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# FRANCE

The ideal destination

→  
to set up your data center and host your data

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# FRANCE'S COMPETITIVE ADVANTAGES



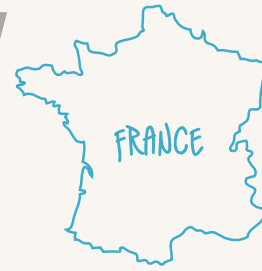
## KEY TAKEAWAYS



- 1  
2<sup>nd</sup> largest economy in the EU
- 2  
High connectivity
- 3  
Gateway to Africa & the Middle East
- 4  
Abundant, quality power
- 5  
Low-carbon electricity
- 6  
Competitive energy prices

- 7  
18% renewable electricity
  - 8  
Cool climate
  - 9  
Low exposure to natural hazards
  - 10  
Secure regulatory framework
  - 11  
Affordable real estate
  - 12  
World-class engineering skills
-

# SUMMARY



THE IDEAL DESTINATION  
TO SET UP YOUR DATA CENTER  
AND HOST YOUR DATA

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## FRANCE'S ECONOMIC ADVANTAGES

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- ➋ A RAPIDLY DIGITIZING ECONOMY & DYNAMIC IOT AND CLOUD MARKETS
  - ➌ MAKING BUSINESS EASY FOR THE ICT SECTOR
  - ➍ A PROTECTIVE LEGAL FRAMEWORK FOR DATA
  - ➎ ABSENCE OF MAJOR NATURAL HAZARDS

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- ➋ RESILIENT, REDUNDANT ELECTRICITY GRID
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  - ➏ PUBLIC EXPERTS AT YOUR SERVICE



**2<sup>nd</sup> largest economy in the EU**

WITH A POPULATION OF 67 MILLION (INSEE 2016)

**5<sup>th</sup> economy in the World**

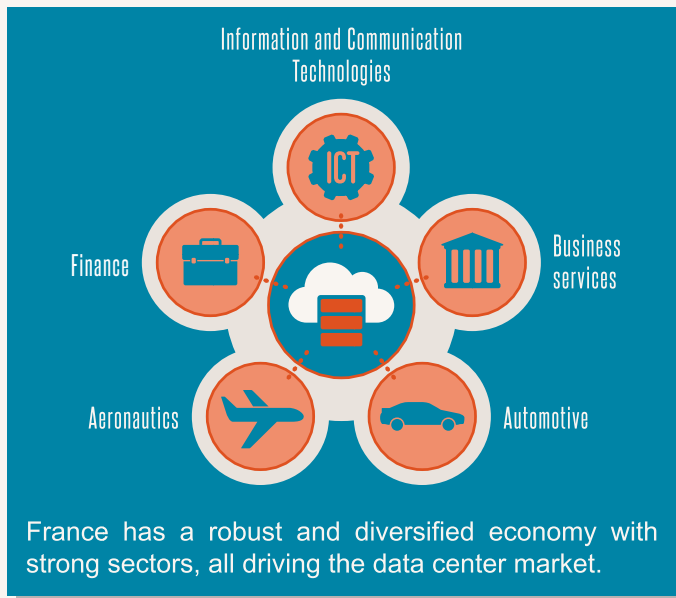
LOCATED AT THE CORE OF THE EUROPEAN UNION

Chapter 1

**FRANCE'S ECONOMIC ADVANTAGES**



• A strong economy at the core of the EU internal market



**29** French companies are among the world's leading 500 (FORTUNE GLOBAL 500, 2016)



• A rapidly digitizing economy & dynamic IoT and cloud markets

The French government has launched a number of initiatives to boost the digitization of French industry and SMEs (Industry of the Future) and promote a vibrant start-up ecosystem (French Tech).

The French IoT and cloud computing markets are booming, driven by the rapid digitization of the French economy and society:



Connected things in France by 2020



French companies and government services



The French cloud computing market is projected to exceed €7 billion by 2018

# 1978

JANUARY 6  
CONFIDENTIAL  
First law n°78-17  
on data protection  
and freedoms

National  
Commission  
on Informatics  
and civil Liberties

# CNIL

Companies express a strong need for proximity and data localization in France



## • Making business easy for the ICT sector

France is a stable democracy, with a technologically skilled workforce and a regulatory framework favorable to business. In the World Bank's Ease of Doing Business Index of 2016 France ranked **27 out of 189 countries.**



In recent years, ICT investments such as servers and data center equipment have been granted increased depreciation allowances of 40%. Likewise, institutions like Caisse des Dépôts are fully mobilized to ensure the deployment of digital infrastructures in all French Regions.

France also offers abundant, affordable real estate and regional authorities in charge of economic development (Paris Région Entreprises, Provence Promotion, Aderly-Invest in Lyon...) are working to respond to the needs of ICT investors.



## • A protective legal framework for data

France has had a long tradition of data protection since 1978 and France offers today the highest level of protection. Choosing to host your data in France means benefiting from a protective legal framework for your data in general, especially personal data. Here are some of the numerous assets of France:

**1- Increase your customers' confidence thanks to the transparency demands enshrined in French law** – particularly towards third parties and subcontractors. Transparency regarding contracts but also in the collection of data associated with firm commitments

- The customer's right to information from the provider, particularly in the event of a change of any subcontractor during the performance of the contract (Contract Law reformed in October 2016)
- Enhanced liability for every player of the contract chain thanks to the **General Data Protection Regulation (GDPR)**
- New principles have been introduced, such as privacy by design, accountability and data portability.

**2- Rely on a strong supervisory authority:** The CNIL (Commission Nationale de l'Informatique et des Libertés) is an effective means of remedies and

# Major natural hazards



# France: a secure country



has ensured the protection of users' rights since 1978. The CNIL has experienced a dramatic increase in its prerogatives and sanctioning powers in case of non-compliance with applicable law.

**3- Anticipate future European regulations,** such as the **General Data Protection Regulation**

- The CNIL has just updated the rules related to biometric data in France, anticipating the entry into force of the **GDPR**

- The **GDPR** contains a new definition of personal health data

- The **GDPR** will reduce prior administrative procedures and reinforce users' rights, security and data privacy.

**4- Strengthen data privacy.**

- A reinforcement of the principle of data privacy is expected through the (soon-to-be transposed) Trade Secrets European Directive.

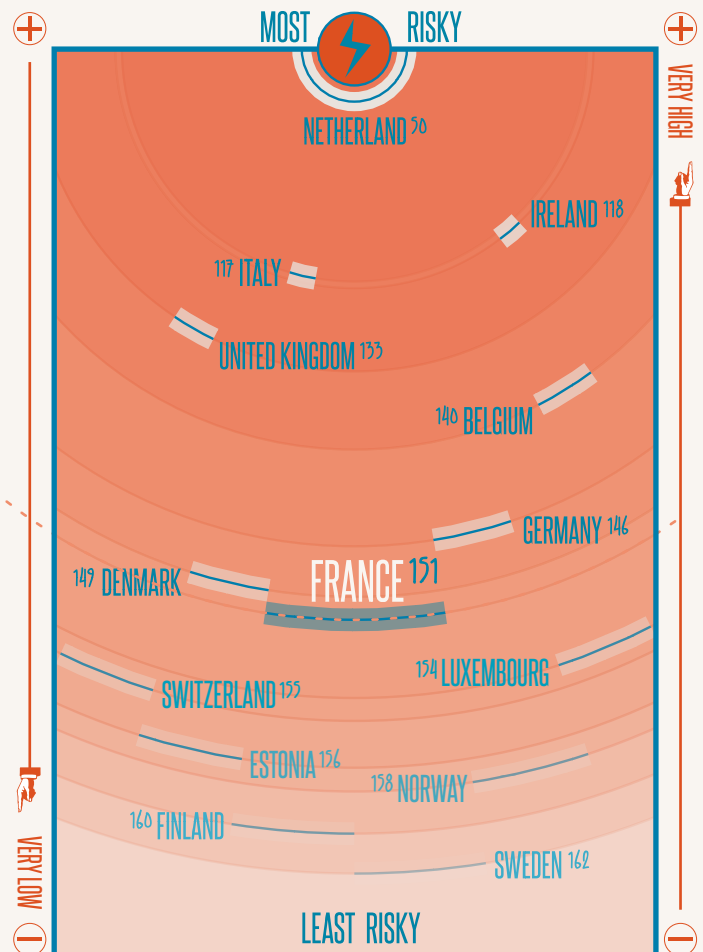


• **Absence of major natural hazards**

**Exposure to natural hazards**  
(from least risky to most risky)



France is one of the world's least exposed country to natural disasters such as earthquakes or extreme weather events.



Source: World Risk Report 2015

# COMPETITIVE ENERGY PRICES



€89.30 /MWh  
1H 2016

## Chapter 2

# EUROPE'S ENERGY LEADER



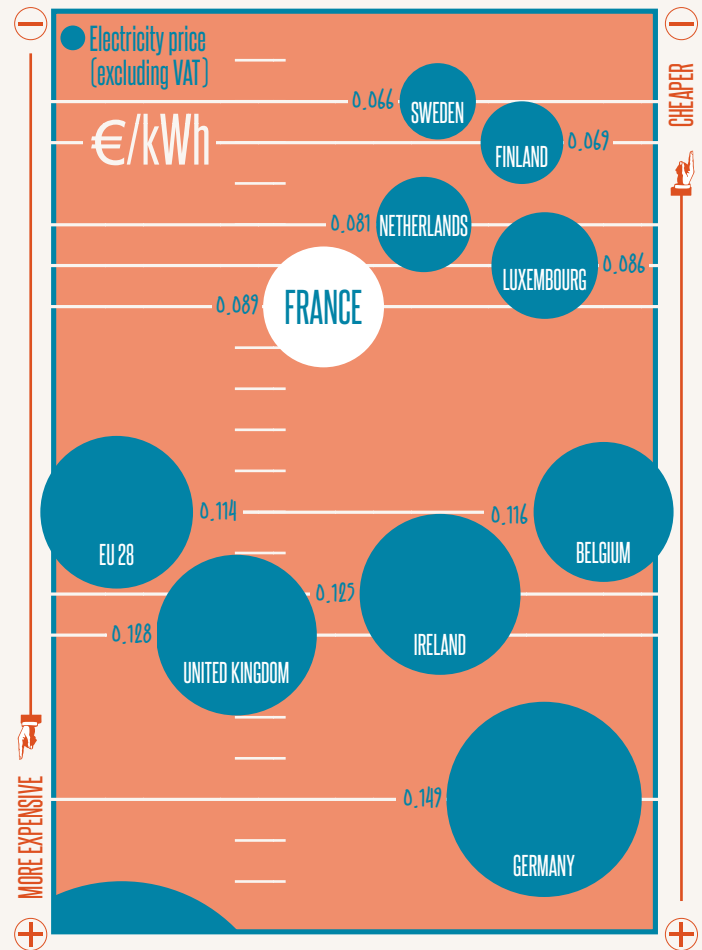
### • Competitive, stable power prices

With an average of €89.30/MWh in 2016, France offers electricity prices which are both lower and more stable than the EU average. Power companies in France, which have a long track record of working with energy-intensive industries, also offer data center operators predictable, long-term contracts with highly competitive rates enabling them to take advantage of favorable conditions on wholesale electricity markets.

### Competitive electricity prices for industry



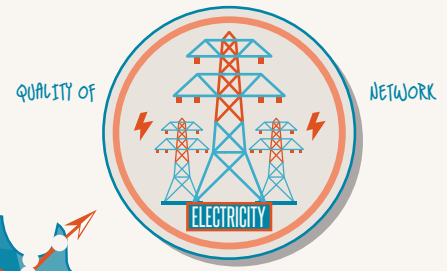
Electricity prices for industrial consumers, second half of 2016 (Annual consumption : 500-2,000 MWh. Excluding VAT.)



Source: Eurostat 2017



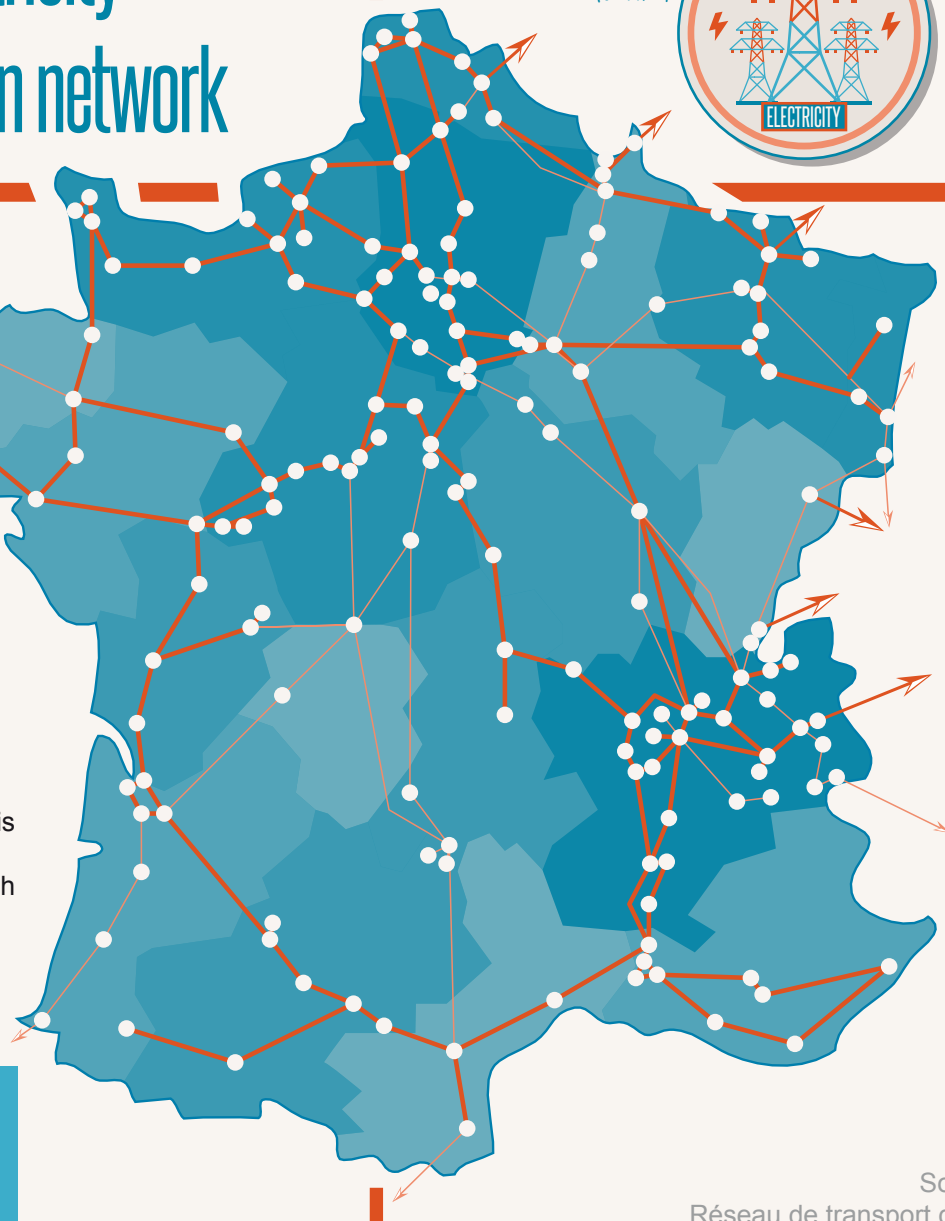
# 400kV electricity transmission network



• Resilient, redundant electricity grid

France's transmission grid is the most advanced in Europe and offers high levels of redundancy

- 400 kV SUBSTATION
- LINE WITH 1 CIRCUIT
- LINE WITH 2+ CIRCUITS



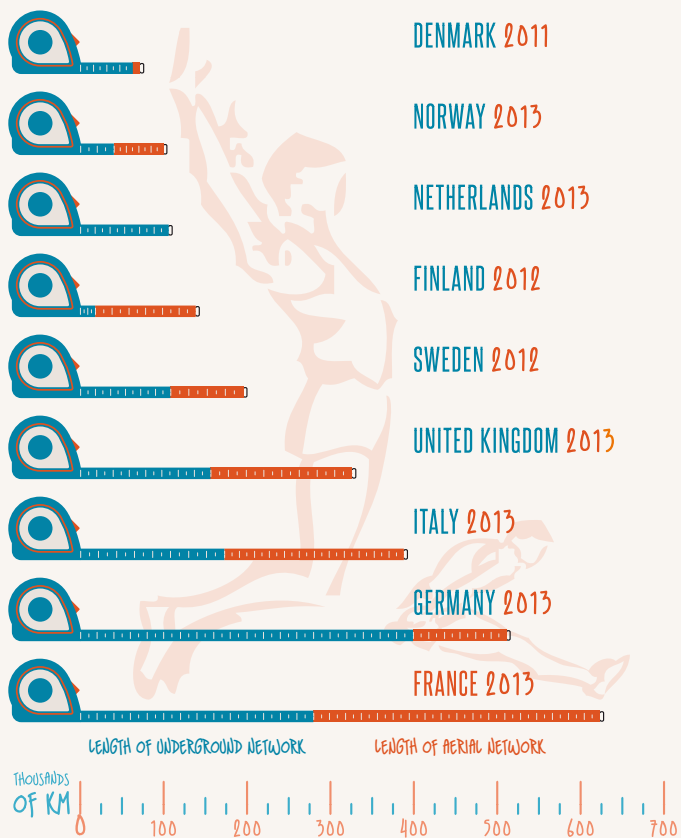
Source: RTE  
Réseau de transport d'électricité

# 18% renewable electricity IN FRANCE

# 6 to 7 times less CO<sub>2</sub> than GERMANY & UK



## • Size of middle-voltage network

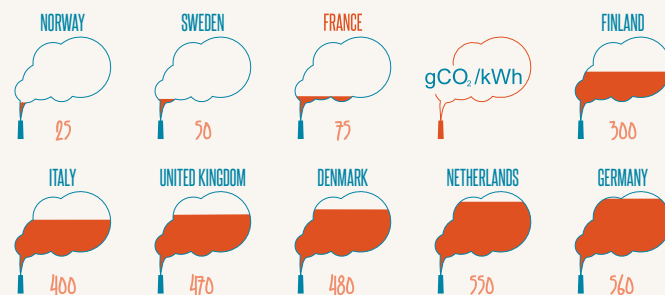


Source: UFE with CEER data (2016)



## • A low-carbon electricity mix

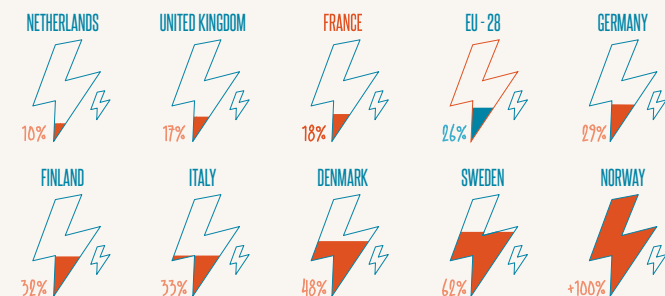
France's electricity is one of the most decarbonized in Europe with an average of 75g of CO<sub>2</sub> per kWh



Source: UFE with IEA data (2016)



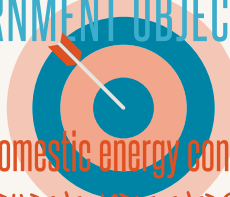
## • Share of electricity from renewable sources in total electricity consumption



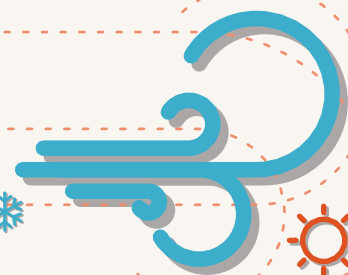
Source: Eurostat (2014)

# 32% GOVERNMENT OBJECTIVES

of domestic energy consumption MET BY RENEWABLE ENERGY BY 2030



# FREE COOLING

Moreover, power companies in France may offer contracts guaranteeing that 100% of the energy consumed comes from renewable energy sources.

Installed renewable energy capacity is expected to reach 51 GW, which equals 37% of overall French electricity generation capacity by 2020 (Source: RTE).

The French government has set the goal of having 32% of domestic energy consumption met with renewable energy sources by 2030. France is also the first European country to have adopted a law encouraging self-consumption of renewable electricity.

On top of that, France's cool and dry climate makes free cooling available 365 days a year. French cities also possess extensive district heating systems suitable for data center heat reuse.



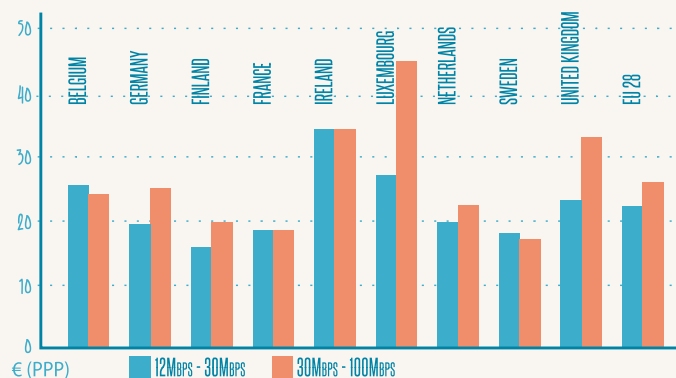
## WORLD-CLASS DIGITAL INFRASTRUCTURE

### Chapter 3



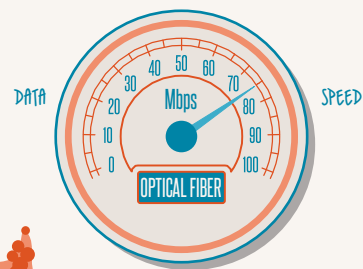
- Quality domestic fiber network

France boasts one of the best digital infrastructures in the world with state-of-the-art domestic fiber network and affordable high-speed broadband access.



Fixed broadband retail prices as of October 2015.  
Source: DG Connect

# Fiber optics network Incumbent & RIP



## Fiber network coverage in France

Local networks (**RIP – Réseaux d'Initiative Publique**) have developed in recent years ensuring high connectivity all over the French territory.

- ORANGE FIBER OPTIC COVERAGE
- RIP FIBER OPTIC COVERAGE
- ORANGE & RIP FIBER OPTIC COVERAGE

Source: IDATE  
consulting for FIRIP (2016)

# The gateway to Africa & the Middle East

TWO CONNECTIVITY



Submarine cables

PARIS

USA

TO NEW YORK  
Paris : 80.37 ms  
Stockholm : 100.29 ms  
LATENCY TIME

Submarine cables

France is the **only** European country to benefit from **two connectivity hubs** in the Paris and Marseille regions.

ASIA

TO SHANGHAI  
Paris : 303.77 ms  
Amsterdam : 398.91 ms  
LATENCY TIME



• **Reliable connectivity, low latency**

France offers resilient, low-latency network connections to all major Internet hubs. Its central geographical location makes France an obligatory passage point for data traffic to Spain, Italy and Portugal. France IX, the leading French Internet eXchange point, ranks 4th in Europe behind AMSIX Amsterdam, LINX London and DECIX Frankfurt.

MARSEILLE

Submarine cables

AFRICA & THE MIDDLE EAST

TO DUBAI  
Paris : 117.97 ms  
London : 288.35 ms  
LATENCY TIME

Sources:  
TeleGeography PCCW Global  
[www.wondernetwork.com](http://www.wondernetwork.com)

# French research is among the most dynamic



## FRENCH EXPERTISE AT YOUR SERVICE

### Chapter 4



#### • Expertise across the entire value chain

France enjoys a vibrant data center ecosystem, with major players across the entire data center value chain:

- **consulting and engineering:** APL, Artelia, Cap Ingélec, Critical Building, EMC, IOSIS, etc.;
- **construction:** Bouygues Immobilier, Digital Realty, Eiffage, Vinci, etc.;
- **technical equipment manufacturers:** ABB, Eaton, Legrand, Rittal, Schneider Electric, SDMO, Siemens, Socomec, Vertiv;
- **IT equipment manufacturers:** Groupe ATOS, Bull, Dell, HP, IBM, etc.;
- **maintenance and operation:** Cofely, Dalkia, Spie, Vinci, etc.;
- **software developers:** EMC2, Oracle, etc.;
- **telecommunications :** Bouygues Télécom, Colt, Iliad, Orange, SFR, etc.;
- **colocation and hosting:** Data4, Equinix, Global Switch, Interxion, Telehouse, etc.;

- **Internet giants:** Amazon, Apple, Google, Microsoft, Yahoo, etc.;



#### • Engineering

France offers state-of-the-art engineering skills for the construction and operation of data centers. French engineering companies have solid international experience and are therefore able to accompany foreign Investors throughout the development of their project in France with a proven ability to work in multicultural environments.



#### • Research

French Research is one of the most dynamic and internationally recognised. High-level research in the field of efficient data center management enjoys recognition in top scientific reviews and conferences. A dozen research teams work exclusively on this topic in Grenoble, Lille, Lyon, Nantes, Nice, Paris, Strasbourg, Rennes, and Toulouse. Close ties between national research institutes (CNRS, INRIA) and leading enterprises, through collaborative projects or national or European consortia, enable the data center industry to be at the forefront of innovation. Past research projects like PrimeEnergyIT, Ctrl-Green, CoolEmAll, or projects

# RESEARCH



underway such as Datazero, bring together French research institutions and the data center industry to optimize data center operation, notably their energy performance. With Ecoinfo, leading French research institutions offer advice on how to mitigate the negative environmental impacts of ICT, including data centers. These research institutions all contribute to the initial and continuing education of the engineers who will operate data centers.



## • Skilled workforce

France boasts a high number of schools in IT, electrical and mechanical engineering educating **33 000 young engineers** every year together with qualified technical staff.



## • A wide spectrum of options for your data center

You may choose to set up:

- Inside a colocation operator: all major players have data centers in France.
- A brownfield site with turnkey data center construction operators.
- A greenfield site with the support of public authorities.

# INDUSTRY



## • Public experts at your service

- Business France



Business France is the national agency supporting the international development of the French economy, responsible for fostering export growth by French business, as well as promoting and facilitating international investment in France.

<http://en.businessfrance.fr>

## Regional economic development agencies

- Paris Region Entreprises



Paris Region economic development agency.

[www.parisregionentreprises.org/en](http://www.parisregionentreprises.org/en)

- Aderly



Lyon Area Economic Development Agency

[www.aderly.com](http://www.aderly.com)

- Provence Promotion



The Provence Promotion economic development agency provides free and confidential services to potential investors in the Aix-Marseille area.

[www.investinprovence.com](http://www.investinprovence.com)



### • About us

**Gimélec** and **France Datacenter** bring together major players in the French data center industry (equipment manufacturers, colocation providers, operators, public research institutions, consulting firms, associations) around two common goals:

- Explaining the important role of data centers in the context of the digitization of the economy and the growth of data traffic and uses;
- Promote the establishment of data centers in France, showcasing the ability of the French sector to offer equipment and services combining technical excellence and environmental performance.



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With the financial contribution of



Cloud Confidence  
La confiance se construit



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In cooperation with



# FRANCE

## The ideal destination

to set up your data center and host your data



2nd largest

economy in the EU

Connectivity:



second to none !



Expertise across  
the entire  
value chain



Europe's energy  
leader

