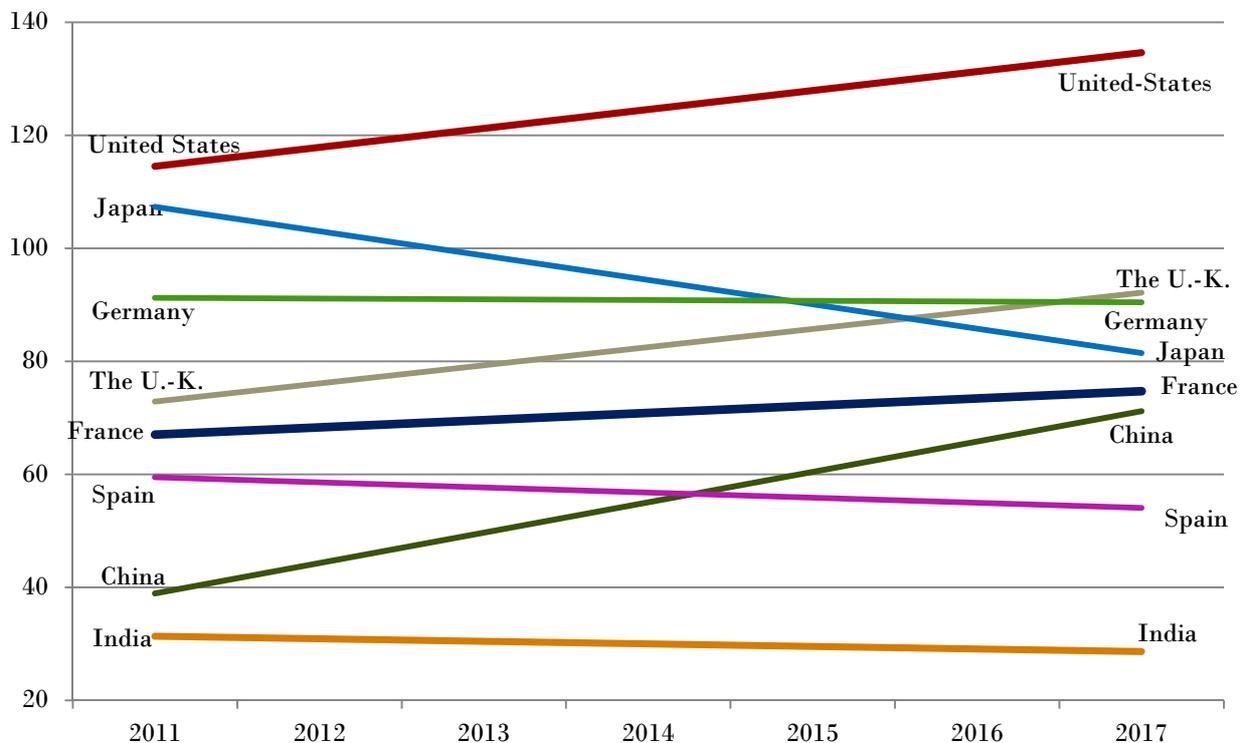


## France consolidates its competitiveness in a general converging trend

Policies to support R&D are clearly having an impact. The French industrial R&D hub is benefiting from a favourable stable climate. In the run-up to its exit from the EU, the United Kingdom continues to see its competitiveness decline. China joins the club of key industrial research players.

Graph 1<sup>1</sup> – France maintains its international appeal

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Innovation and Competitiveness Club



The cost of researchers takes the form of an index; The 100 mark stands for the cost of a French researcher with no tax credits. The rates show the average value per country, taking into account RTC and local subsidies.

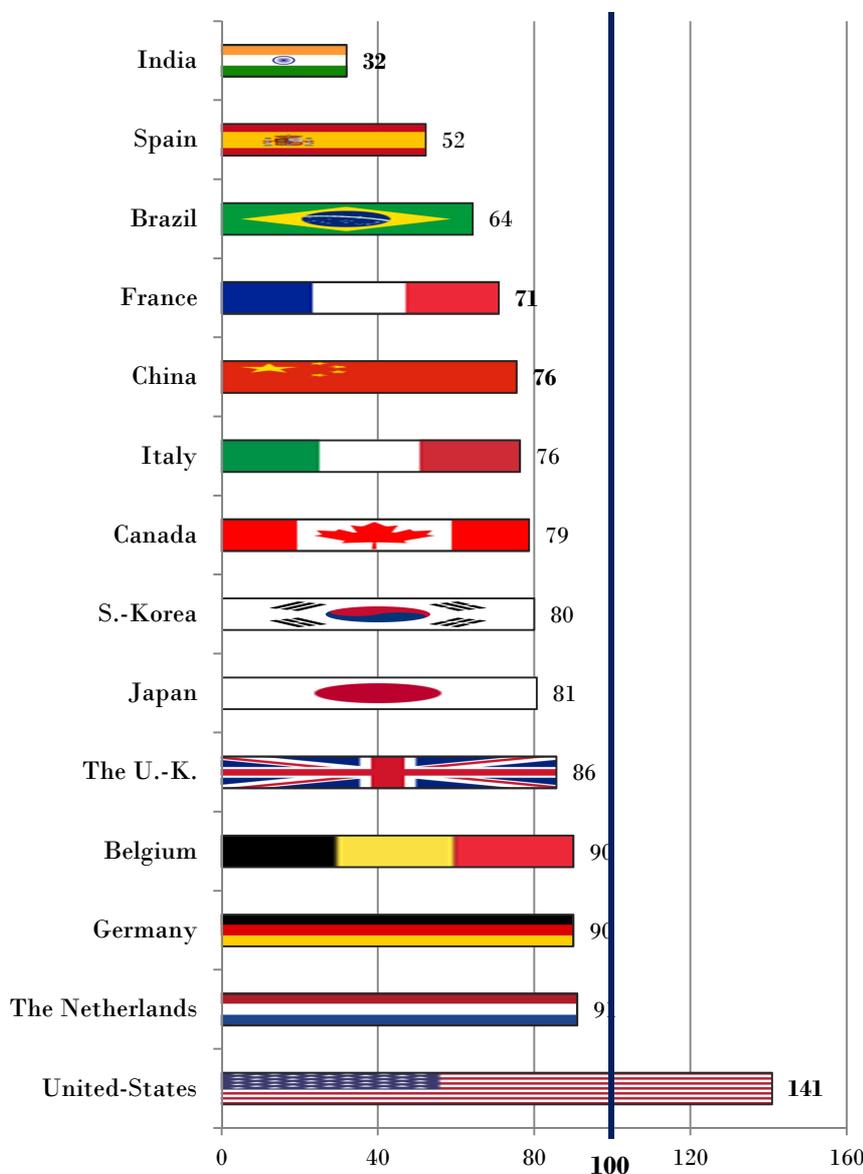
While support for industrial R&D in France is based on simple, stable rules with well-managed costs, other key R&D players are still seeking a model. In France, the slight upward trend in costs results from very minor changes introduced at the start of the period (drop to 50% for operating expenses, restriction on sub-contracting expenditure), and reduced state subsidies for R&D in some sectors. The policies implemented in China, which are complicated and vary from one region to another, are progressively reducing its price competitiveness. The very strong competition for researchers' highly qualified labour in areas that gather R&D skills generates high job turnover and rapid pay rises. China has therefore joined the major R&D players' club. The country now has to attract skills thanks to its dynamic labour market and the means and equipment it makes available to researchers.

<sup>1</sup> This graph provides a comparison of changes in the cost of researchers. For the countries chosen, it illustrates the trend rather than annual rates.

Spain, which has strong and distinct regional policies, has implemented a whole range of inventive support measures for R&D. They include shrewd tax engineering and public-private partnerships in strategic domains like environmental technologies. Given the absence of a large-scale movement to establish research centres in Spain, the sustainability of this approach is questionable. In the United Kingdom, the merge of “large company” and “SME” measures put in place less than two years ago allows companies that carry out research in the country to take advantage of a more flexible definition of eligible expenses and relations with tax authorities. The result has been a direct impact on the cost of research of around -10%. In Japan, the multi-year downward trend of the cost of industrial researchers is confirmed. As a result, the country has become more attractive, although its appeal may result from a deflationist climate, especially in terms of pay. Japan remains the country with the highest share of company researchers per 1,000 employees.

**Graph 2 - Researcher rates 2017**

**Average researcher cost after incentives (2017)**



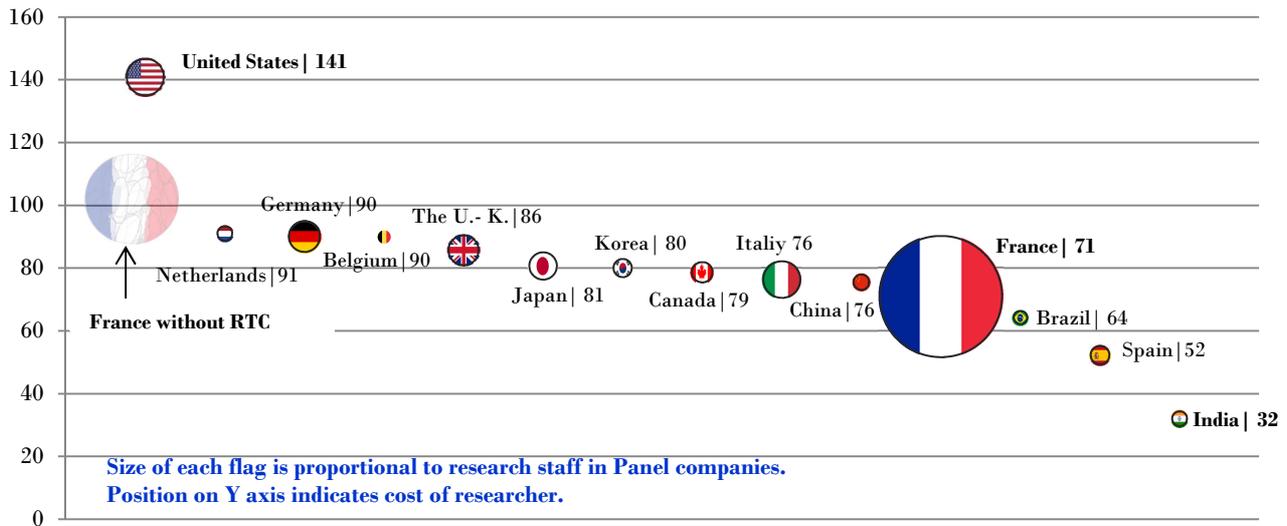
**| 100 = Cost in France with no RTC or subsidies |**

Reliably stable researcher costs in France have assumed an undeniable lead. According to our Panel, the Young Doctor measure acts as a powerful boost for researcher employment in companies.

In the United States, rates continue to surge. This is due to research tax credit that is only rarely advantageous, and budget cuts in public funding agencies. In the United Kingdom, as the reformed tax credit settles in, the prospect of Brexit is a cause for concern.

In Spain, researcher costs are increasingly attractive. However, national budget restraints and inter-regional competition challenge the sustainability of this model. The actual conditions for support often take shape at regional level. This is not clearly apparent in our national approach.

**Graph 3 – Researcher rates and location of staff**



This year, almost 58% of research personnel in member companies of the ANRT 2017 panel are located in France (cf. flag). For these cutting-edge companies active in different sectors of very competitive high technology in dozens of countries, the preferred choice is France. And that does not mean withdrawing from zones where they aim to increase their turnover. In Europe, investing in France is highly advantageous, and business leaders make no mistake about it. Research Tax Credit is one of the main reasons. The United States increasingly stands apart – undertaking technological developments there is now twice as expensive as in France. A change in RTC would bring a high risk of drawing France, alone, into the American orbit.

### Attractiveness: “caution fragile”

The attractiveness of a country is a fragile affair. When asked, major research employers on the ANRT panel confirmed that the positive progress of research staff numbers in a country is ensured by maintaining competitiveness through research costs. We observe a drop in the proportion of employee numbers in some countries where researcher rates have gone up (e.g. the United Kingdom).

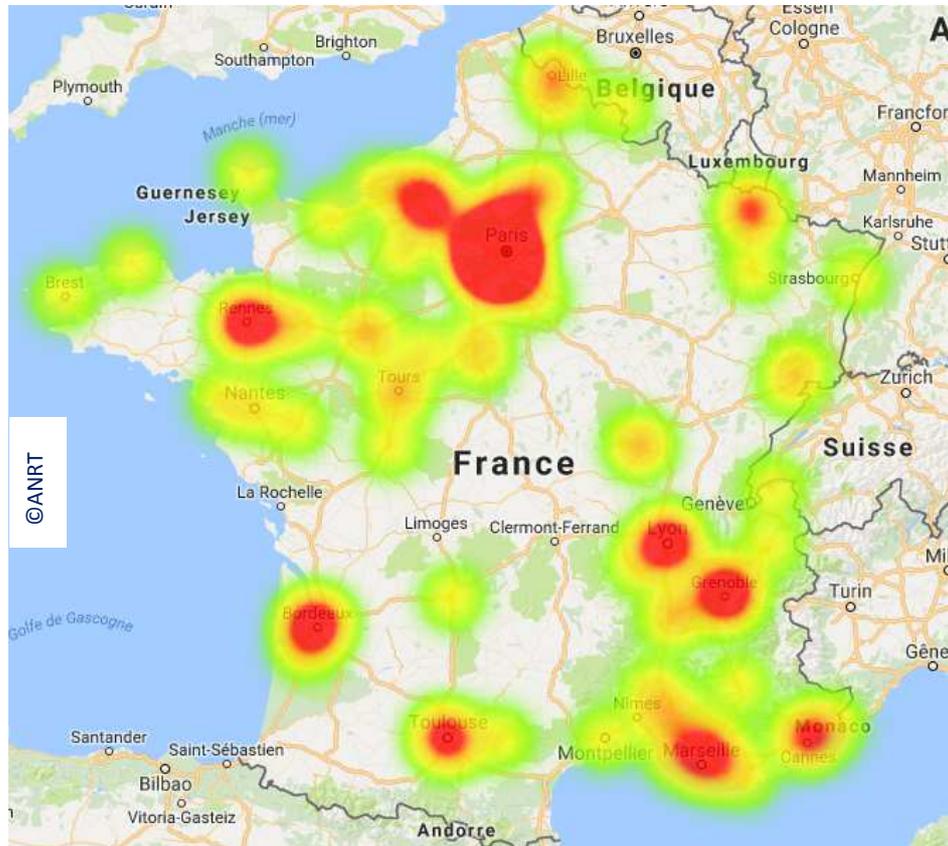
Maintaining effective R&D on specialized technical lines requires sustaining a significant volume of research. Within groups, research teams located in France actually compete internally with all of the other teams located elsewhere. The cost of researchers is a crucial factor for central decision-makers deciding whether to keep a research activity in a given geographic area (i.e. Europe, Asia, North America, South America).

## Graph 4 –Research in operation: the impact of RTC in France

The 14 companies on the ANRT 2017 panel operate R&D on 131 sites in the country.

Depending on the density of their presence, these 131 sites have a more intense (red) or less intense (green) impact on research and innovation ecosystems.

In France, 51% of ANRT 2017 panel researchers are located in the Paris region on 41 R&D sites.



**Fourteen international groups**, members of ANRT (National Association for Research and Technology) that carry out part of their research in France, this year accepted once again to calculate and communicate to ANRT the comparative cost price of their researchers (including direct aid and tax credit) in the countries where they invest in research.

These groups invest over 13 billion euros in research in the world; this year more than **67,000 researchers** were included in this comparison, with a wide variety of areas of application.

They have R&D teams in over 30 countries and yet on average over half of their employees are based in France! And the reason is not just habit or patriotism. The simple explanation comes down to one word: competitiveness (cost and non-cost).



## Reliable, comprehensive barometer

International groups have every reason to view France as a favourable host country for their research investments. The quality of research and the proximity of large markets, along with favourable researcher prices and research costs for domestic propositions of comparable quality, carry the decision in favour of one or other of the research sites and in particular the company's development.

### **Researchers**

This study only concerns company researchers. These are employees whose task is research & development and who have contributed to at least one research project during the considered period.

### **Methodological approach with an emphasis on domestic consistency**

Taking as a reference the average price of a researcher in France before any subsidy and research tax credit (base 100), ANRT aggregated the compatible data specific to each group to produce the researcher rate by country.

For a given country, the average cost of a researcher is only included if two conditions are fulfilled:

- The ANRT panel has at least two averages of charge-inclusive costs from two different companies
- The research centres considered employ more than 20 people

The different accounting entries were pooled in order to standardize the information, while considering differences between the groups' accounting systems. The information is thus homogeneous at group level, making international gaps highly representative.

### **Virtuous tax measures**

An adequate tax incentive policy involves creating conditions in a country whereby the public resources mobilized produce the desired effect, no more and no less. In the absence of sound information from the field, the legislator cannot know the impact of policies in place elsewhere in the world and attempts to strike the right balance. Studies carried out on research tax credit, in particular by the OECD, quantify theoretical impacts at a macro-economic level. Despite their intrinsic qualities, these studies do not have the capacity to describe the actual cumulated effect on company accounts of all public policies, direct aid and tax incentives.

Accounting is the only real barometer of major companies, taking all advantages and charges into account. Multinational groups' accounting and tax systems are obliged to be robust and consistent; financial control and business intelligence can be used to extrapolate decision-making data. Information is therefore highly sensitive: it reflects the strategy of both companies and governments through subsidy regimes specific to sectors, locations, or intellectual property registration in a country.

### **No upper limit means no windfall effect**

An upper limit defines the optimum expected by public authorities. A cap indicates the maximum research investment that the country expects. As a result, it is more favourable to those that make a small share of their research investment in France; it is less favourable to those that make French sites their main global research hubs.