › Two technical notes concerning engineering education at university and engineering education through apprenticeship (2011).
- › Two studies conducted jointly with the French Engineers and Scientifics Association (IESF) on graduate learning outcomes (2008 and 2011).
- › CTI's contribution to a massive government consultation process on higher education in 2012 ("les assises de l'enseignement supérieur").
- › A reflexion report by CTI's former president Bernard Remaud on his mandate between 2006 and 2012.
- › A number of publications on different national and international conferences regarding engineering education and profession.

Self-assessment

CTI's periodical publications are widely consulted and considered as a reference by the stakeholders.

Every year, at the annual CTI's colloquium, a number of general trends and conclusions concerning the past accreditation campaign is presented to the deans. However, this analysis is not included in a publication. The preparation of such a publication would be of great value for all CTI's stakeholders.

Evidences and references

Evidence 2.8_A. List of active links towards CTI's publications

3. COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE AGENCIES [ESG PART 3]

3.1. USE OF EXTERNAL QUALITY ASSURANCE PROCEDURES FOR HIGHER EDUCATION

The external quality assurance of agencies should take into account the presence and effectiveness of the external quality assurance processes described in Part 2 of the European Standards and Guidelines.

The analysis conducted in [section 2 of this document](#) provides an overview on CTI's External Quality Assurance activities and processes and CTI's fulfilment of ESG part 2; however, the complete documentation on the methods and documentation on CTI's External Quality Assurance are publicly available on line on its web site. The main reference document is References and Orientations (see [evidence 2.2_H](#)) for French Institutions; a specific version of this document addressed to foreign institutions has been developed last year.

Self-assessment

Part 2 of the European Standards and Guidelines is considered as a fundamental reference by CTI. CTI's processes and criteria (described in the document "Références et Orientations") are fully consistent with these guidelines.

Evidences and references

Section 2 of this self-evaluation report

Also see evidence 2.2_H. RetO

3.2. CTI'S OFFICIAL STATUS

The agencies must have official recognition by the competent authorities in the European Higher Education Area, such as agencies in charge of external quality management, and they must have legal status. They must respect the requirements of the local and relevant legislation.

CTI was founded by a 1934 law (see [Annex 6](#)); therefore, its existence and its duties and responsibilities may only be called into question by another law.

Since 1934, all regulatory and legislative texts on higher education in France have reinforced CTI's official status. In 2002, the legislator decided to clarify, organize and simplify all texts

on education in France, in a Parliament-approved «Education Code» (see [Annex 6](#)).

The French Education Code lists and confirms all the legislative and regulatory provisions concerning CTI and “titres d’ingénieur”. The Education Code articles on CTI and the “titre d’ingénieur” are particularly significant (see [Annex 6](#)):

- › Decree updating CTI membership and organization (State Council Decree dated July 5, 1985).
- › CTI must be consulted on all matters related to the “titre d’ingénieur” (Article L642-1).
- › CTI decides the ability of private technical schools to deliver “titres d’ingénieur” (Art. L642-4).
- › The “titre d’ingénieur diplômé” is a master degree (Decree No. 99-747, August 1999, as amended by Decree No. 2002-480 of 8 April 2002).
- › The ability to award the “titre d’ingénieur diplômé” to foreign engineer degree programmes (Law, July 1934).

70 years of existence and all subsequent laws and decrees have confirmed the legal status of CTI.

Self-assessment

There is not a recent rephrasing of CTI legal framework, using the modern concepts of the Quality Assurance and of the Bologna process. However, CTI has autonomously adopted its mission statement and by-laws, which comply both with its legal framework and with the ENQA standards and glossary.

After an extensive consultation among stakeholders, a new law on higher education in France has been passed (summer 2013). The objectives include improving student achievement particularly in the Bachelor cycle, adapting university curriculum for high school students in technology courses, certification of doctoral studies, etc.

The mission and activities of AERES, the French agency in charge of quality assurance, have been under focus; its standards and procedures have been criticized, particularly for the research evaluation. Its mission will be redefined towards more institution assessment and a coordination role.

In this context, the missions and activities of CTI, as well as its current status, have not been challenged.

Evidences and references

Annex 6. Selection of the main legal texts concerning CTI’s missions and activities

3.3. ACTIVITIES

Agencies should undertake external quality assurance activities (at institutional or programme level) on a regular basis.

The core activity of CTI is the evaluation of engineering degree programmes and their accreditation prior to official habilitation by the Ministry. In addition to that, as at January 2014, CTI is one of the nine accreditation bodies entitled to deliver the EUR-ACE® label to second-cycle (master) engineering programmes.

On receipt of a request from foreign higher education institutions, CTI also conducts the accreditation of engineering degree programmes outside France.

The majority of CTI's accreditation activities involve the re-accreditation of engineering degree programmes (around 2/3 of cases). Since habilitation is given for a limited term, a maximum of six years, the institutions must renew accreditation for all their engineering programmes.

1/3 of these activities concern ex-ante accreditations; an institution cannot grant a new « titre d'ingénieur » without CTI's assessment. These degree programmes are not exactly brand new; most of them are existing master's degree programmes which aim to become accredited engineer programmes, or new specialties from institutions having already accredited programmes.

			Remarks
Plenary sessions	Number (days)	11	
	Concerned institutions	46	Over a total of 208 institutions
	Institutions subject to new programme accreditations	7	
	Institutions subject to renewal accreditations	39	
	Number of accredited programmes	150	Over a total of about 500 accredited programmes
	Number of programmes which have obtained the EUR-ACE® label	49	
	On-site visits	Number of audit missions	54
Members contribution (days)		216	
Experts contribution (days)		324	

Self-assessment

CTI's main mission is the periodic accreditation of engineering programmes in France.

However, there is an increasing demand for accreditation of foreign degrees: China, Africa... CTI has conducted the accreditation of the « ingénieur civil » (see [evidence 2.4 H](#)) degrees in the French Community of Belgium, others are scheduled for the « ingénieur industriel » or for engineering degrees in Flanders in 2015-2016.

CTI is currently conducting a general revision of its long-term international strategy and analyzing different possible future scenarios ([evidence 3.3 A](#)).

Evidences and references

Evidence 3.3_A. Scenarios proposal from AnaPro (Analysis and Prospective) working group

3.4. CTI'S RESOURCES

Agencies should have adequate and proportional resources, both human and financial, to enable them to organize and run their external quality assurance process(es) in an effective and efficient manner, with appropriate provision for the development of their processes, procedures and staff.

CTI ensures that it has the financial and human resources necessary for carrying out its basic missions in France: the periodic accreditation and evaluation of engineering degree programmes. Its resources are set according to past operations; although they seem unconventional when compared with those of other European agencies, they have allowed CTI to effectively fulfil its goals and missions for several decades.

Human resources

The comparison with most evaluation agencies should take into account CTI's members' and delegates' involvement in CTI's administration and management.

The human resources and their duties are respectively:

- › The permanent staff: 3 full-time persons, appointed by CTI on its own resources. They fulfil 3 main missions: administrative and accounting assistance to the Board and to the Chairman, assistance and logistics for the accreditation procedures, programme direction (in particular, internal quality management and international relations, representation of CTI in the national and international structures).
- › The CTI's registry: 3 part-time persons who are part of the Ministry of Higher Education. They register the applications from the institutions, verify their eligibility, register the deliberations of the CTI and organize the "habilitation" process (see [Annex 3](#)); they have the responsibility of publishing the annual decree in the Official Journal of the

COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE AGENCIES [ESG PART 3]

French Republic (« Journal Officiel »), listing all the programmes officially authorized to award the « titre d'ingénieur ».

- › The CTI's members and delegates; their involvement goes much beyond their mere participation to the monthly general assembly meetings. According to some recent estimates, they fulfil the equivalent of 3 half-time positions filled respectively by the chairman and two vice-chairs, 9 one-third-time positions filled by the working group leaders, the international representatives and the board members in charge of specific missions (website communication, internal quality...). The rest of CTI members fill the equivalent of one fourth position.

CTI operates with 14 full-time equivalent staff.

This system, which is unique in many ways, is also the reason why CTI's stakeholders are so committed and why its community is so close and competent, with each member sharing their tasks and experience.

CTI has fully-equipped offices and conference rooms that can be adapted to meet different needs, including ordinary meetings, plenary sessions and conferences.

Financial resources

The total annual cost of CTI's services to engineering degree programmes (accreditation, national and international representation, etc.), including the consolidation of CTI members' salaries for management and evaluation, is about 2,000,000€. This amounts to approximately 25,000€ per case processed by CTI (with around 80 accredited programmes in average per year, some with several degree programmes) and an annual cost of 45€ per graduate.

The annual budget includes 4 types of resources:

- › 180.000€ as a grant from the ministry as a counterpart for its official mission.
- › 180.000€ contributions of the French HEIs as a counterpart for the CTI action in the promotion of the engineering studies, in the representation of the engineering education in national and international organizations (6€/year/graduate).
- › 40.000€ which correspond to the accreditation activities abroad (which are billed to the institutions on a full-cost basis).
- › 40.000€ are assumed by the institutions which take in charge directly the on-site costs of the expertise missions (experts' travel tickets, lodging and food).

Self-assessment

CTI's financial and human resources enable to satisfactorily meet all current CTI's missions. However, CTI is currently considering a modification of its accreditation periodicity from 6 to 5 years, which will allow for a better synchronization with the Ministry of higher education with regards to the establishment of periodic contracts with the HEIs.

On the other hand, there is an increasing demand for accreditation of foreign degrees: China, Africa... CTI has conducted the accreditation of the « ingénieur civil » degrees in the French Community of Belgium (see [evidence 2.4 H](#)), others are in discussion for the « ingénieur industriel » or for engineering degrees in Flanders.

The current accreditation activities correspond to the maximum than CTI can afford with its human resources and its members' availability.

CTI is studying evolutions of its human resources and/or of its procedures to re-engineer its activities while keeping the same level of quality. The staff is being developed to include a person responsible of the logistics of audits and some attempts will be made to preprocess the presentation in plenary sessions when many programs of the same institution are to be examined.

In addition to this, different possibilities in order to increase CTI's resources are being considered, specifically, the possibility of increasing the annual contribution of the higher education institutions.

Evidences and references

Annex 3. Description of CTI's programme assessment and accreditation process

3.5. MISSION STATEMENT

Agencies should have clear and explicit goals and objectives for their work, contained in a publicly available statement.

The law that founded CTI explicitly sets CTI's missions and activities. All the texts describing CTI's missions and organization were confirmed by the French Education Code, which was approved in 2002 by France's Parliament.

The CTI mission statement, goals and quality assurance activities are published in CTI's reference document (see [evidence 2.2 H](#)), which is the actual contractual document of CTI facing its stakeholders, as follows (see also [section 1](#) of this document):

The "Commission des Titres d'Ingénieur" (CTI) is a quality assurance organization established by French law in 1934. CTI is the de jure and de facto cornerstone of engineering programme accreditation in France. Its mission includes:

- › The accreditation of all French higher education programmes leading to the French engineering degree title of "Diplôme d'ingénieur"; State-owned HEIs are authorised to award the engineering degree ("habilitation") by the HEI's supervisory minister(s) upon receipt of CTI advice. Private HEIs are authorised by the minister of higher education upon receipt of a CTI accreditation decision.

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- › On receipt of a request from foreign higher education institutions, the accreditation of engineering degree programmes outside France.
- › The publication of position statements on all issues related to engineering degree programmes. In particular, CTI sets the criteria and procedures for the accreditation of engineering degree programmes and contributes to their continuous improvement, in a European and international context.

CTI does not award engineering degrees to individuals. Neither is the ranking of higher education institutions or engineering schools part of its mission.

Self-assessment

CTI's missions are clearly defined and exclusive to engineering degree programmes, and set out according to jurisprudence based on decades of activity.

CTI has an undisputed cultural and historic basis; more than 600000 graduates come from engineering programmes accredited by CTI; more than 2/3 of master's-level graduates in scientific and technical fields are engineering graduates; for decades, academic institutions and professional organizations have agreed to work with CTI and send their staff on assignments there.

Evidences and references

Also see evidence 2.2_H. RetO

Section 1 of this self-evaluation report

3.6. INDEPENDENCE

Agencies should be independent to the extent both that they have autonomous responsibility for their operations and that the conclusions and recommendations made in their reports cannot be influenced by third parties such as higher education institutions, ministries or other stakeholders.

French law clearly defines CTI's missions and duties (see [section 3.2 of this document](#)). These texts (which have been established several decades ago) do not use the more recent notions of quality assurance developed within the European Higher Education Area. However, the responsibilities they give to CTI have made it possible for it to constantly adapt its standards and procedures, in complete independence.

A number of elements enables CTI to function in an independent manner:

- › The balanced distribution of stakeholders among CTI membership (with equal representation from public higher education establishments, private higher education establishments, employer and employee organizations, and graduate associations) protects it from outside dominant interventions.

- › CTI's members are appointed according to their own personal competences and sign a deontology chart, which assures their independence and their integrity. They are appointed by the Minister, on the proposal of their organization, for a period of four years, renewable once. Once appointed, CTI's members may resign for personal reasons, but cannot be dismissed by public authorities, or if they no longer meet the conditions required for their appointment.
- › The CTI resources come from two main origins: ministry grants and contributions of the accredited HEI's. Each one of them accounts for a 41% of CTI's resources, which guarantees CTI financial and decisional independence from both the ministry and the HEIs or eventually national and local authorities.
- › CTI has established and has adopted its by-laws in 2011 which establish, in all independence, its internal operating procedures.
- › The chairman and 2 vice-chairs are elected by CTI's members for a renewable period of two years. The board members, the representatives and the external experts are appointed by a CTI vote in the plenary meeting. The agendas of CTI's meetings are determined by the chairman.
- › In France, no regulatory texts exist concerning the content and quality criteria of engineering education. The accreditation standards and procedures are defined by CTI in all independence (see [section 2.2.](#) of this document). Development of external quality assurance processes). They are prepared by working groups including the stakeholders, supervised by CTI and then are adopted in plenary sessions and published under CTI's exclusive responsibility (primarily on its website). Every three to four years, CTI publishes a new version of its standards. The last version of CTI's standards was released in 2012.

Regarding decision making, as explained in [Annex 3.](#) in the case of private institutions, CTI renders a final decision, whereas in the case of public institutions, CTI delivers a judgment ("avis") on which the Ministry of Higher Education bases its decision to grant the accreditation. CTI's technical judgment on quality issues is always respected by the Ministry. Nevertheless, as long as public funding is engaged, the Ministry can include some additional criteria (specifically, on the opportunity of the investment) that could modify the final habilitation decision.

Since 2005 (year in which CTI was granted full ENQA membership for the first time), only two of the Ministry decisions have been different from CTI's judgment (out of the around 160 accreditation decisions made by CTI every year).

Finally, within its area of competence, the mutual recognition of accreditation results and assistance for graduate mobility, CTI has signed international agreements with other countries' orders of engineers (Canada, followed by Quebec, and Malaysia being the most recent examples).

Self-assessment

Regarding CTI's composition, as explained above, CTI includes representatives of the main academic and professional stakeholders. However, in practice, academic representatives are

more active and available to participate in CTI's activities. As an example, in 2011-2012, the ratio between the number of professional members and academic members who participated in CTI's mission was 0,70 (see [evidence 2.4_E](#)).

CTI is currently considering different ways of increasing the involvement of the professional sector.

Evidences and references

Section 2.2 of this self-evaluation report

Section 3.2 of this self-evaluation report

Annex 3. Description of CTI's programme assessment and accreditation process

Also see evidence 2.4_E. 2011-2012 dashboard

3.7. EXTERNAL QUALITY ASSURANCE CRITERIA AND PROCESSES USED BY THE AGENCIES

The processes, criteria and procedures used by agencies should be pre-defined and publicly available. These processes will normally be expected to include:

- › a self-assessment or equivalent procedure by the subject of the quality assurance process;
- › an external assessment by a group of experts, including, as appropriate, (a) student member(s), and site visits as decided by the agency;
- › publication of a report, including any decisions, recommendations or other formal outcomes;
- › a follow-up procedure to review actions taken by the subject of the quality assurance process in the light of any recommendations contained in the report.

CTI accreditation process has been conceived according to the self-evaluation/site visit/draft report/published report/follow up model of review (see [Annex 3](#) and [section 2.4](#)). [Section 2.5](#) provides an account of CTI's reporting mechanisms. Finally, a description of CTI's follow up procedures is provided in [section 2.6](#).

Concerning the appeal procedures in place, as CTI decides for private institutions and provides opinions for public institutions, there are two formal procedures:

- › The French law provides a specific procedure to appealing CTI decision for private institutions (see [Annex 3](#)).
- › For public institutions, since the final decision is taken by the ministry, the procedure comes down in the general scheme of the official appeals of administrative decisions.

Before getting into these heavy procedures, CTI by-laws introduce an internal appeal: institutions may appeal a CTI deliberation with a motivated letter to the CTI president, within 2 months after CTI's deliberation (i.e. before the official « habilitation » by the Ministry). The president presents the request to the plenary session which may or may not decide to revise its position.

The different appeal procedures are explained in CTI's bylaws, which is accessible through CTI's website ([evidence 3.7 A](#)).

Self-assessment

There are very few examples of appeals. In practice, the ministry rarely takes a decision contrary to CTI's accreditation (twice over the last eight years) (see [section 3.6](#)).

Evidences and references

Evidence 3.7_A. Link towards the by-laws on CTI's website

Annex 3. Description of CTI's programme assessment and accreditation process

Section 2.4 of this self-evaluation report

Section 2.5 of this self-evaluation report

Section 2.6 of this self-evaluation report

Section 3.6 of this self-evaluation report

3.8. ACCOUNTABILITY PROCEDURES

Agencies should have in place procedures for their own accountability.

The CTI's internal quality system was formalized in 2008 and adopted by the general assembly in February 2009. From that date on, CTI has been committed to deploying its internal quality assurance system and to developing specific tools for the tracking and control of its assessment and accreditation process. A complete description of CTI's quality system can be found in [Annex 2](#). As stated in the ESG, this system includes a quality policy, internal and external feedback mechanisms and an internal reflection mechanism. The system operates according to a one-year PDCA cycle.

Apart from the procedures put in place by CTI in order to assure the quality of its external quality assurance processes, which are formally integrated within its internal quality system, CTI has also developed other mechanisms and practices in order to show its accountability towards its main stakeholders:

- › **Periodic survey on the validity of CTI's programme outcomes:** a periodic survey is conducted every three years in collaboration with the French Engineers and Scientifics Association (IESF- Ingénieurs et Scientifiques de France) in order to analyze the signifi-

cance and validity of CTI's final programme outcomes (see [evidence 2.4 D](#)). This survey is addressed to French engineers in activity and normally obtains around 50.000 answers. Over the years, under the light of the results of this periodic survey, CTI has decided to include specific guidelines within its reference framework; for example, regarding the command of foreign languages by engineering graduates, or the importance of sustainable development in the context of engineering education.

- › **Strategic Advisory Board (Conseil d'Orientation Stratégique - COS).** This consultative organ has been recently put in place by the agency in order to provide mid and long term orientations on the evolution of CTI's mission and strategy. The COS, which includes 25 members, is composed of ([evidence 3.8 A](#)).
 - » Representatives of various national and international CTI stakeholders (ministries, quality agencies, trade unions, professional organizations).
 - » Qualified individuals recognized for their expertise in the educational, scientific, technological, economic or industrial field.
 - » The members of the COS are appointed for a term of four years, renewable once. The first meeting of the COS took place in October 28th at CTI's premises at Neuilly-sur-Seine ([evidence 3.8 B](#)).
- › **Certified HEI's data sheet ("données certifiées"- see [evidence 3.8 C](#)).**
 - » In collaboration with its stakeholders, CTI has chosen 90 data items, which mean to characterize a particular HEI; each year the values of these items must be given to CTI by the dean of each French Engineering HEI.
 - » The main objective of this initiative is to provide meaningful and trusted information to the general public regarding the HEIs and their accredited programmes. This initiative enables CTI to conform to the increasing demands of transparency coming from the European Higher Education Area and, specifically, from ENQA.
 - » The main areas covered are:
 - basic information on the HEI and the programme;
 - research;
 - recruitment;
 - accessibility and social diversity;
 - student life;
 - mobility and internationalization;
 - employability;
 - relationships with industry
 - » The information is meant to be transmitted to CTI by the engineering HEIs through an internet tool every year. After a first pilot test, during the year 2011-2012, the formulation of some items in the questionnaire have been slightly modified so as to fit the status of all HEI.

» In 2012-2013, this information has been made public by CTI and the HEIs in July 2013 through CTI's webpage :
<http://extranet.cti-commission.fr/recherche/rechercheEcole>

Concerning conflict-of-interest prevention, CTI has put in place a number of mechanisms. A deontology chart is signed by all CTI's members and experts at the beginning of their mandate (see [evidence 2.4_C](#)). According to this chart, they are obliged to declare all possible conflict of interests.

As stipulated in CTI's by-laws, the president of CTI can be seized by any member of the CTI or any higher education institution if any conflicts of interest are detected. CTI's board is in charge of investigating any possible problems of this kind (see [evidence 3.7_A](#)).

Self-assessment

The publication of system indicators in 2013 has been a milestone both for CTI and the engineering education sector in France. CTI expects that the publication of these data will improve the transparency and readability of the system.

The fact that the data will be available for all stakeholders (public administrations, general public, press, professional bodies...) raises important strategic and political issues, such as the use of this information as a basis for ranking programmes or institutions (which is not one of CTI's missions). Meetings with the main stakeholders will take place on a periodic basis in order to consider possible risks and improvements.

Evidences and references

Evidence 3.8_A. Deliberation regarding the COS composition.

Evidence 3.8_B. Minutes of the COS first meeting

Evidence 3.8_C. Link to CTI's website – research engine for HEI system indicators

Annex 3. Description of CTI's programme assessment and accreditation process

Also see evidence 2.4_C. List of international experts

Also see evidence 2.4_E. 2011-2012 dashboard

Also see evidence 3.7_A. Link towards the by-laws on CTI's website

3.9. CONSISTENCY OF JUDGMENTS, APPEALS SYSTEM AND CONTRIBUTIONS TO AIMS OF ENQA

The agency pays careful attention to its declared principles at all times, and ensures both that its requirements and processes are managed professionally and that its judgments and decisions are reached in a consistent manner, even if the judgments are formed by different groups;

If the agency makes formal quality assurance decisions, or conclusions which have formal consequences, it should have an appeals procedure. The nature and form of the appeals procedure should be determined in the light of the constitution of the agency;

The agency is willing to contribute actively to the aims of ENQA.

[Section 2.3](#) explains how CTI assures consistency of decisions. [Section 2.4](#) provides an overview of the different mechanisms enabling to ensure the validity, reliability and fitness for purpose of CTI's accreditation processes. [Section 3.7](#) explains the different types of appeal procedures applied by CTI.

With regards to CTI's contribution to ENQA's aims, CTI has been a member of ENQA since 2005; after the recruitment of a permanent staff it has increased its contribution to ENQA activities: regular participation to the general assemblies and members forums; participation to workshops. In January 2012, CTI has hosted an ENQA workshop in Paris ([evidence 3.9 A](#)). Two of its members and a staff member have attended the workshop organized by ENQA for the training of its experts.

Self-assessment

CTI tries to play an active role in the European quality assurance higher education arena. In order to do so, CTI relies on its permanent team and on its experts and members. However, the limited size of the permanent team is an obstacle to develop this line of activity further.

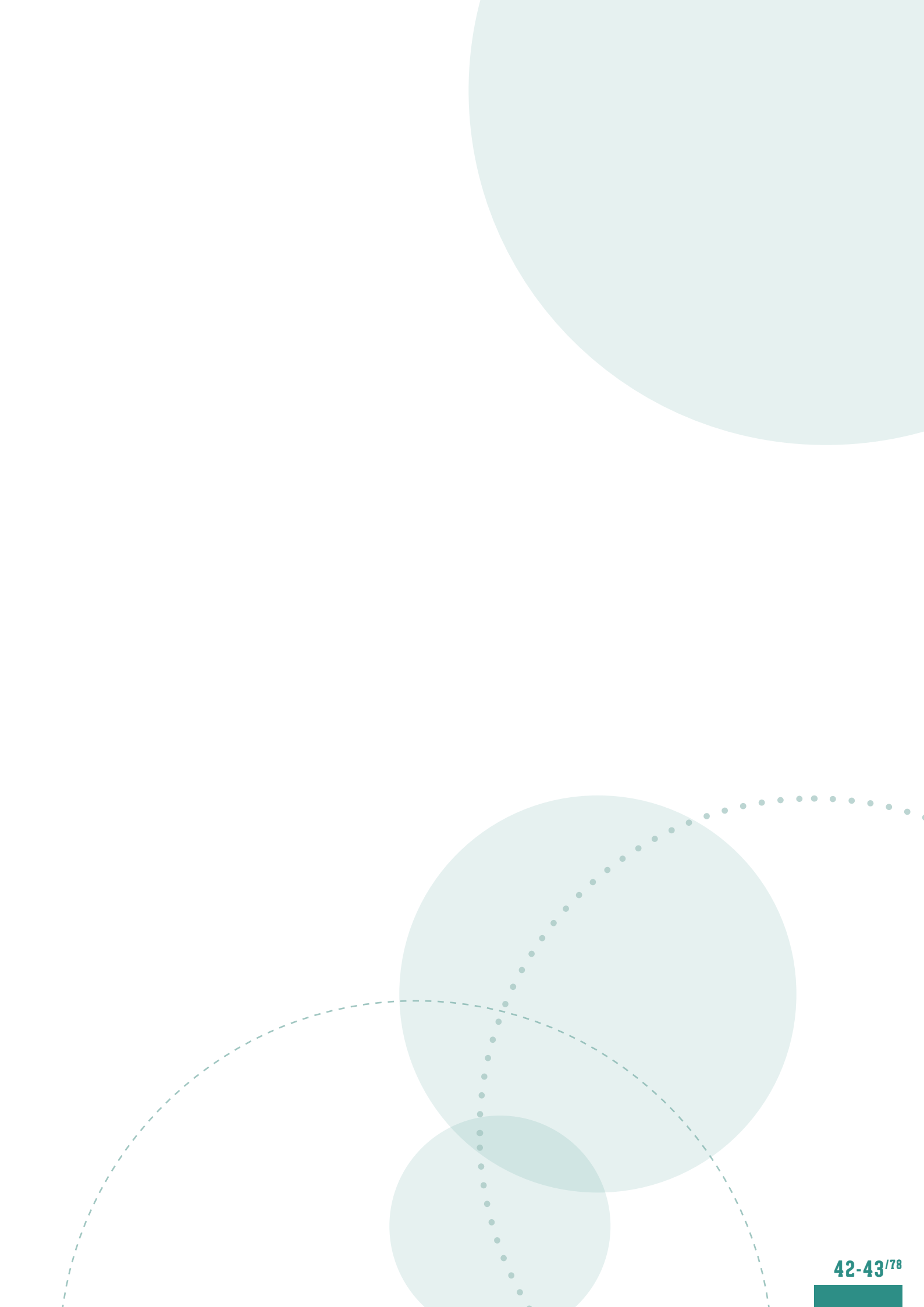
Evidences and references

Evidence 3.9_A. Program of the ENQA workshop housed by CTI in January 2012

Section 2.3 of this self-evaluation report

Section 2.4 of this self-evaluation report

Section 3.7 of this self-evaluation report



4. STRATEGIC ANALYSIS AND DEVELOPMENT

4.1. SYNTHESIS OF THE FOLLOW UP OF THE RECOMMENDATIONS OF THE 2009 ENQA'S REVIEW

As a result of the 2009 ENQA's external review, a number of recommendations were made to CTI. In this section we reproduce these recommendations in the way they were expressed by the evaluation panel. The table hereafter provides a synthesis of the actions taken by CTI in order to address these recommendations. Further details are provided in the intermediate report produced by CTI in June 2011 and endorsed by ENQA's board.

In order to pursue and strengthen CTI's progress, the review panel recommended that CTI should remain vigilant in the following areas:

1. The internal quality assurance system, which is based on a very comprehensive mapping, but might prove challenging to manage and use;
2. The financial resources, which CTI should continue to try to diversify in order to protect its independence;
3. The human resources, by clearly defining the respective roles of the CTI members and staff members that are being recruited and by allowing them to access continuous training, in such a way that the permanent secretariat can provide efficient logistical support (notably for the computer management and the filling of documents) in order to assure the daily and continuous operation;
4. The coordination with AERES, in terms of process and schedule;
5. The integration of students, not only in audits and in working groups, but also in the Commission itself, which does not depend on CTI, but on a wider national debate that the Commission could initiate;
6. International openness and visibility, to be reinforced by more frequent integration of foreign experts and reviewers;
7. The publication of results, both at the level of the accredited institutions, with the aim of making judgements more accessible to students, and at the level of a national synthesis, which CTI could produce periodically.

Recommendation	Actions taken	Measures adopted since June 2009
Deployment of the internal quality assurance system	New internal quality organization	Creation of a stable structure (November, 2009)
		Recruitment of a new quality assurance manager (November, 2009)
	Development of new procedures and operational tools	Development of an expert toolkit (July 2010)
		Identification and reengineering of key processes (January 2009)
		CTI's expert training day (September 2010, first edition)
		New CTI's internet accessible data base (September 2010)
		Quality indicators of the accreditation process (December 2010)
Incident reporting tool (January 2011)		
Diversification of financial resources	Management agreement with CDEFI	Transfer of account management to CDEFI (January 2010)
		Development of joint account management procedures (February 2010)
	Introduction to new sources of funding	Introduction of a yearly financial contribution coming from engineering HEIs (February 2010)
		Introduction of a fee for international accreditation missions (March 2010)
Human resources	Development of a permanent team	Creation of a new position and Recruitment of an administrative responsible and a programme director (April 2009)
		Recruitment of two project managers and creation of a position of executive director (February 2013).
Coordination with AERES	Creation of a joint working group	Clarification of missions
		Further developments subject to a future coordination of calendars which requires legal changes
Integration of students	Application of the agreement with the BNEI	Systematic inclusion of students into periodic evaluation missions (Since 2009-2010 campaign)
		Specific training (December 2009, first edition)
International openness and visibility	Increase presence in international accreditation	Agreement with AEQES for joint evaluation of engineering education in French Speaking Community of Belgium (2012-2013)
		Accreditation of engineering programmes in Flanders, Switzerland and French Speaking Community of Belgium (2015-2016)
	Increase participation in International projects and working groups	Member of INQAAHE (June 2010)
		Increase presence in international meetings (since November 2009)

STRATEGIC ANALYSIS AND DEVELOPMENT

Recommendation	Actions taken	Measures adopted since June 2009
International openness and visibility	Professional mobility and recognition	Agreement with CIEP (February 2010)
		New decree for professional agreement with Canada (CCI) and extension to new professions (June 2010)
		Recognition of the engineering degree at the master level in US (July 2013)
	Participation of international experts	Extension of the list of international experts (July 2010)
Establishment of objectives for participation of international experts (since January 2010)		
The publication of results	Publication of reports	Publication of all CTI's accreditation reports in CTI's webpage (since 2008)
	System analysis	Definition of system indicators on French engineering higher education (June 2011)
	Publication in international data bases	Participation in QROSSROADS initiative (since 2009)

Synthesis of the follow up of the recommendations of the 2009 ENQA's review

4.2. SWOT ANALYSIS, ACTION PLANS, STRATEGIC PLAN

CTI has launched in 2011 a strategic analysis, aiming at proposing to the Ministry one or more scenarios for the future of the Commission. The present status of the CTI, in terms of SWOT analysis, can be summarized as follows:

Strengths:

- › A solid know-how, formalized in the «Références and Orientations» document;
- › The European (ENQA, EQAR) and national (academic and professional) acknowledgement;
- › A membership equally balanced between academic and professional organizations;
- › An established capacity to constantly adapt its policy to the evolution of its environment.

Weaknesses:

- › CTI is managed by a third party but it does not have a legal status of its own; low financial and human resources.
- › Some efforts are needed in terms of image. Engineering education in France is often considered as elitist mainly due to the existence of highly selective entry mechanisms and a very homogenous upper-class student population. Over the last few decades, great efforts have been made by CTI in order to foster social diversity (diversification of selection and improvement of student follow-up; development of new inductive lear-

ning methodologies). The general public is not sufficiently aware of these improvements in terms of social awareness.

Opportunities:

- › Partnership with other French academic evaluation authorities (AERES, CEFDG);
- › Huge increase of accreditation requests from engineering higher education institutions in other countries (China, North Africa, Belgium, Switzerland); due to the promotion of the “ingénieur à la française” abroad;
- › Extension of the scope of CTI to other degrees in the engineering and sciences field other than the “diplôme d’ingénieur”.

Threats:

- › Restrictive public budgeting policies;
- › Development of new types of engineering diplomas outside the scope and control of CTI.

To face these evolutions, CTI is currently considering four future non-exclusive scenarios:

1. Mere adaptation to the evolution of the engineering profession: the need for diversified, specialized and highly adaptable engineers, more thoroughly involved in the societal issues connected to their professional activity;
2. Widening of its missions to all type of engineering degrees (bachelor, master, PhD), in order to ensure an overall consistency of engineering education;
3. Strong development of its international activities, specifically international accreditation;
4. Being the starting point of a national and also European policy encouraging and supporting innovation in all aspects of economy (industries, services ...) and by all means (industrial policy, entrepreneurship, education...).

Before being handed over to the Ministry by the end of 2014, the selected scenarios will be submitted to the newly created Strategic Advisory Board (see [section 3.8](#) of this document).

Evidences and references

Section 3.8 of this self-evaluation report

ANNEXES

ANNEX 1. THE SELF-EVALUATION PROCESS

The main steps of CTI's self-evaluation process in view of its reconfirmation as a full member of ENQA.

The process took about a year and involved CTI members, staff, project managers, and main stakeholders.

- › **January 29th 2013:** meeting of CTI's quality working group dedicated to the settlement of a self-evaluation report redaction working group
- › **February 23rd 2013:** first meeting of the self-evaluation report redaction working group, repartition of the main ESG and tasks between subgroups, elaboration of a mind map with deadlines
- › **March to May 2013:** work within the subgroups in order to get a first draft version of the Self Evaluation Report
- › **April 30th 2013:** approval of ENQA's Terms of Reference by CTI's board
- › **May 28th 2013:** meeting of CTI's quality working group involving stakeholders dedicated to the redaction of ESG 3.7 and 3.8
- › **June 10th 2013:** meeting of the self-evaluation report redaction working group
- › **July and August 2013:** work within the subgroups in order to get a second draft version of the Self Evaluation Report
- › **August 27th 2013:** presentation of this second draft version to CTI's board during its August meeting
- › **September 2013:** work within the subgroups in order to get a third draft version of the Self Evaluation Report including CTI's board comments
- › **September 27th 2013:** meeting of the self-evaluation report redaction working group to validate the third version
- › **November 8th 2013:** visio-conference of the self-evaluation report redaction working group in order to get a final version of the Self Evaluation Report and of its annexes
- › **November:** rewriting process and documentation work for the annexes
- › **November 29th 2013:** transmission of the final version proposal to the self-evaluation report redaction working group

- › **December 13th 2013:** validation of the final version proposal to the self-evaluation report redaction working group
- › **December 16th 2013:** submission of the final version of the self-evaluation report to the stakeholders
- › **January 7th 2014:** submission of the final version of the self-evaluation report to CTI's plenary session for formal approval
- › **By the end of January 2014:** transmission of the final version of the self-evaluation report to ENQA

ANNEX 2. DESCRIPTION OF CTI'S INTERNAL QUALITY ASSURANCE SYSTEM

1. CTI'S QUALITY POLICY

Since the implementation of the periodic programme accreditation process in 1997, CTI has developed different initiatives in order to assure its internal quality. Some examples are the development of a complete process cartography, the update of its accreditation criteria every three years or the establishment of a number of periodic working groups which include stakeholder participation. The 2008's NVAO external quality review pointed out the need to assemble all different CTI quality initiatives into a comprehensive system.

CTI's internal quality system was constituted in 2008 and adopted by the general assembly in February 2009. From that date on, CTI has been committed to deploying its internal quality assurance system and to developing specific tools for the tracking and control of its assessment and accreditation process in conformity with ESG.

CTI's internal quality system has been developed in the context of CTI's quality policy. CTI's quality policy was first formulated in 2003 and has been subsequently updated every three years. The main CTI stakeholders at the different levels have been identified. For each stakeholder, a number of quality objectives and implementation priorities have been defined (see figure 1).

Levels/Stakeholders	Objectives	Implementation priorities
Internal level	Professionalism, efficiency, consistency, objectivity of decisions	Formalisation of procedures Periodic self-assessment
HEI's level	Transparency and clarity Credibility and legitimacy Provide a basis for continuous enhancement	Formalisation and updating of criteria, providing public information (decisions, reports, system indicators)
National and international level (Minister, HEI's associations, ENQA, ECA, EQAR, ENAEE)	Credibility and legitimacy Recognition	External evaluation by ENQA, EQAR
General public	Transparency, information	Providing public information

Figure 1 - CTI's quality objectives and implementation priorities

The two developments presented in the paper have been realized in this frame; since July 2013 the third level has been completed by a Strategic Advisory Board, which first meeting took place the 28th of October.

Providing public information is realized by several means, CTI's public website is one of them, it has evolved towards more conviviality.

2. INTERNAL QUALITY ASSURANCE ORGANIZATION

Two main organs are involved in CTI's internal quality system:

CTI's board:

It is in charge of developing and updating the internal quality policy every three years, the establishment of priorities and decision making.

An internal quality permanent working group:

This group was created in 2010 as part of the measures adopted after ENQA 2008 CTI's external review. The group is under the political supervision of one of the board members and reports directly to the board. The composition of the group is as follows:

- › Around 6 CTI members
- › A project manager
- › 2 other members of the staff
- › 1 participant from the ministry of higher education
- › Other participants according to the different projects or issues on the agenda (students, HEI, specialist of quality management)

The main missions of this group are:

- › The formalization, revision and improvement of processes
- › The conducting of CTI's periodic self-assessment
- › The deployment of other different quality projects and initiatives
- › The deployment of tools for accountability

CTI's internal quality system functions according to a one-year PDCA cycle. The cycle begins in September of a given academic year with a set of quality priorities established by the board. The quality working group deploys the different quality initiatives from September to June. A report is presented to the board and CTI's plenary assembly in July, showing the results of the different initiatives and their impact on CTI's performance. The report is used by the board to establish new priorities at the beginning of a new academic year.

3. CTI'S MAIN INTERNAL QUALITY INITIATIVES FROM 2008

3.1. FORMALIZATION, REVISION AND IMPROVEMENT OF PROCESSES

CTI's internal cartography was developed in 2008. This cartography is composed of a general process schema and a diagram of each process (see figure 2). In certain cases, a detailed procedure has also been developed.

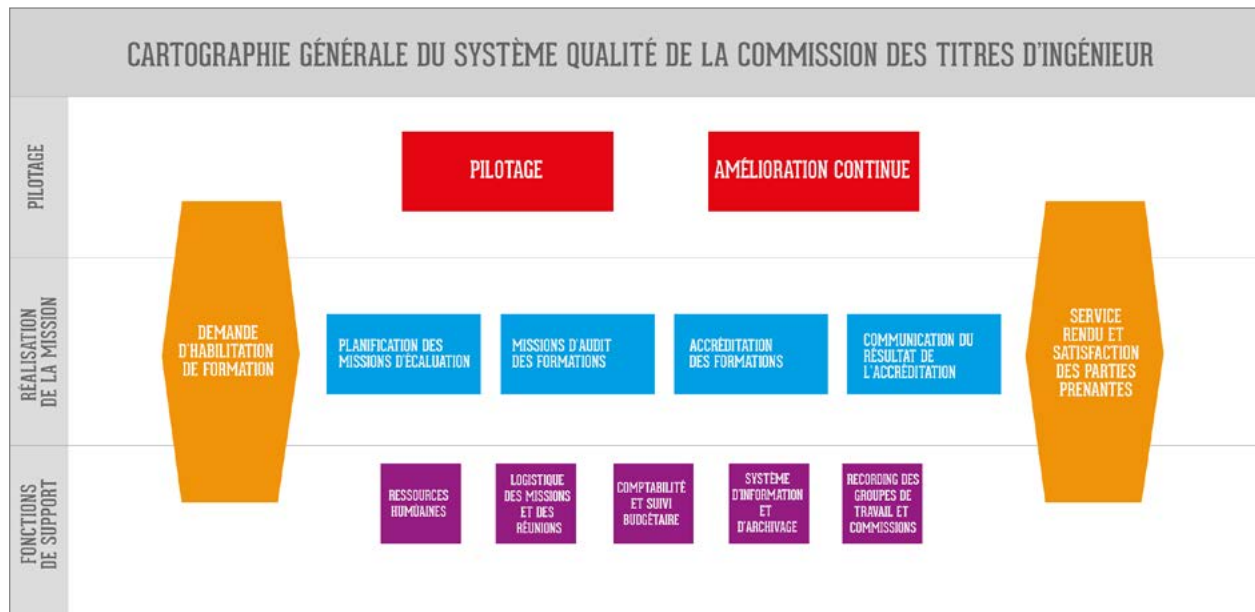


Figure 2- CTI's general process schema

CTI's cartography is a fundamental tool for the revision and improvement of CTI's processes. Up to now, this revision has focused on the programme accreditation process. In the coming years, CTI will work on the further formalization of the support and management processes.

3.2. PERIODIC SELF-ASSESSMENT OF CTI

Every year, CTI conducts an assessment of the results of its programme accreditation process. In order to conduct this assessment, CTI has put in place different internal and external feedback mechanisms:

Internal feedback mechanisms

- › Internal satisfaction survey (for CTI members and staff) every two years
- › Annual survey for French and foreign experts each year since January 2013
- › Internal on-line incident reporting tool

External feedback mechanisms

- › Annual survey addressed to the deans of the HEIs accredited by CTI
- › Annual CTI colloquium launching accreditation campaign (more than 300 representatives from HEIs and other stakeholders are present)
- › Monthly working groups with stakeholder participation; three working groups are currently in place covering issues related to engineering education, academia-industry relationships and international affairs.
- › Enquiries coming from the general public and gathered through CTI's webpage (20 enquiries per week)
- › Reports from foreign experts after participating in a CTI's expertise ("rapport d'étonnement")

Additionally, since 2010, an **internal system** enables to track all information and documents regarding CTI's accreditation visits.

The information coming from CTI's information system and from the internal and external feedback mechanisms is used to build a **dashboard** with 40 indicators ("tableau de bord"), which enables to measure the performance of the accreditation process. Table-1 shows a selection of indicators from CTI's **dashboard** in its original French formulation (specifically, the indicators which characterize the planning of accreditation mission).

A self-assessment report, containing a summary and analysis of all internal and external feedback mechanisms is prepared once a year and sent to CTI's board. This report allows to take very quickly the measures necessary to correct the problems observed.

Critères de qualité	Indicateurs	Valeur idéale
Parité (industrie/académie)	Nombre de membres professionnels qui sont intervenus sur les audits / Nombre de membres académiques qui sont intervenus sur les audits	I=1
Présence d'étudiants	Nombre d'experts étudiants / nombre d'audits faits par campagne annuelle	I=1 étudiants
Présence d'étrangers	Nombre d'experts étrangers / nombre d'audits faits par campagne annuelle	I=0,5 étrangers
Répartition équilibrée de la charge de travail	Déviations standard (écart type) du nombre de missions attribuées aux membres dans une campagne	I=0
	Valeur Max- Valeur min	I=0
Expertise adaptée à la mission	Nombre de fois qu'une équipe a été récusée par une école	Pas de valeur idéale

Processus: Planification des missions

ANNEX 3. DESCRIPTION OF CTI'S PROGRAMME ASSESSMENT AND ACCREDITATION PROCESS

The accreditation process consists of four phases:

- › Evaluation phase
- › Accreditation phase
- › Communication of results
- › Appeals procedure

Evaluation phase

The preparation of the self-assessment report by the institution

The first stage of the process is the preparation of a self-assessment report by the institution. The preparation of this report must form part of the programme self-evaluation process and include the participation of all relevant persons.

Selection and appointment of the audit team

On receipt of the self-assessment report, CTI appoints an audit team to evaluate the programme. The composition of the team will vary depending on the characteristics of the programmes to be accredited (engineering branches, the number and size of the programmes, etc.). It is generally made up of three to six people, in accordance with the following criteria:

- › A number of academic peers, as considered necessary to deal with the engineering branches under accreditation,
- › At least one expert from the professional world,
- › In accordance with European recommendations, representatives from student organizations are included in the expert team.

One of the members of the audit team acts as chair; he/she is responsible for coordinating the team activities and for presenting the external evaluation report to CTI's general assembly during the accreditation phase.

In case of accreditations outside France, observers from the country of the institution requesting the accreditation, as may be required in mutual recognition and other collaboration agreements established with other national quality assurance agencies may be appointed.

The on-site visit

The CTI on-site visit must include meetings with all the relevant internal and external stakeholders and partners concerned with the programme, which are:

- › Management team of the programme and higher education institution senior management.
- › Faculty
- › Administration and services staff
- › Students at various stages of the programme
- › Employers
- › Alumni

Classrooms, research laboratories and other facilities and equipment are visited during the on-site visit.

The visit should also allow enough time to examine a number of relevant documents (examples of final year projects, exams, etc.) which should be provided during the visit.

Depending on the number of programmes for evaluation and the size of the institution, the visit could last from one single day to a whole week.

The external evaluation report

The result of the evaluation phase is an external evaluation report. This report is prepared by the audit team under the supervision of the chair.

The report includes a thorough analysis of the programme and its institutional context; it identifies its main strengths and weaknesses and includes a judgment on the compliance of the programme with the accreditation standards of CTI.

The report, excluding its conclusions or proposals, is sent to the management team of the programme for comments. These comments are then sent to the audit team before the final report is drawn up.

The final external evaluation report is sent to the CTI registry which then transmits it to the CTI plenary assembly. This report, which is considered as an input for the accreditation phase, is not published by CTI.

Accreditation phase

The plenary assembly is the main decision-making organ in CTI. It is responsible for making all accreditation decisions on the basis of the final external evaluation report prepared by the audit team.

Possible results of CTI accreditation are:

- › Accreditation for the maximum accreditation period (6 years), if the programme substantially complies with all CTI standards.

ANNEX 3

- › Accreditation for a shorter period (normally 3 years), if some important problems are detected.
- › No accreditation, if critical compliance problems are detected.

The final outcome of the accreditation phase is a report which contains the final accreditation decision and recommendations for improvement of the programme(s).

Communication of accreditation result

Following adoption by the CTI plenary assembly, the accreditation report is sent to the higher education institution and to the management team of the programme.

In accordance with European recommendations, the accreditation report is made public on CTI's website.

Programmes accredited by CTI have the right to deliver the French engineering degree title of "Diplôme d'ingénieur"; State-owned HEIs are authorized to award the engineering degree ("habilitation") by the HEI's supervisory Minister(s) upon receipt of CTI decision report. Private HEIs are authorized by the Minister of higher education upon receipt of a CTI accreditation decision.

Upon receipt of a request from the concerned HEI, CTI can award the EUR-ACE® label to those programmes which fulfill CTI accreditation criteria.

Appeals procedure

- › Appeal to CTI

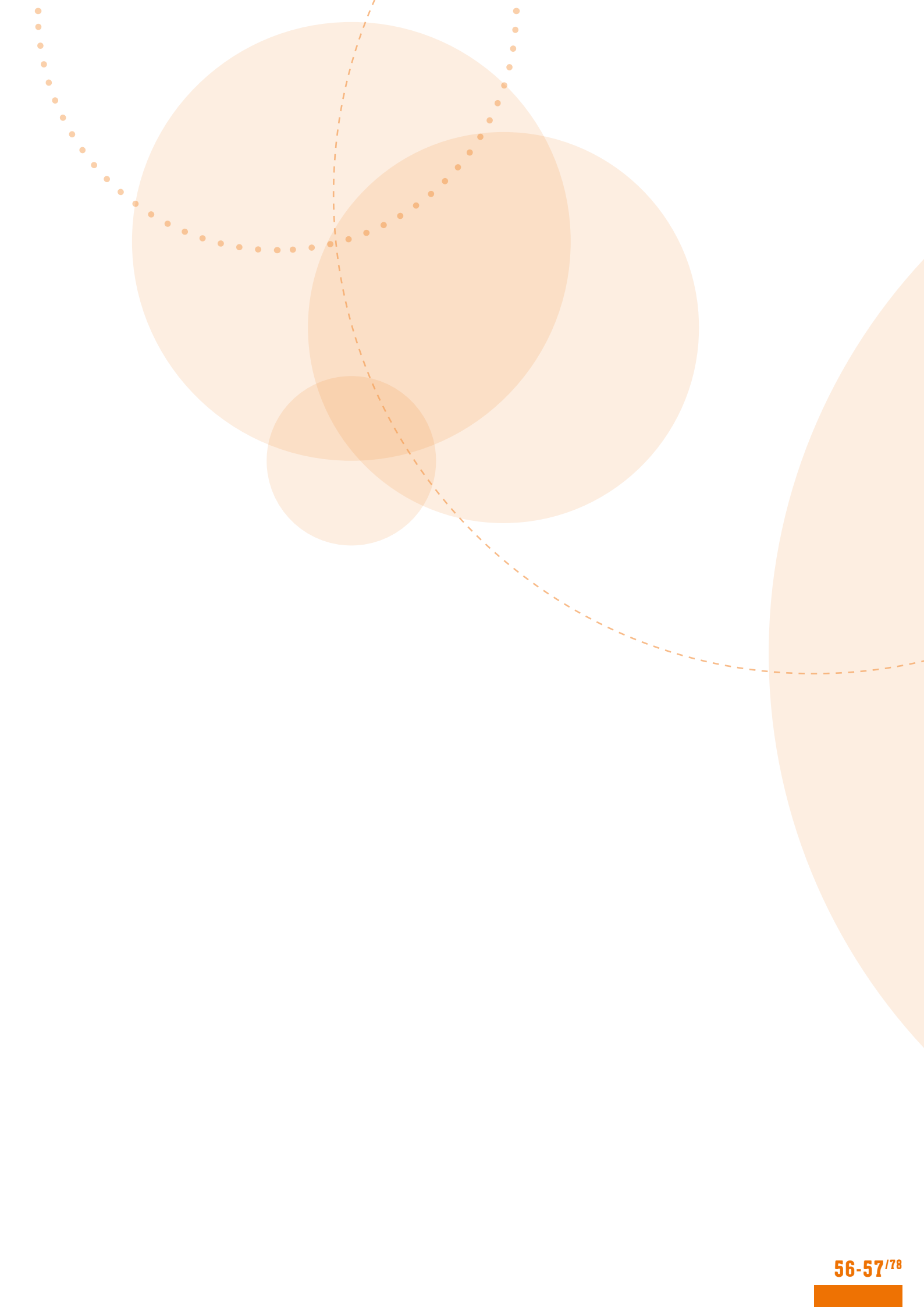
Higher Education Institutions are authorized to appeal directly to CTI's President. CTI has two months to treat the appeal request.

- › Appeal for private HEIs in front of the Education High Council

The appeal possibilities are defined by article L642-5 of the French Education Code.

"The representatives of the concerned HEIs (...) can, as well as the Minister in charge of Higher Education, appeal in a two months delay of the decision in front of the Education High Council which makes the final decision. The appeal is judged contradictorily in a three months delay.

The release of the engineering degrees can take place under no circumstances before the appeal decision. CTI's decision, such as Education High Council's ones, are justified."



ANNEX 4. LIST OF EVIDENCES

1. MISSIONS OF CTI

Evidence 1.1_A Names and affiliations of members and experts

<http://www.cti-commission.fr/-Les-membres-de-la-CTI->

<http://www.cti-commission.fr/-Les-experts-de-la-CTI->

2. COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE OF HIGHER EDUCATION [ESG PART 2]

2.1. USE OF INTERNAL QUALITY ASSURANCE PROCEDURES

Evidence 2.1_A. Section F of the self-assessment guide addressed to the higher education institutions

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/7/chapitre/193

2.2. DEVELOPMENT OF EXTERNAL QUALITY ASSURANCE PROCESSES

Evidence 2.2_A. RetO, section about apprenticeship

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/6/chapitre-element/275

Evidence 2.2_B. Bernard Remaud's article about apprenticeship

<http://www.cti-commission.fr/Note-d-information-de-la-CTI-La>

Evidence 2.2_C. CTI Infos about apprenticeship

<http://www.cti-commission.fr/CTI-Infos-No1>

Evidence 2.2_D. RetO, section about foreign languages level

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/6/chapitre/150

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/10/chapitre-element/487

Evidence 2.2_E. RetO, section about Validation des Acquis de l'Expérience

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/6/chapitre-element/277

Evidence 2.2_F. RetO, section about French State Admission

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/6/chapitre-element/374

Evidence 2.2_G. CTI's by-laws section regarding the working group processes

<http://www.cti-commission.fr/Reglement-interieur-de-la>

(Chapter IV.6 – Page 17)

Evidence 2.2_H. RetO

French version: <http://fond-documentaire.cti-commission.fr/>

English version : <http://www.cti-commission.fr/References-and-guidelines-2012>

Evidence 2.2_I. Results of the satisfaction survey

<http://cl.ly/122h1v3j2h29>

2.3. CRITERIA FOR DECISIONS

Evidence 2.3_A. Example of a Plenary Assembly minutes

<http://cl.ly/2j3w2V0s2v3c>

Evidence 2.3_B. Example of a deliberation

<http://www.cti-commission.fr/Deliberations-avril-2013>

2.4. PROCESSES FIT FOR PURPOSE

Evidence 2.4_A. CTI's different types of accreditations

http://fond-documentaire.cti-commission.fr/fr/fond_documentaire/document/10/chapitre-element/546

Evidence 2.4_B. CTI's by-laws section regarding experts

<http://www.cti-commission.fr/Reglement-interieur-de-la>

(Chapter III – Page 11&12)

Evidence 2.4_C. Experts' deontology chart

<http://cl.ly/0L2W042Z2y2Z>

Evidence 2.4_D. List of international experts

<http://cl.ly/0Q1V3q2A1g0j>

ANNEX 4

Evidence 2.4_E. 2011-2012 dashboard

<http://cl.ly/092n0P2k160B>

Evidence 2.4_F. Bnei/CTI collaboration agreement

<http://cl.ly/2A002t16201f>

Evidence 2.4_G. List of engineering student experts

<http://cl.ly/3o0M3L3K0h1u>

Evidence 2.4_H. Engineering student Experts' deontology chart

<http://cl.ly/0Y0j2t2L1U1G>

Evidence 2.4_I. Joint AEQES/CTI paper "Working together to take quality forward"

<http://cl.ly/351p3m3K0R3z>

Evidence 2.4_J. Expert toolkit

<http://cl.ly/112Q2X332e0f>

Evidence 2.4_K. Program of ABET-CTI joint workshop

<http://cl.ly/3a2q24251D0B>

Evidence 2.4_L. CTI's deliberation regarding experts and members' monetary compensation

<http://cl.ly/401d2U2Y222s>

2.5. REPORTING

Evidence 2.5_A. Examples of accreditation reports

<http://cl.ly/1v1e3Q0H0U3T>

Evidence 2.5_B. Link to CTI's website - accreditation reports

<http://www.cti-commission.fr/-Assemblee-plenieres-releve-de->

Evidence 2.5_C. Link to CTI's website - research engine for accredited programmes

<http://extranet.cti-commission.fr/recherche/rechercheFormation>

Evidence 2.5_D. Official list of programmes accredited by CTI and authorized by the French government

<http://www.cti-commission.fr/ARRETE-DU-18-AVRIL-2013>

Evidence 2.5_E. Link to ECA's QROSSROADS database

<http://www.grossroads.eu/find-a-programme-or-institution>

Evidence 2.5_F. Link to ENAEE's EUR-ACE® database

<http://enaee.trynisis.com/>

Evidence 2.5_G. Link to RNCP's database

<http://www.rncp.cncp.gouv.fr/>

2.6. FOLLOW-UP PROCEDURES

Evidence 2.6_A. Example of interim report

<http://cl.ly/2x3d113l0r2L>

2.7. PERIODIC REVIEWS

Evidence 2.7_A. 2008 joint survey CTI/IESF

<http://www.cti-commission.fr/CTI-Infos-No3>

Evidence 2.7_B. Bernard Rémaud's article European perspectives on the competences of engineering

<http://www.cti-commission.fr/European-perspectives-on-the>

Evidence 2.7_C. CTI's contribution to WEC Training engineers to face global challenges: the role of accreditation agencies

<http://www.cti-commission.fr/Training-engineers-to-face-global>

2.8. SYSTEM-WIDE ANALYSIS

Evidence 2.8_A. List of active links towards CTI's publications

<http://www.cti-commission.fr/-Publications-nationales-et-?date=2013>

<http://www.cti-commission.fr/-Publications-nationales-et-?date=2012>

3. COMPLIANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR THE EXTERNAL QUALITY ASSURANCE AGENCIES [ESG PART 3]

3.3. ACTIVITIES

Evidence 3.3_A. Scenarios proposal from AnaPro (Analysis and Prospective) working group

<http://cl.ly/2m2Y3B3m1p0C>

3.7. EXTERNAL QUALITY ASSURANCE CRITERIA AND PROCESSES USED BY THE AGENCIES

Evidence 3.7_A. Link towards the by-laws on CTI's website

<http://www.cti-commission.fr/Reglement-interieur-de-la>

3.8. ACCOUNTABILITY PROCEDURES

Evidence 3.8_A. Delibération regarding the COS composition.

<http://cl.ly/2w3l243l1H0q>

Evidence 3.8_B. Minutes of the COS first meeting

<http://cl.ly/341V2x1p1D2y>

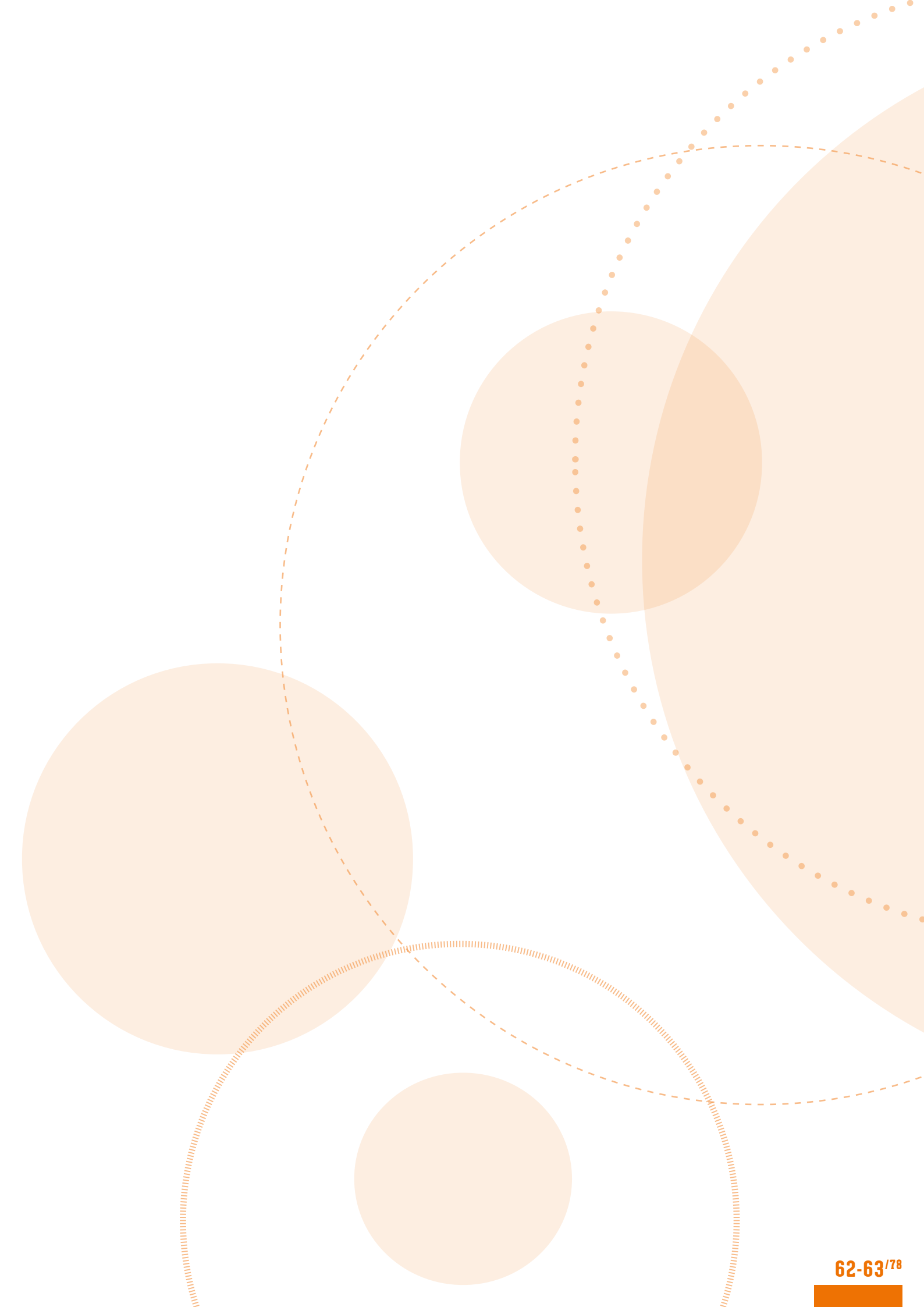
Evidence 3.8_C. Link to CTI's website - research engine for HEI system indicators

<http://extranet.cti-commission.fr/recherche/rechercheEcole>

3.9. CONSISTENCY OF JUDGMENTS, APPEALS SYSTEM AND CONTRIBUTIONS TO AIMS OF ENQA

Evidence 3.9_A. Program of the ENQA workshop housed by CTI in January 2012

<http://cl.ly/2n291T2Y3z1i>



ANNEX 5. THE INTERNATIONAL MISSIONS AND ACTIVITIES OF CTI

Over the last 10 years, CTI has greatly developed its international mission and activities. This development has been driven by the internationalization of higher education and of the engineering education and profession, and, more specifically, by the creation of the European Higher Education Area.

The main CTI international activities are:

- › Active participation in different European organisms in charge of quality assurance in higher education
- › Assessment and accreditation of engineering programs abroad (by CTI alone or through bilateral agreements with other accreditation or evaluation agencies)
- › Agreements with engineering professional organizations («Board «or order of engineers) with the objective to facilitate international mobility of French engineers

Link with CTI's missions

A part of CTI International activities is specifically considered by the French law (Art. L642-1 to 12 of the Code of Education); in particular, the legal framework applicable to the accreditation by CTI of engineering programmes abroad and their recognition in France.

These «historical» missions have expanded with the development of the European Higher Education Area where CTI is an active player, and the international development of French engineering higher education institutions (specifically, the development of off-shore initiatives).

Finally, due to the fact that the engineering profession is not regulated in France, CTI acts as the main counterpart for foreign engineering professional bodies, in coordination with other organisms, such as IESF.

Strategic and operational priorities for the deployment of CTI's international activities

CTI's general assembly has established a number of priorities regarding CTI's international activities:

Priority activities:

- › Active involvement in the main European organizations in charge of quality assurance in higher education.
- › Accreditation of off-shore programmes developed by French engineering higher education institutions.

Other activities (conducted according to CTI's resources)

- › Accreditation of engineering programmes delivered by non-French engineering higher education institutions.
- › Bilateral or multilateral relations with the other relevant agencies in the field of engineering education,
- › Relations and agreements with foreign engineering regulation bodies (board of engineers, etc.)

Participation in different European organisms in charge of quality assurance in higher education

ENQA and EQAR

Continuous improvement and quality assurance of engineering programmes are at the forefront of CTI's priorities. CTI applies this quality requirement to its own organization and has aligned its criteria and procedures with those established by the European Standards and Guidelines.

CTI is a full member of ENQA since 2005 and it is registered in EQAR since 2010.

ECA

CTI is a member of ECA (European Consortium for Accreditation) since March 2005. It adheres to the ultimate goal of this organization: mutual recognition of accreditations decisions.

CTI is committed to the principles of the ECA's code of good practice, expert selection procedures and accreditation of joint programmes.

CTI has established mutual recognition agreements with agencies in other countries (Switzerland, Germany and the Netherlands).

CTI also participates in the QROSSROADS initiative (a European data base of accredited programmes), and applies ECA's principles concerning the accreditation of learning outcomes.

ENAE and the EUR-ACE label

CTI is a founding member of ENAE (European Network of Accreditation for Engineering Education) and is one of the agencies authorized to deliver the EUR-ACE® label.

EUR-ACE® is a quality label which is delivered to engineering programmes which fulfil the EUR-ACE® framework standards. These standards establish the generic outcomes of engineering programmes at two levels (first cycle- bachelor- and second cycle- master).

The six Programme Outcomes of accredited engineering degree programmes are:

- › Knowledge and Understanding
- › Engineering Analysis

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- › Engineering Design
- › Investigations
- › Engineering Practice
- › Transferable Skills.

Accreditation of engineering programmes abroad

Upon demand of foreign institutions, CTI is authorized by the French law to accredit engineering programmes abroad. The result of this accreditation may, upon the concerned governments' request, result in «State admission» of these degrees by the French government. Up to the current moment, CTI has accredited engineering programmes belonging to 17 institutions outside of France in six different countries (Belgium, Bulgaria, Burkina Faso, China, Vietnam and Switzerland).

A specific version of CTI's reference framework has been developed addressed to institutions abroad. http://fond-documentaire.cti-commission.fr/en/fond_documentaire/resultToPdf?document_id=14

These accreditation missions are often conducted in collaboration with other agencies. As an example, the Agence pour l'Evaluation de la Qualité de l'Enseignement Supérieur (AEQES) and the Commission des Titres d'Ingénieur (CTI) have conducted a joint evaluation and accreditation mission in the French community of Belgium in 2012-2013. The objective of the collaboration was two-fold: the evaluation of engineering programmes by AEQES according to the Belgian legal requirements and the accreditation of these programmes according to CTI's reference framework. The site visits, which concerned 5 engineering programmes in the field of agronomic sciences and biological engineering and 15 in the field of engineering sciences, took place between September 2012 and February 2013.

Relations and agreements with foreign engineering regulation bodies

Canada

CTI has established an agreement of mutual recognition of professional qualifications with the Canadian order of engineers at the national and regional level.

This agreement sets simplified conditions for the Registration of French engineering graduates in the Canadian order of engineers. Conversely, it sets the conditions for Canadian graduates to benefit of the «ingénieur diplômé” status in France.

The agreement, which has been subject to successive updates, has been operational since 1999.

Professional mobility of engineers between France and Canada mainly concerns the Quebec region. In order to increase the effectiveness of this initiative, CTI has signed specific agreements with several professional orders in this region (Engineering, Forestry and Agronomy orders).

Malaysia

In 2006, CTI has signed a collaboration agreement with the Board of Engineers of Malaysia. The two agencies are currently exploring ways to move towards the mutual recognition of accreditation decisions in order to facilitate academic and professional graduate mobility. This future agreement is bound to solve the recognition difficulties of the Malaysian graduates who have obtained an engineering degree in France and who wish to practice their profession in Malaysia.

ANNEX 6. SELECTION OF THE MAIN LEGAL TEXTS CONCERNING CTI'S MISSIONS AND ACTIVITIES

CODE DE L'EDUCATION

1. LE TITRE D'INGÉNIEUR DIPLOMÉ

(loi du 13 juillet 1934 relative aux conditions de délivrance et à l'usage du titre d'ingénieur diplômé)

Article L642-2 :

Les personnes qui s'intitulent « ingénieur diplômé » doivent faire suivre immédiatement cette mention d'un des titres d'ingénieur créés par l'État ou reconnus par l'État, ou d'un des titres d'ingénieur légalement déposés conformément aux articles L642-4 et L642-10.

Code de l'éducation, article L642-12 :

Les infractions aux dispositions du présent chapitre sont réprimées conformément aux dispositions du code pénal relatives aux faux et à l'usurpation de titres. (NOTA : dispositions reproduites ci-dessous)

2. LA COMMISSION DES TITRES D'INGÉNIEUR

(loi du 13 juillet 1934 relative aux conditions de délivrance et à l'usage du titre d'ingénieur diplômé)

Article L642-3 :

La Commission des Titres d'Ingénieur, dont les membres sont nommés par le ministre chargé de l'enseignement supérieur, est consultée sur toutes les questions concernant les titres d'ingénieur diplômé.

La composition de cette commission est fixée par décret en Conseil d'État (NOTA : reproduit ci-dessous), elle comprend notamment une représentation des universités, des instituts, des écoles et des grands établissements ainsi que des organisations professionnelles.

Décret en Conseil d'État n° 85-685 du 5 juillet 1985 relatif à la composition et à l'organisation de la CTI

Article 1^{er} :

La Commission des Titres d'Ingénieur est composée de trente-deux membres.

Elle comprend :

Quatre membres choisis dans le personnel des établissements publics à caractère scientifique, culturel et professionnel relevant du ministère de l'éducation nationale et dans lesquels est délivré le titre d'ingénieur diplômé, à raison de deux représentants des universités, dont un représentant des instituts nationaux polytechniques, un représentant des instituts et écoles extérieurs aux universités et un représentant des grands établissements ;

Quatre membres choisis dans le personnel des écoles et instituts relevant du ministère de l'éducation nationale et délivrant le titre d'ingénieur diplômé ;

Huit membres choisis en raison de leur compétence scientifique et technique, dont cinq au moins pris dans le personnel des établissements délivrant le titre d'ingénieur diplômé autres que les établissements publics relevant du ministère de l'éducation nationale ;

Huit membres choisis par les organisations d'employeurs les plus représentatives ;

Huit membres choisis par les associations et les organisations professionnelles d'ingénieurs les plus représentatives.

Les membres de la commission mentionnés au 1. sont choisis par le ministre de l'éducation nationale sur une liste proposée par la conférence des chefs d'établissements publics à caractère scientifique, culturel et professionnel, créée par l'article 66 de la loi n° 84-52 du 26 janvier 1984 ; siégeant en formation restreinte aux chefs des établissements qui sont habilités à délivrer le titre d'ingénieur diplômé. Cette liste doit comporter deux fois plus de noms que de membres à désigner pour chacun des types d'établissements publics mentionnés au 1.

Les membres de la commission mentionnés aux 2. et 3. sont désignés par le ministre de l'éducation nationale.

Un arrêté conjoint du ministre de l'éducation nationale et du ministre chargé des questions du travail (reproduit ci- après) fixe le nombre des sièges attribués à chacune des organisations et associations mentionnées aux 4. et 5.

Article 2 :

Les membres de la commission sont nommés par arrêté du ministre de l'éducation nationale, pour une durée de quatre années.

Ils sont renouvelables par moitié tous les deux ans.

Nul ne peut être membre de la commission durant plus de huit années consécutives.

Article 3 :

Tout membre de la Commission des Titres d'Ingénieur cesse d'en faire partie s'il perd la qualité en raison de laquelle il y a été appelé. En cas de vacance d'un siège, pour quelque cause que ce soit, le ministre de l'éducation nationale procède, dans un délai de trois mois et selon les modalités prévues à l'article 1er, à la nomination d'un membre pour la durée du mandat restant à courir.

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Article 4 :

La commission, réunie sous la présidence du doyen d'âge, élit parmi ses membres un président et deux vice-présidents.

Le président, en cas d'empêchement, est remplacé par l'un des vice-présidents.

Le président et les vice-présidents sont élus à la majorité absolue aux deux premiers tours, à la majorité relative au troisième tour. Si, au troisième tour, il y a partage égal des voix, le plus âgé des candidats est considéré comme élu. Le vote se fait à bulletins secrets.

Le président et les vice-présidents sont élus pour deux ans. Ils sont rééligibles.

Un secrétaire-greffier auprès de la commission est nommé par le directeur des enseignements supérieurs du ministère de l'éducation nationale parmi les fonctionnaires de l'administration centrale.

Arrêté d'application du 13 septembre 1985, fixant la répartition des sièges

Article 1^{er} :

Les huit membres choisis par les organisations d'employeurs les plus représentatives en application de l'article 1^{er} du décret n°85-685 (...) sont désignés dans les conditions suivantes :

Six membres choisis par le Conseil national du patronat français (aujourd'hui MEDEF) ;

Deux membres choisis par la confédération générale des petites et moyennes entreprises (CGPME).

Article 2 :

Les huit membres de la Commission des Titres d'Ingénieur choisis par les associations et organisations professionnelles d'ingénieurs les plus représentatives en application de l'article 1^{er} du décret mentionné ci-dessus sont désignés dans les conditions suivantes :

Trois membres choisis par le Conseil National des Ingénieurs de France (aujourd'hui EISF) ;

Un membre choisi par l'union nationale interprofessionnelle des cadres et ingénieurs – fédération nationale des ingénieurs et cadres, confédération française de l'encadrement (CFE-CGC) (UNICI / CFE-CGC) ;

Un membre choisi par l'union confédérale des ingénieurs et cadres – confédération française démocratique du travail (CFDT) (UCC / CFDT, aujourd'hui CFDT-Cadres) ;

Un membre choisi par l'union générale des ingénieurs, cadres et techniciens - confédération générale du travail (CGT) (UGICT / CGT) ;

Un membre choisi par l'union des cadres et ingénieurs – confédération générale du travail – Force ouvrière (CGT-FO) (UCI / FO) ;

Un membre choisi par l'union générale des ingénieurs, cadres et assimilés – confédération française des travailleurs chrétiens (CFTC) (UGICA / CFTC).

3. L'HABILITATION À DÉLIVRER LE TITRE D'INGÉNIEUR [LOI DU 13 JUILLET 1934 ET LOI DU 26 JANVIER 1984]

Article L642-1, 2ème alinéa (loi « Savary » 84-52 du 26 janvier 1984) :

L'accréditation pour délivrer le titre d'ingénieur diplômé est accordée par l'autorité administrative compétente après avis de la Commission des Titres d'Ingénieur instituée par l'article L642-3.

Article L642-4 (loi du 13 juillet 1934) :

La Commission des Titres d'Ingénieurs décide en première instance, et sur leur demande, si des écoles techniques privées légalement ouvertes présentent des programmes et donnent un enseignement suffisant pour délivrer des diplômes d'ingénieur.

Ses décisions ne peuvent être prises que sur un rapport présenté sur ces programmes et cet enseignement par un ou plusieurs inspecteurs ou chargés de mission d'inspection.

Article L642-5 (loi du 13 juillet 1934) :

Les représentants des écoles intéressées reçoivent communication du ou des rapports d'inspection et peuvent demander à être entendus ; ils sont admis à fournir tous les éléments d'information qu'ils jugent utiles. Ils peuvent, ainsi que le ministre chargé de l'enseignement supérieur, interjeter appel dans le délai de deux mois de la décision devant le Conseil supérieur de l'éducation qui statue en dernier ressort.

Le recours est jugé contradictoirement dans le délai de trois mois.

En aucun cas, la délivrance des diplômes d'ingénieur ne peut avoir lieu avant la décision d'appel.

Les décisions de la Commission des Titres d'Ingénieur, ainsi que celles du Conseil supérieur de l'éducation, sont motivées.

Code de l'éducation, article L642-6 (loi du 13 juillet 1934) :

Sur la requête du ministre chargé de l'enseignement supérieur, il peut être procédé au retrait de la faculté de délivrer des diplômes d'ingénieur. La décision de retrait est prise dans les formes et par les organismes prévus par les articles L. 642-4 et L. 642-5. Toutefois, la décision de retrait ne peut intervenir qu'à la suite d'un avertissement donné sur rapport d'un inspecteur spécialement désigné à cet effet par la Commission des Titres d'Ingénieur et dont une nouvelle inspection, faite à un an d'intervalle, a constaté l'inefficacité.

La commission prend toutes mesures utiles pour sauvegarder le droit des élèves en cours d'études en vue de l'obtention du diplôme d'ingénieur.

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Code de l'éducation, article L642-8 (loi du 13 juillet 1934) :

Les établissements d'enseignement ayant obtenu la faculté de délivrer des diplômes d'ingénieur ou qui délivrent un diplôme d'ingénieur conformément à l'article L.641-5 (écoles techniques privées) sont soumis, pour les conditions dans lesquelles est assurée la formation professionnelle de l'ingénieur, à l'inspection d'inspecteurs ou de chargés de mission d'inspection.

La Commission des Titres d'Ingénieur dresse la liste des inspecteurs chargés de ces missions ; elle a communication des rapports d'inspection.

Décret en Conseil d'État n° 85-685 du 5 juillet 1985 relatif à la composition et à l'organisation de la CTI,

Article 1^{er} :

(...) Le directeur des enseignements supérieurs du ministère de l'éducation nationale ou son suppléant assiste aux séances de la commission avec voix consultative, sauf dans le cas où il remplit les fonctions qui lui sont attribuées par l'article 6 ci-après.

Article 5 :

Lorsqu'elle exerce une compétence consultative, la commission remplit ses fonctions dans les conditions prévues par le chapitre III du décret n° 83-1025 du 28 novembre 1983 et par les alinéas 2 et 3 du présent article.

Les délibérations sont prises à la majorité absolue des votants. En cas de partage des voix, la voix du président est prépondérante.

Tout membre de la commission empêché d'assister à tout ou partie d'une séance peut donner par écrit procuration à un autre membre. La procuration doit être remise au secrétaire-greffier de la commission avant le premier des votes pour lesquels elle prend effet. Nul ne peut détenir plus d'une procuration.

Lorsque la commission exerce un pouvoir de décision en matière administrative ou juridictionnelle, elle ne peut délibérer que si le nombre des présents dépasse la moitié de ses membres. Les délibérations sont prises à la majorité absolue des votants. Aucun membre ne peut voter par procuration. En cas de partage des voix, la voix du président est prépondérante.

Article 6 :

Lorsque la commission exerce les fonctions juridictionnelles qu'elle tient des articles 3 et 5 de la loi du 10 juillet 1934 (articles L642-5 et L642-6 du Code de l'Éducation), elle statue sur le rapport de l'un des membres désigné par le président, après avoir entendu les observations du directeur des enseignements supérieurs ou de son suppléant et celles des parties ou de leur mandataire.

La décision de la commission doit être motivée. Elle est lue en séance publique, transcrite sur le procès-verbal des délibérations et signée par le président, le rapporteur et le secrétaire-greffier. Il est fait mention dans la décision des membres ayant délibéré.

Décret interministériel (simple) n° 2001-242 du 22 mars 2001 relatif à l'habilitation à délivrer le titre d'ingénieur diplômé.

Article 1^{er} :

L'habilitation à délivrer le titre d'ingénieur diplômé est accordée pour une durée maximale de six ans, par arrêté du ministre chargé de l'enseignement supérieur et, le cas échéant, du ou des ministres concernés, après évaluation des formations assortie d'un avis de la Commission des Titres d'Ingénieur.

Article 3 :

La liste des écoles habilitées à délivrer un titre d'ingénieur diplômé est publiée une fois par an au Journal officiel de la République française

4. LE GRADE DE MASTER

Décret n°99-747 du 30 août 1999, modifié par décret n°2002-480 du 8 avril 2002, relatif à la création du grade de master

Article 1 :

Les diplômes sanctionnant une formation de haut niveau conduisent à l'attribution du grade de master dans les conditions prévues par le présent décret.

Article 2 :

Le grade de master est conféré de plein droit aux titulaires :

1° D'un diplôme de master ;

2° D'un diplôme d'études approfondies ou d'un diplôme d'études supérieures spécialisées ;

3° D'un diplôme d'ingénieur délivré par un établissement habilité en application de l'article L642-1 du code de l'éducation ;

5. LE DIPLÔME D'INGÉNIEUR PAR LA VOIE DE L'APPRENTISSAGE

Circulaire interministérielle du 22 mars 1993 Modalités d'application de la loi n°92-675 et du décret n°92-675 :

(...)

Pour les titres d'ingénieurs diplômés, leur préparation par la voie de l'apprentissage résulte :

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- › d'un arrêté d'habilitation du ministère de tutelle après avis de la Commission des Titres d'Ingénieur pour les établissements publics
- › d'une décision de la Commission des Titres d'Ingénieur pour les titres délivrés par les établissements privés

6. LE DIPLÔME D'INGÉNIEUR AU TITRE DE LA FORMATION CONTINUE

Arrêté « Fontanet » du 31 janvier 1974, modifié les 8 mars 1976 et 3 décembre 1982, relatif à délivrance d'un diplôme d'ingénieur au titre de la formation continue :

Article 1 :

Un diplôme d'ingénieur peut être délivré dans les conditions fixées aux articles suivants, aux travailleurs salariés ou non engagés dans la formation professionnelle continue, par un établissement ou un groupe d'établissements associés à cet effet. Ces établissements peuvent être soit des Institutions déjà habilitées à délivrer un diplôme d'ingénieur, soit des écoles spécialement ouvertes à cette fin. Les unes comme les autres doivent être autorisées à délivrer ce diplôme conformément aux dispositions de la loi du 10 juillet 1934.

Article 2 :

Le diplôme d'ingénieur prévu à l'article 1 sanctionne une formation qui, après un cycle préparatoire, s'achève par un cycle terminal organisé soit à temps plein, soit à temps partiel.

Le cycle terminal à temps plein, qui peut être organisé en plusieurs périodes, comporte douze' à dix huit mois d'enseignement..

Le cycle terminal à temps partiel, qui comporte un volume d'enseignement équivalent à celui du cycle à temps plein, est organisé sur une période allant de 24 à 36 mois.

Le cycle terminal est accompli dans un établissement ou un groupe d'établissement déjà habilités à délivrer un diplôme d'ingénieur. Le diplôme porte mention de sa spécialité.

Article 3 :

La mise en place d'une formation conduisant au diplôme d'ingénieur visé à l'article premier du présent arrêté est autorisée, pour les établissements publics relevant de son autorité, par arrêté du Ministre de l'Éducation Nationale après consultation de la Commission des Titres d'ingénieurs ou, pour les établissements privés qui demandent à délivrer ce diplôme, par décision de cette instance en application de la loi du 10 juillet 1934. La Commission des Titres d'Ingénieurs détermine en la matière sa procédure interne d'instruction des affaires qui lui sont soumises.

Article 6 :

Dans chaque établissement responsable de la formation un jury composé d'enseignants et de professionnels choisis en raison de leur compétence prononce l'admission au cycle pré-

paratoire, au cycle terminal et propose la délivrance du diplôme. Ce jury est désigné dans les mêmes conditions que celui sanctionnant la formation initiale d'ingénieur.

Pour l'admission au cycle préparatoire et la fixation de sa durée, le jury tient compte des formations reçues ainsi que de l'expérience professionnelle acquise. L'admission au cycle terminal est prononcée pour chaque établissement dans la limite d'un nombre fixé chaque année par arrêté du Ministre de l'Éducation Nationale après consultation de la Commission des Titres de l'ingénieur. Ce nombre est prononcé par le chef d'établissement, après avis du jury d'admission.

Article 7 :

Les formations susvisées peuvent faire l'objet de conventions en application des articles 5 et 6 de la loi susvisée n° 71-577 du 16 juillet 1971.

(...)

Arrêté du 11 juin 1985 relatif à la délivrance d'un diplôme d'ingénieur au titre de la formation continue par les établissements dépendant du Ministère de l'Agriculture :

Article 1 :

Les dispositions de l'arrêté du 31 janvier 1974 sont applicables aux établissements habilités à délivrer un diplôme d'ingénieur dépendant du Ministère de l'Agriculture.

Dans ce cas, la mise en place de la formation est autorisée et le nombre de places du cycle terminal fixé par arrêté du Ministre de l'Agriculture après consultation de la Commission des Titres de l'ingénieur.

7. LA VALIDATION DES ACQUIS DE L'EXPÉRIENCE

Code de l'éducation, article L641-2 (loi « de modernisation sociale » 2002-73 du 17 janvier 2002) :

Les dispositions des deux premiers alinéas du I de l'article L335-5 et celles de l'article L335-6 sont applicables aux formations technologiques supérieures.

Code de l'éducation, article L335-5 (loi « Delors » du 16 juillet 1971 et loi « de modernisation sociale » 2002-73 du 17 janvier 2002) :

Les diplômes ou les titres à finalité professionnelle sont obtenus par les voies scolaire et universitaire, par l'apprentissage, par la formation professionnelle continue ou, en tout ou en partie, par la validation des acquis de l'expérience.

La validation des acquis produit les mêmes effets que les autres modes de contrôle des connaissances et aptitudes.

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(NOTA : Selon l'article L641-2 du Code, seuls ces deux alinéas dans cet article sont applicables aux formations technologiques supérieures et donc aux formations d'ingénieurs. Toutefois on peut prendre comme référence les articles suivants et leur décret d'application, reproduits ci-dessous, qui concernent les titres et grades universitaires, dans la mesure où le diplôme d'ingénieur confère le grade de master).

8. LE TITRE D'INGÉNIEUR DIPLOMÉ PAR L'ÉTAT [LOI DU 13 JUILLET 1934]

Code de l'éducation, article L649-2 :

Les techniciens autodidactes, les auditeurs libres des diverses écoles, les élèves par correspondance, justifiant de cinq ans de pratique industrielle comme techniciens, peuvent, après avoir subi avec succès un examen, obtenir un diplôme d'ingénieur.

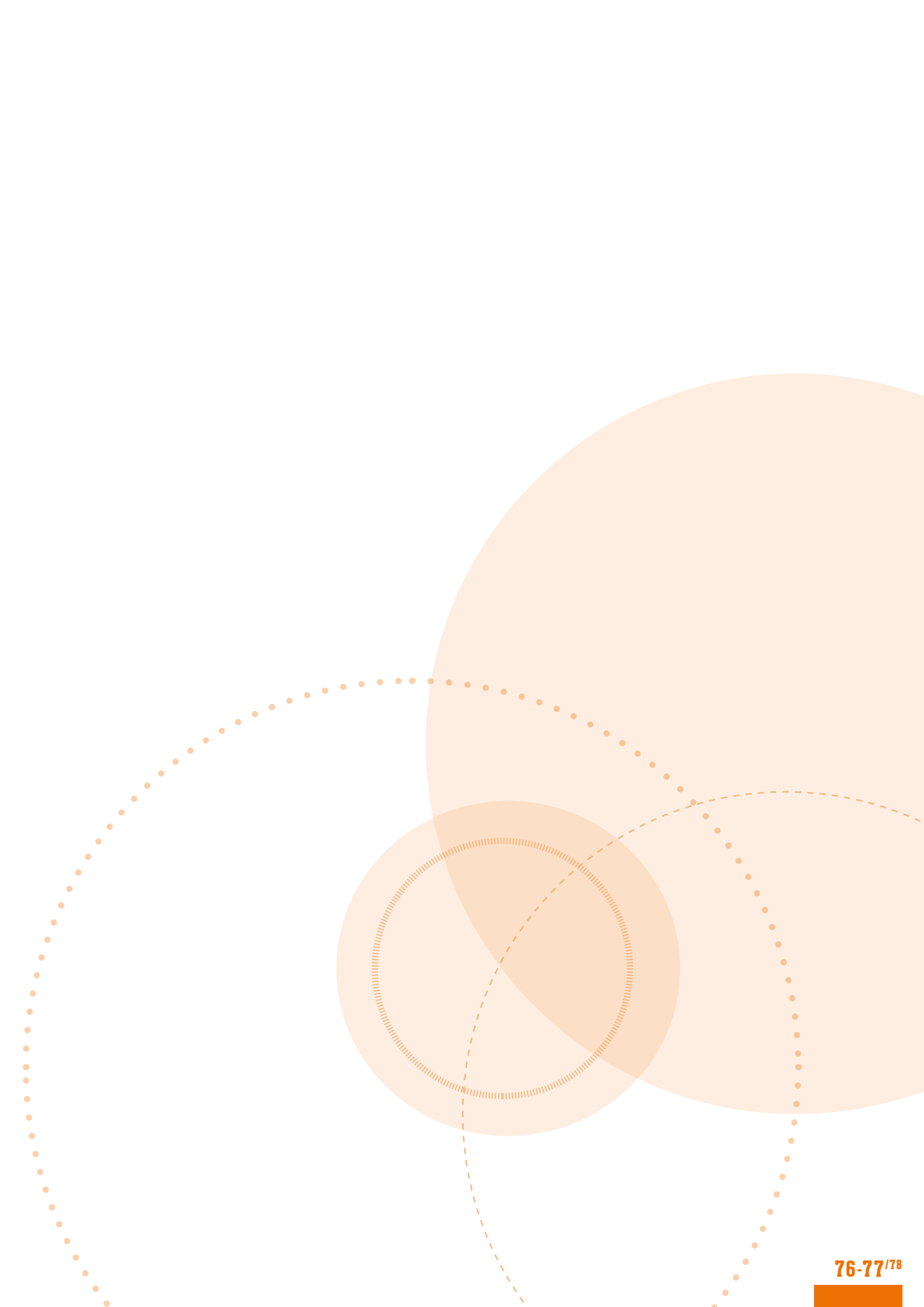
Les conditions de la délivrance de ces diplômes sont fixées par décret sur avis favorable de la Commission des Titres d'Ingénieur.

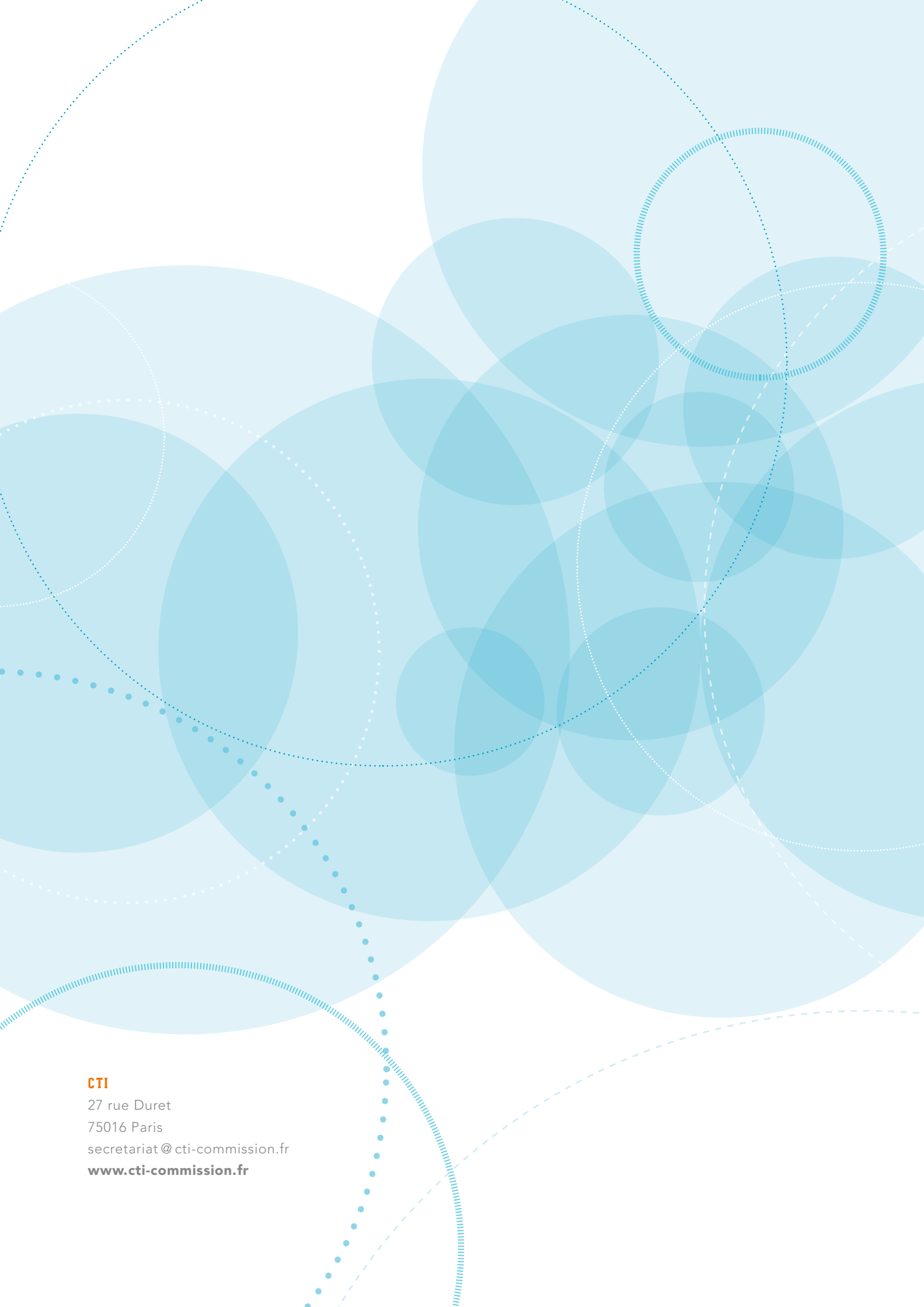
Décret n° 2001-274 du 30 mars 2001 relatif au titre d'ingénieur diplômé par l'État

Article 1^{er} :

Le diplôme d'ingénieur délivré en application de l'article L642-9 du code de l'éducation confère à ses titulaires le titre d'ingénieur diplômé par l'État.

Il porte mention d'une spécialité.





CTI

27 rue Duret

75016 Paris

secretariat@cti-commission.fr

www.cti-commission.fr