



**ENGINEERING**

ZJU Symposium

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## FOREWORD TO CTI PRESENTATION



*Global engineering excellence is the critical path to face the gigantic challenges of our tomorrow's world.*

*Excellence will be reached only by a genuine and sustainable commitment of all stakeholders in engineering education.*



ENGINEERING ACROSS THE WORLD



# ENGINEER – DIFFERENT MEANINGS

## **American-British** definition :

Engineers design materials, structures, and systems while considering the limitations imposed by practicality, regulation, safety, and cost.

The work of engineers forms the link between scientific discoveries and their subsequent applications to human needs and quality of life.

## What we call engineer in **France** :

Multidisciplinary, management skills, innovation and entrepreneurship ...



## FRANCE

- Master degree - Engineer Diploma (Equivalence with Master of Science)
- Certified by the CTI

## USA

- Bachelor degree (4 years)
- Master degree (specialization)

## Deutschland

- Bachelor of Engineering
- Master of Engineering

# BEING AN ENGINEER

- Background and knowledge in :
  - Science
  - Technologies
  - Economics
  - Society
  - Environment
  - Humanities
- General culture



Transdisciplinar

- Global vision of a project



CTI – FRENCH ACCREDITATION AGENCY





# FRENCH ACCREDITATION AGENCY

- Independent committee since 1934
- Part of ENAEE (European Network for Accreditation of Engineer Education)
- Certify universities (École d'ingénieur) to deliver “Engineer” diploma.
- Evaluation on 6 different criteria – academic excellence of curriculum , cooperations with other institutions, industries...
- Over 240 institutions labelled in France (~ 150 graduated / year / institution)

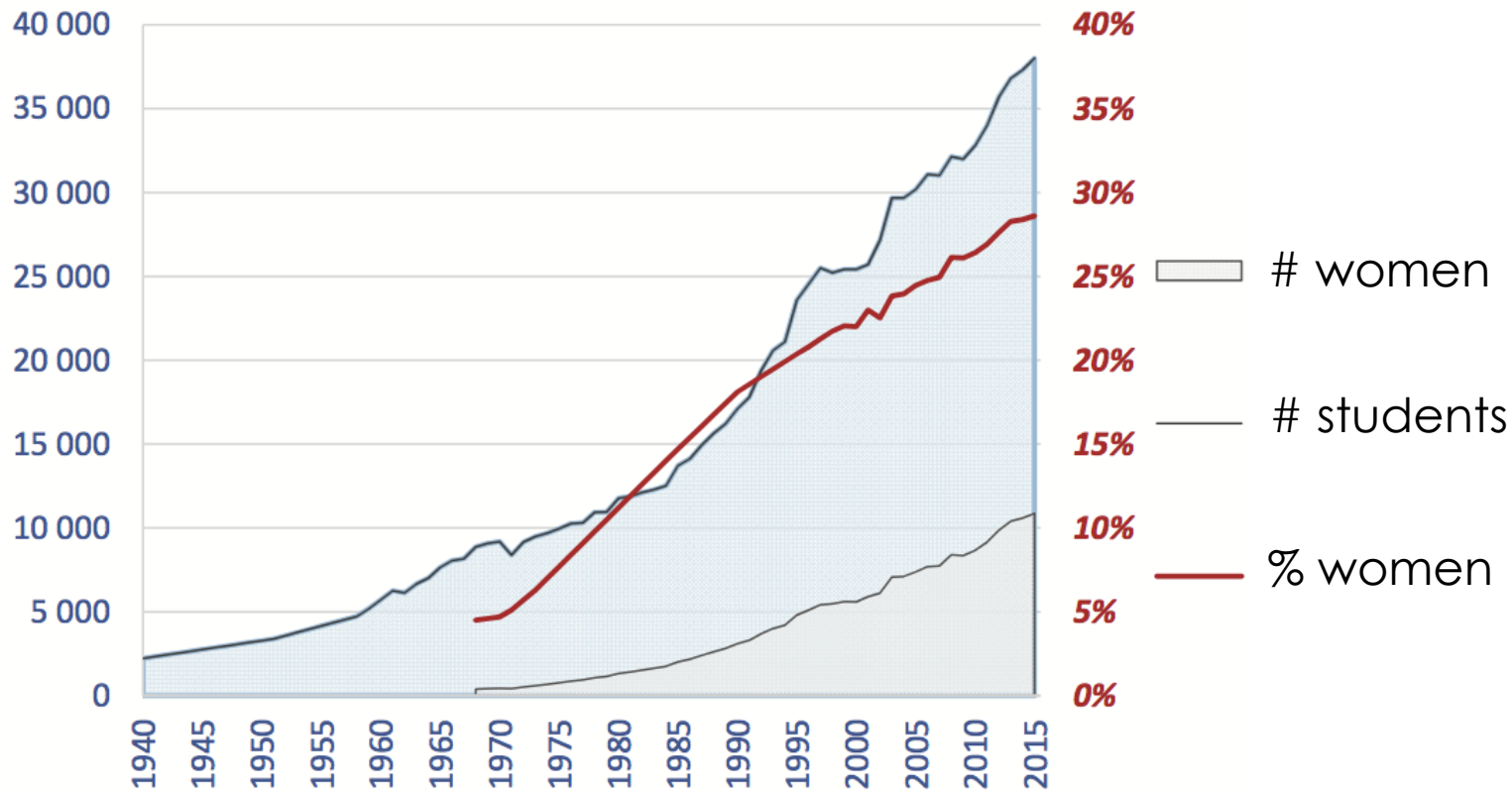


CTI

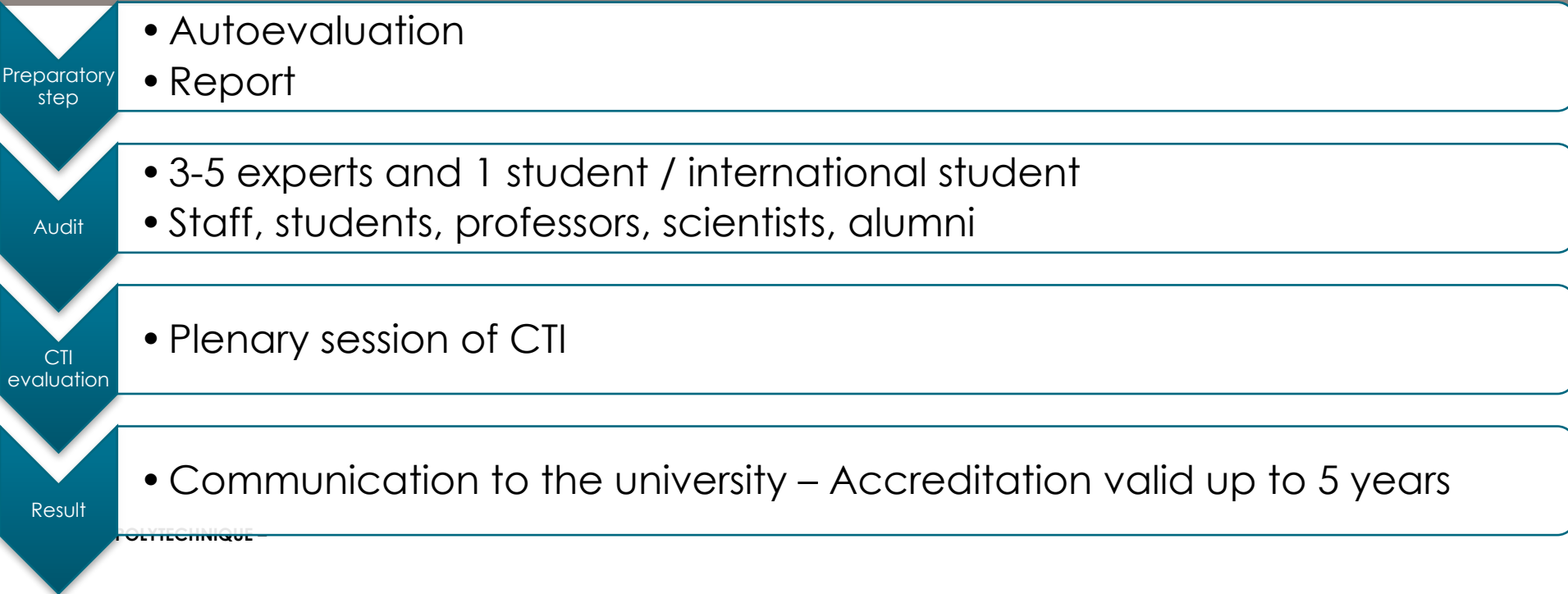


# CTI GRADUATION

FORMER DES HAUTS  
RESPONSABLES



# PROCESS OF ACCREDITATION





# DETAILED ACCREDITATION CRITERIA CTI GUIDELINES



## 6 MAIN CRITERIA

- Mission and organization of the university
- Partnership strategy (education, research, industry)
- Quality of curriculum, teaching, academics, research, student environment
- Selection
- Career of the Alumni
- Quality assurance in education



# CURRICULUM – PROFESSIONAL COMPETENCES

- Scientific competences – Master level
  - Knowledge of a large field of different sciences
  - Capacity of using a specific scientific field on a problem
  - Mastering engineering skills : problem solving, computer science...
  - Research abilities
- Understanding and knowledge of a company and society
  - International awareness and mobility
- Management, Innovation and Entrepreneurship



X

FOCUS ON L'X (ÉCOLE POLYTECHNIQUE)







# TALENTED STUDENTS WITH DIFFERENT PROFILES

## 3.000 students

2000 Ingénieur Polytechnicien  
students

450 Masters' and 500 Ph.D. students

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35% international students

65 nationalities

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20% girls in three academic  
programs

5 Students for 1 Teacher

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22 Laboratories

17% of the French Research  
(Paris-Saclay Cluster)

# CURRICULUM OF L'ÉCOLE POLYTECHNIQUE

- A Science based, multidisciplinary program
- Entrepreneurship, Management and Innovation
- Emphasis on personal development with courses in humanities and social sciences
- Sports
- A 3-months company internship
- A 5-months research internship
- 12 weeks abroad



# TEACHING

## Value drivers

Employability

Selection

Content

Medium

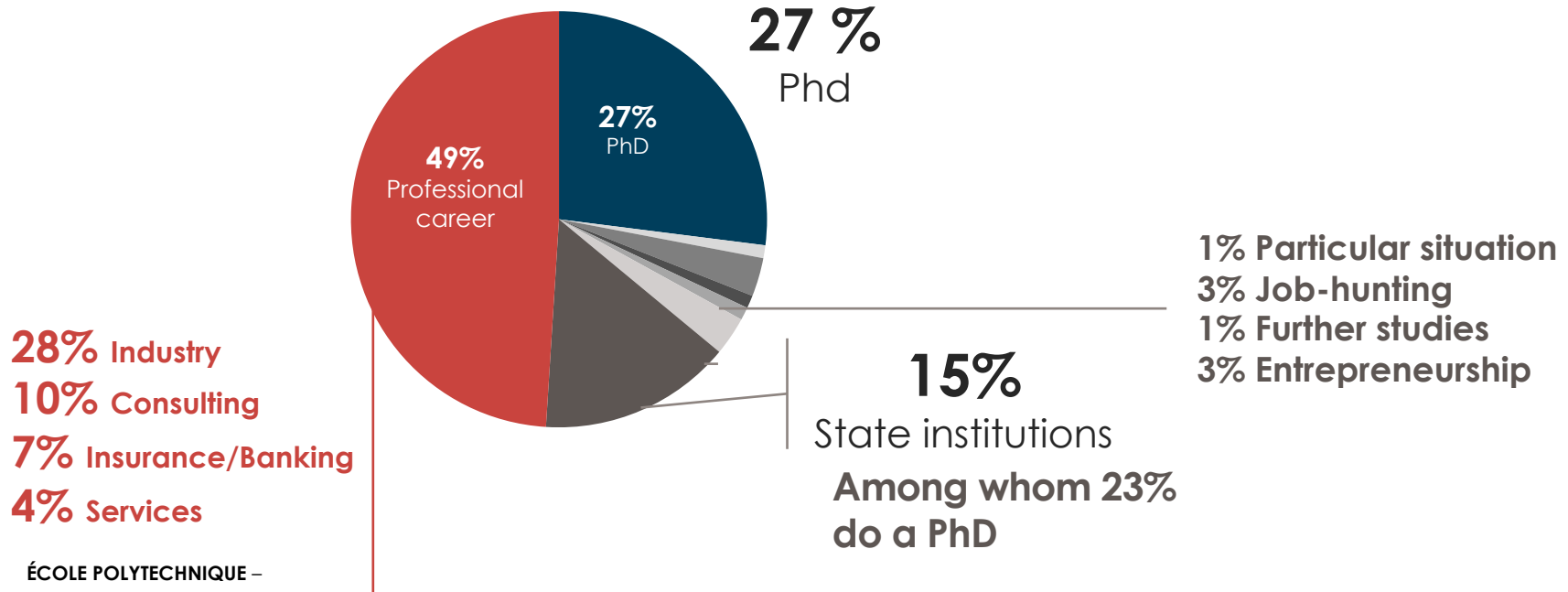
Industry feedback  
Alumni management  
Soft skills  
Internships (3 m industry / 6m research)  
Executive education

Z generation!  
Versatile: Strong in Maths, creative, open

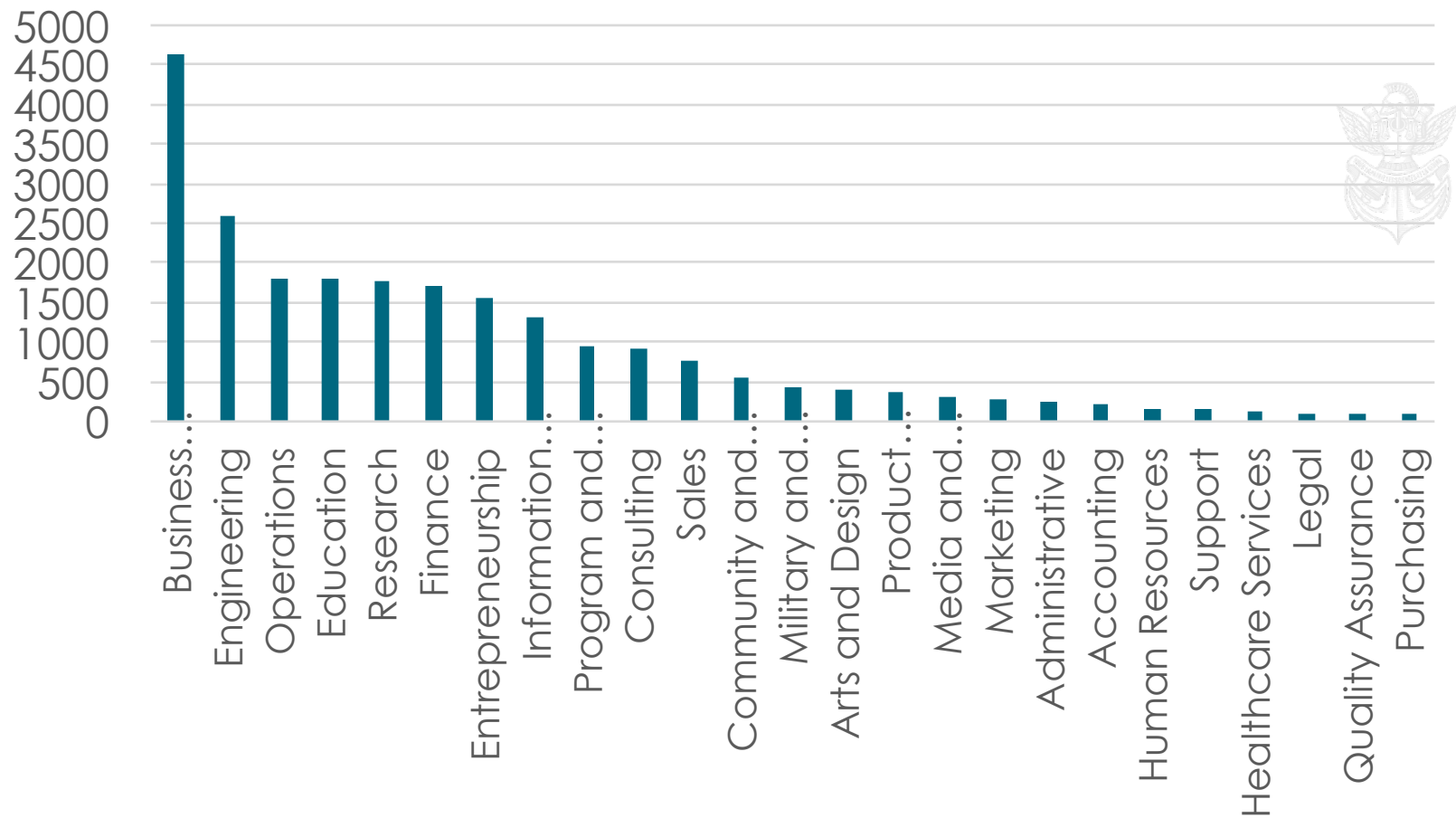
Personalized  
To-date  
Pluridisciplinary: maths, materials, bio, social sciences

Digital AND Human

## CAREERS AFTER X



# ALUMNI



# 18 INDUSTRY SPONSORSHIPS, 23 FIRMS, 8 ACADEMIC PARTNERS



BNP PARIBAS

PSA PEUGEOT CITROËN



THALES



TOTAL



MBDA



DCNS





**Excellence**

**Integrity**

**Multidisciplinarity**

**Audacity**

**Attention to the World**