

EXPERIENCES OF FRENCH ENGINEERING SCHOOLS STIMULATING INNOVATION



Conférence des Directeurs
des Écoles Françaises
d'Ingénieurs

Marc Renner

President

<http://www.cdefi.fr>

CONFERENCE OF DEANS OF FRENCH ENGINEERING SCHOOLS

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CDEFI - SPEARHEAD OF FRENCH ENGINEERS

- Created by law in **1976**
- Non-profit association that gathers all deans of French public and private **schools of engineering and universities of technology**
- Legal mission: **to promote French engineers** nationally, in Europe and worldwide
- Main missions:
 - ✓ To **defend the interests and the specificities** of French engineering schools
 - ✓ To **promote engineering trainings and jobs** in France and worldwide
 - ✓ To **manage the interaction** with the accreditation agency, “Commission des titres d’ingénieur” that authorized schools to deliver the French engineering degree
 - ✓ To **express political opinions** on higher education, research and innovation topics
 - ✓ To promote **technological research**

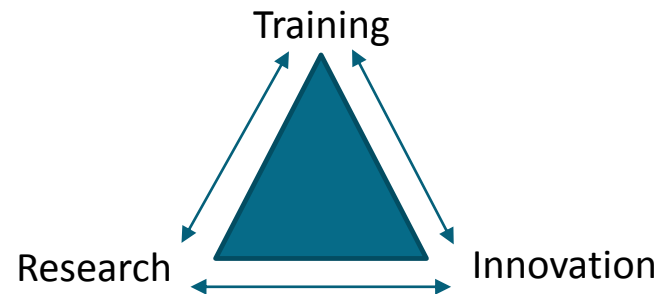


FRENCH ENGINEERING SCHOOLS - OVERVIEW

- **201** French engineering schools authorized by the “CTI” to deliver the French engineering degree:
 - ✓ **147 public schools** (including 65 schools administratively attached to higher education institutions)
 - ✓ **54 private schools**
- **More than 140,000** students were enrolled in 2017-2018 (**14,3%** of foreign students)
- **Almost 35,000** engineering degrees awarded each year
- **60%** of all Masters level degrees awarded in France in Science and Technology
- **56%** of researchers in companies hold an engineering diploma in 2015

FRENCH ENGINEERING SCHOOLS - MAIN CHARACTERISTICS

- A unique degree for all engineers, “**titre d’ingénieur diplômé**” (equivalent to a MSc. or an MEng.)
- All subjects and areas of sciences and engineering sciences
- Insurance quality guaranteed by the “CTI”
- The engineering curriculum is multidisciplinary and interdisciplinary, and based on:



All of that resulted in the “CTI” definition of engineer: *“An engineer has to be able to identify, study and solve, in an efficient and innovative way, complex issues of creation, conception, production, implementation and inspection of products, systems and services, sometimes their financing and marketing as well, in competitive structures. He takes into account the human and environmental concerns and also the social well-being.”*

FRENCH ENGINEERING SCHOOLS – TRAINING FOR INNOVATION

In order to train open-minded, creative and entrepreneur engineers, the educational program of French engineering schools include :

- Innovation and technology transfer courses (intellectual property management...) based on a collaborative and professional approach (teamwork, partnerships with companies...)
- Entrepreneurship training (with representatives from the business world):
 - ✓ 96% of the French engineering schools provide entrepreneurship courses and for more than half of them the courses are mandatory.
 - ✓ Theoretical courses including practical training (internships in start-up...).
- Research-based courses and internships as part of the engineering curriculum
- Collaborations with other higher education institutions (dual degrees with business schools...)

FRENCH ENGINEERING SCHOOLS – TOOLS FOR INNOVATION

- A special degree and status for entrepreneur students
 - ✓ About **25%** of students with the status of entrepreneur student were engineering students in 2016-2017.
- Centers for innovation, transfer and entrepreneurship **PEPITE (Pôle Etudiant pour l'Innovation, le Transfert et l'Entrepreneuriat)** which support and provide entrepreneurship training
 - ✓ About **75%** of the French engineering schools are partners of at least one of the 29 PEPITE in 2017.
- Business incubators
 - ✓ About **75%** of the French engineering schools have at least one business incubator or a partnership with a business incubator in 2017.

FRENCH ENGINEERING SCHOOLS – TOOLS FOR INNOVATION

- FabLab
- Industrial chairs and companies sponsorship
- Competitions based on innovation and creativity

All of that resulted:

- ✓ More than 1,000 start-up have been created by the French engineering schools since 2010.
- ✓ 2 757 patents have been filed between 2009 and 2014 by 100 most successful schools of engineering.

FRENCH ENGINEERING SCHOOLS PUBLIC FUNDING FOR INNOVATION

- Since 2010, the **national Program of Investments for the Futur (PIA)** has allocated:
 - ✓ about 900 million euros for the creation of **technology transfer accelerator offices (SATT)**.
 - ✓ about 7,7 billion euros for the creation of **multidisciplinary centers for the higher education & research excellence (IDEX and I-SITE)** and about **30%** of French engineering schools are partners of at least one IDEX or I-SITE.
 - ✓ about 150 million euros to support **innovative trainings of excellence (IDEFI)** and about **100 IDEFI** have been implemented in the French engineering schools.

FRENCH ENGINEERING SCHOOLS PUBLIC FUNDING FOR INNOVATION

- **i-LAB** is a financial plan to support the creation of innovative businesses:
 - ✓ An **annual national competition** (about 430 million euros for 20 years)
 - ✓ A **“PEPITE-Tremplin”** competition for students and young graduates. 18% of the award winners of « PEPITE – Tremplin » were engineers in 2017.
- To stimulate innovation, a national reform program plans to make legislation more flexible to stimulate collaboration between researchers and companies, to boost the creation of new businesses and the involvement of researchers in enterprises including in the capital.

MOST ATTRACTIVE EMPLOYERS TOP20 INGÉNIEURS



MOST ATTRACTIVE EMPLOYERS N°2 ET 3

Classement Ingénieurs

LE PRIX EST ATTRIBUÉ À :



LE PRIX EST ATTRIBUÉ À :



universum
AWARDS 2018

MOST ATTRACTIVE EMPLOYERS N°1

Classement Ingénieurs

LE PRIX EST ATTRIBUÉ À :

AIRBUS

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