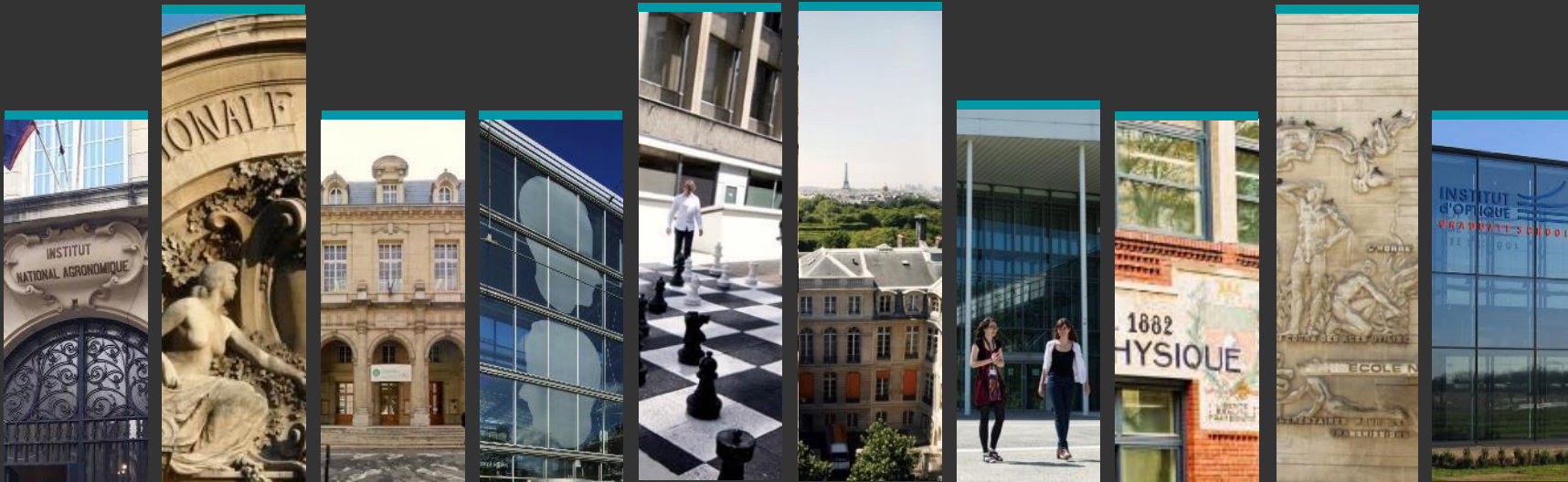


# UNIVERSITIES' ROLES IN INNOVATION ECOSYSTEMS PARISTECH (FRANCE)

37th Conference of Rectors and Presidents of European Universities of Technology, University of Strathclyde, 15 September 2018



PARISTECH  
A CONSORTIUM OF  
THE MOST PRESTIGIOUS GRADUATE SCHOOLS  
IN ENGINEERING & SCIENCE  
PARIS, FRANCE

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# EDUCATION, RESEARCH, INNOVATION IN SCIENCE & TECHNOLOGY

AN EXCEPTIONAL UNION OF TEN  
GRADUATE SCHOOLS ENABLING A  
UNIQUE TRANSDISCIPLINARITY

ParisTech is a consortium of 10 Graduate Schools of Engineering & Science, which are among the most prestigious "Grandes Ecoles"

- 6 ParisTech Schools are in the top 10 out of 250 Engineering Schools in France
- Each School is ranked **#1** at the national level in its specific domain

## Shared-values

- Excellence based on the model of French "Grandes Écoles"
- Openness as a driver for growth: international openness, social diversity, openness to new pedagogical methods
- The quest for innovation, key to future successes for our Schools

# KEY NUMBERS



**10**

“Grande École”  
in Engineering  
& Sciences



**16 500**  
students



**100**  
laboratories



**71**  
teaching and  
research chairs



**2 000**  
professors



**100**  
partner companies



**130 000**  
Alumni

# SCIENTIFIC EXCELLENCE

100

research laboratories

900

theses submitted/year

9

European Research Council  
grantees

2200

PhD candidates

100 M€

allocated to research contracts

3000

annual publications



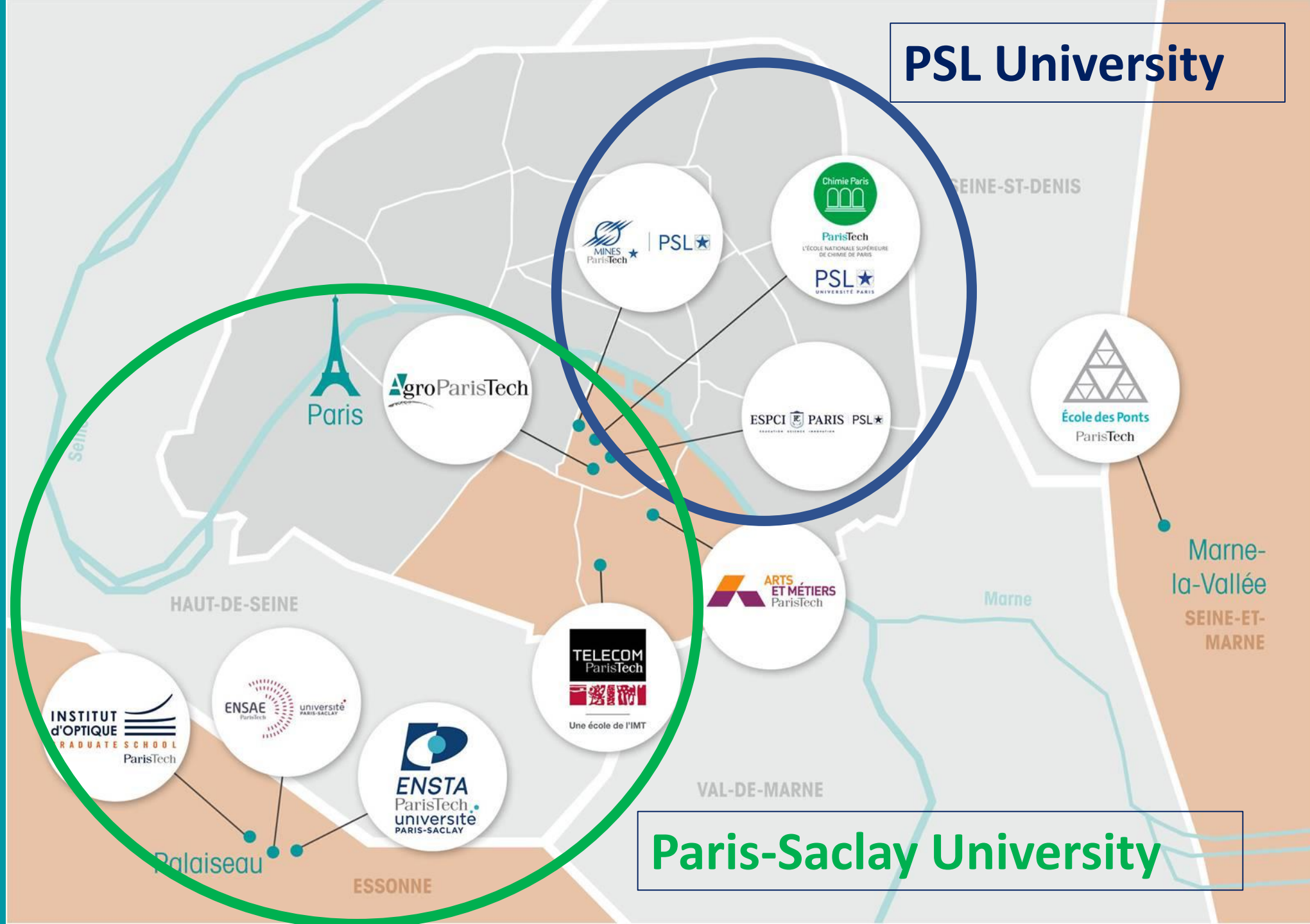


10

GRADUATE  
SCHOOLS  
IN PARIS

3

CAMPUSES



# COMMUNITIES OF HIGHER EDUCATION INSTITUTIONS IN FRANCE

- COMUEs : Communities gathering at least one university and other higher education institutions (engineering schools, management schools, art schools...)
- Created in 2013 by law
- A territorial unit
- Research organisations (e.g. CNRS, Inria) may be members too
- Coordination or even mutualisation of the training offer, their research and innovation strategy,
- Mutualisation of support activities (e.g. HR, international relations)
- Objective: enhance the position of French universities in the international rankings (ARWU, THE, QS...), make them more visible at international level

# PARISTECH'S JOINT PROGRAMS

- **Education**

- RACINE programme: life-long learning for professors and associate professors
- Masters REST and EMINE (KIC InnoEnergy)

- **Social inclusiveness**

- Institute Villebon-Georges Charpak
- Individual initiatives of each member (cf. « Cordées de la réussite »)

- **Research**

- Chairs: BiomecAM, Recycling (ESR), Nuclear engineering (Areva), Complex systems engineering –Thales, Dassault Aviation), Eco-conception (Vinci)
- Institute for sustainable mobility
- Institute VeDeCom



FONDATION  
ParisTech

- **International**

- 2 permanent offices abroad: China, Brazil
- Recruitment of international students in China, Brazil, Colombia, Brazil
- Campus offshore: Shanghai Jiao Tong – ParisTech Elite Institute of Technology (SPEIT), ICARE, Chimie Pékin
- European networks: ATHENS, CESAER





ParisTech



[www.chimie-paristech.fr](http://www.chimie-paristech.fr)

- High selected students (50% women, 20% international students)
- 40% practical training
- 20% management and human skills
- 12 mandatory internship months

- Organic and Bioorganic Chemistry
- Solid State Chemistry and Materials Science
- Theoretical Chemistry
- Nuclear Chemistry
- Chemical and Process Engineering
- Risk Management

- 120 Researchers and Professors & Associate Professors
- 140 PhD candidates and post-docs
- 3 labs, 13 research teams, 3 ERC grantees
- 2 research chairs with Areva and ESR
- 2 Labcoms (joint labs with SMEs)
- 40 research contracts per year

# AN ORIGINAL INNOVATION ECOSYSTEM

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# PARTNERSHIP WITH COMPANIES DURING CURRICULA

- **Entrepreneurship**
  - Initiation
  - Create a SME
  - Technology project (3-6 months)
- **Internship in a company (or a lab) : once a year**
  - 1st year : 1 month (as a worker)
  - 2<sup>nd</sup> year : 3-5 months
  - 3<sup>rd</sup> year : 6 months
- **Part-time students (apprenticeship):** combination of in-company work and academic courses
- **Industrial PhD :** from 30 to 80% of engineers continue with a PhD, most of them within an industrial PhD (half in the lab, half in the company during 3 years)

# PERMANENT CONNECTIONS WITH COMPANIES

71

Teaching and Research  
Chairs

2 900

Contracts signed with  
companies

1/3

Doctoral programs funded  
by companies

Companies contribute to the strategic decisions of the Schools

- **As executive board members:** *Jacques ASCHENBROICH, Chairman of Valeo (Mines ParisTech), Benoît de RUFFRAY, Chairman and CEO of EIFFAGE (Ecole des Ponts ParisTech), Pierre PRINGUET, Vice-Chairman of the Administration Board of Pernod Ricard (AgroParisTech), Philippe DARMAYAN, Chairman Arcelor-Mittal (Arts et Métiers ParisTech), Leopold DEMIDLLER, former Vice-president Business Development SOLVAY)...*

- **As teaching and research partners**

Partnerships between companies and Paristech's institutions

- VEDECOM: research and training on carbon-free connected vehicles and its mobility (ITE)
- Sustainable Mobility Institute: research on electric mobility systems in partnership with Renault
- Program in Nuclear Energy: masters' programs and Teaching Chairs with EDF, ENGIE, Areva
- Program in Bioengineering: master in bioengineering and Teaching Chairs
- Chairs, e.g. with ESR (recycling)

# PERMANENT CONNECTIONS WITH COMPANIES



10

GRADUATE  
SCHOOLS  
IN PARIS

3

INNOVATION  
ECOSYSTEM  
MODELS





## 3 INNOVATION ECOSYSTEM MODELS

- Paris-Saclay
- Paris downtown
- Paris-Est

# SACLAY: MOSTLY FOCUSING ON COOPERATION WITH LARGE COMPANIES

- **Benefitting from real state availability**
- **R&D centers of big French and foreign companies**



- **Joint labs**



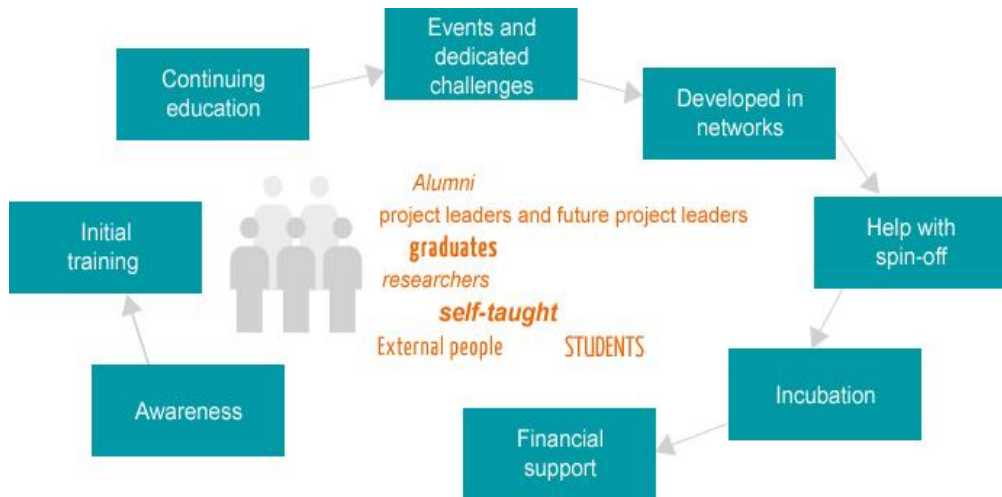
with



- **Labs and research infrastructures**



# PARIS: SMES AND INCUBATORS



ParisTech schools are committed to supporting and implementing entrepreneurship and innovation projects.

Thus contribute to developing innovative companies of tomorrow.

Over 700 incubated projects

Among which 80% have been existing for more than 5 years

## The network of incubators:

- in Paris
  - Agoranov
  - ParisTech Entrepreneurs
  - Incubator of the center Arts et Métiers ParisTech
  - Station F
  - ESPCI PCUp
  - Pollen

And in Paris-East:

- Incubator Descartes
- GreenTech verte

And in Saclay:

- Le 503, Institut d'Optique Graduate School
- Incuballiance (in partnership with Paris-Saclay)



# PARIS-EAST: A THEMATIC CLUSTER

## Cluster « sustainable city »

- **Higher education**
  - **Ecole des Ponts ParisTech** : engineering school for civil engineering, spatial planning and energy transition
  - University Paris-Est, School for architecture, School for geographical sciences
- **IFFSTAR**: organisation for research on the city and the territories, transportation and civil engineering
- **Incubator** for start-ups, **fablab**
- **MARYLIN**, a green and high-density datacenter
- **CAP DIGITAL**: cluster of big companies and SMEs on urban ecotechnologies and sustainable city



- 5000 employees
- 350 companies
- 34 research units
- 1000 associate professors, professors and researchers
- 500 engineers and technicians
- 700 PhD candidates
- 15 000 students

# A PUBLIC POLICY IN FAVOUR OF INNOVATION

## Public-private partnerships

- Industrial PhD (CIFRE)
- Carnot Institutes
- Clusters
- SATT
- IRT/ITE (e.g. VEDECOM)

## Seed money

- e.g. PSL Innovation fund
- BPI's FCPI (mutual funds in innovation)

## *Support innovative start-ups in technology*

- Young innovative enterprises (JEI)
- Incubators for public research
- National competition for creating start-ups\*: 1700 start-ups supported, 70% still existing, +50% from public research
- PEPITE Prize (2014): encourage start-ups by students or young graduates

\* Concours national d'aide à la création d'entreprises technologiques

## Research tax credit for all companies in France

## Support students who want to start up a business

- Training for entrepreneurship
- PEPITE (30 in FR) : help desks
- Young university companies (JEU) (low taxes, -250 employees, - 8 years...)



# ZOOM IN ON PARISTECH ENTREPRENEURS



## ParisTech Incubator

- Created in 1999 by Télécom ParisTech
- Puts together 10 ParisTech schools' expertise
- Related domains: digital, data processing, artificial intelligence, cybersecurity...
- 35 entrepreneurs supported each year
- 400 projects supported since the creation of ParisTech Entrepreneurs
- 86.5% of start-ups still exist 5 years after their creation
- Successful stories: Netvibes (2005) / HelloCoton (2008)



# EXAMPLE: PSL INNOVATION FUND (SINCE 2018)

- Tech transfer investment fund
- Dedicated to PSL startups
- Created in partnership with



- **Structure:** French FCPI
- **Target size:** 50 M€  
**Hardcap:** 75 M€  
**First closing:** 35 M€
- **Targeted Portfolio:** 30 companies
- **Term:** 10 years + 2 optional 1-year periods
- **Investment period:** 4 years + 1 option 1-year period
- **Status:** Closing target Q2 2018

# ParisTech

#Cooperate #Undertake #Share

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[www.paristech.fr](http://www.paristech.fr)

