

博士課程、博士号、博士号取得者の専門職化とは  
何を意味するのか？

フランスにおけるイニシアチブ、改革、スキーム

**What do we mean by professionalization of  
doctoral training, the doctorate and doctors? :**  
**An overview of existing initiatives, reforms and schemes in  
France**

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# 博士課程、博士号、博士号取得者の専門職化とは何を意味するのか？フランスにおけるイニシアチブ、改革、スキーム

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## 要旨

現在、博士号取得者のキャリア形成は各国のイノベーション・システムにとって大きな問題であり、ここ何年もの間、博士号取得者の民間部門への進出を奨励する改革が進められてきた。フランスでは「専門職化」－professionalisation－として知られるこの動きは、博士課程の学生を公的研究機関や学術研究機関から迂回させる狙いもあり、大きな変革である。1980年代初頭に初めて導入されたこの動きは、一連の改革によって支えられており、博士課程教育機関が、博士課程の学生を実業界に参入させるための取り組みや仕組みを動員できるようになっている。これらは、博士課程のトレーニング、博士研究・論文指導体制、研究活動の資金調達手段などに関するものである。本稿では、これらのフランスにおける色々な側面を概観的に紹介する。

## What do we mean by professionalization of doctoral training, the doctorate and doctors?: An overview of existing initiatives, reforms and schemes in France

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## ABSTRACT

Today, the career prospects of doctors are a major issue for their innovation system, and for many years now, reforms have been underway to encourage them to enter the private sector. This movement, known in France as "professionalization", is a major transformation, since it aims in part to divert doctoral students from public or academic research outlets. First introduced in the early 1980s, this movement is underpinned by a series of reforms that enable doctoral training bodies to mobilize initiatives and mechanisms to prepare doctoral students to enter the business world. These relate to doctoral training, supervision, the means of financing research work, and so on. This article presents all these aspects in France.



## 概要

日本とフランス両国において、科学研究・技術開発力の維持向上は経済社会を安定的に発展させていくためには必須の要件である。その基盤を支えているのは大学・国立研究機関や産業界に従事する研究者たちである。しかし、彼らの再生産を担う大学院教育、特に博士課程教育はいろいろな意味で困難を経験している。両国では、博士課程修了者の数がここ十年来減少あるいは停滞しているという共通の問題に直面している。しかし、両国で施行された大学院制度改革は、大きく異なっているようにみえる。特に博士課程進学者に対する多面的な支援面において、フランス政府は大きな改革努力をしてきている。職業専門性を強調したカリキュラム編成、新たな博士論文指導制度、産業界就業支援そして博士課程就学者経済支援政策等多くの改革が行われた。その結果、フランスでは博士課程の学生は基本的にリサーチワーカー、つまり給与所得者の身分 — STEM 分野ではほぼ 100%、人文・社会科学分野で 60% — を付与されるようになった。

フランスの大学院制度改革は、博士号、博士課程、博士号取得者をよりプロフェッショナル化するために2008年頃から始まった一連の動きに起因している。このプロセスは、学位研究及び論文執筆のための新たな枠組みを提供するとともに、博士号取得者の就職市場への移行を確実なものとし、特に公的研究機関(大学及び国立研究機関)よりも民間部門への就職を奨励することを目的としている。これは、学位研究・論文執筆の為に生活資金調達から、企業研修へのアクセス、専門職のキャリアに関する情報ツールの配備に至るまで、多くの施策によって支えられている。この博士号取得者の[プロフェッショナルライゼーション]と呼ばれる流れには、フランス政府、大学、博士課程大学院、各種民間組織、企業など多くの利害関係者が関与している。

本報告書の目的は、フランスにおける大学院博士課程教育制度の概観を提供し、フランスのモデルに照らして日本独自の博士課程プログラムの新たな展開可能性に寄与することにある。そのため、フランスにおける博士課程の様々な特徴を紹介する以上に、実施されている制度の実態評価に主眼が置かれている。特に、フランスの博士課程進学者に対する財政支援は多様かつ複雑であるので、本報告書に即した形で以下とおり概括しておく。

2023年11月17日、フランス政府はビジネスと社会全般における博士号の認知に関するタスクフォースを立ち上げた。この目的は、来年度春までに、既存のメカニズムを強化し、次に掲げるような新たな措置を提案することである：

- 民間セクター研究職における博士号取得者の数を増やし、博士号取得を目指す技術者の数を増やす；
- 博士号取得者がキャリアパスを築く際の支援を強化し、民間企業への転職をより迅速かつ円滑に行えるようにする；
- 民間企業における博士号取得の認知度を高める；
- つまり、博士号取得者の高次元の教育と高度な能力とが、わが国の経済と企業に十分に利益をもたらすようにすることである。

フランス高等教育・研究省によれば、次のとおり：

「2021年度の開始時点で、博士課程に在籍する学生数は71,500人で、2020年度より若干増加するが、それでも2011年度を下回る。同時に、13,600人の博士課程の学生が卒業し、その数は2020年より15%増加し、2011年より4%減少する。博士課程1年生の4人に3人が学位論文のための生活資

金援助を受けている」。

フランスでは、博士課程における研究・教育組織と国家博士号授与に至る手続きは法律で定められている。最近では、2022年8月26日付の政令が、これらのさまざまな側面を強化してきている。第二次世界大戦後、フランスでは多くの政令によって大学院博士課程と博士号が制度化されたが、専門化[プロフェッショナルリゼーション]が現実のものとなったのは、2006年8月7日の政令による2010年代半ば以降のことである。さらに、2022年の政令に定められた規定は、フランスの第3次研究計画(2020年から2030年)法(Loi n° 2020-1674 du 24 décembre 2020 de programmation de la recherche pour les années 2020 à 2030)の一部の条文によって強化されている。これらは、民事法上の博士契約の導入、博士課程モニタリングの強化、ポスドク契約の変更に関するものである。

### 学位論文執筆のための生活資金調達

博士課程から就職への移行に関するフランスの社会学的諸研究は、博士号取得者の将来にとって論文執筆のための生活資金支援が最重要課題であることを示している。十分な生活資金支援は学位取得に有利であり、調達資金の種類によってその後のキャリアパスが細分化され、またポスドクや将来の雇用形態が決まる傾向にある。つまり、博士課程学生が可能な限り最良の条件で研究を実施し学位論文を準備できるようにするため、フランスの大学は生活資金調達に責任を持つようになっている。以下に見るように、フランスにおける博士課程学生に対する生活資金提供は多様化しており、その多くは大学、国立研究機関や民間企業が博士課程学生を正規の研究労働者として雇用するという形で行われる。

### 博士契約 (CONTRAT DOCTORAL)

博士契約は、博士課程の学生が利用できる主要な支援形態である。博士契約は、2009年4月23日付政令第2009-464号「公立高等教育機関または研究機関における博士課程の学生との契約に関する政令」によって定められている。これは労働法上の契約である。この雇用契約は、博士課程に在籍する博士課程の学生(雇用者)と、雇用主としての大学・グランゼコール及び国立研究所の間で締結される。ほぼ全博士課程在籍学生の40%は、この博士契約で雇用者となり、博士研究の遂行および博士論文の執筆をしている。

契約期間は3年で、2カ月の試用期間がある。この3年間の契約期間中は、疾病傷害・年金や出産等のすべての社会保険が適用される。またこの契約では、博士課程の学生(雇用者)に委託される年間業務を規定している:

- 教育(最大64時間の学部生教育、年間64半日分の業務に相当);
- 科学的情報の発信または研究成果の発表(最大64半日分);
- コンサルティング等専門知識供与(最大64半日分)。

給与総額は博士契約書に明記される。終身雇用でない国家公務員に適用される一般規定に関する政令第86-83号が適用される。支給額は2023年9月1日時点で月額2074.18ユーロである。この報酬額は省令で定められ、公務員指数に連動する。

### 民間博士契約 (CONTRAT DOCTORAL PRIVE)

私法上の博士号取得契約は、博士課程に在籍する学生と、民間部門に属する雇用主(公共産業・商業施設(EPIC)、公益財団(FRUP)、公益私立高等教育施設(EESPIG)、または民間企業)との間で締

結ばれる契約である。この契約は、CIFRE(下記参照)の一部として利用することができる。契約期間は当初3年間で、1回ごと最長1年間までの延長更新が2回まで可能である。

毎年、遅くとも12月31日までに、博士課程在籍学生は雇用主に、博士課程に在籍していることを証明する書類を提出しなければならない。博士課程の学生が博士課程に再入学していない場合、雇用主は補償金を支払うことなく、契約を早期に終了させることができる。博士契約が終了した場合、雇用主は直ちに博士課程大学院に通知する。

- 雇用主は研究プロジェクトを定め、関係する博士課程大学院に求人票を配布する。この求人票には、特に博士研究プロジェクトのテーマ、博士課程学生(雇用者)に委託される研究および補足的活動の内容、期待されるスキル、論文完成の条件、想定される報酬が明記される。
- 私法上の博士号取得契約の締結には、博士課程の学生が在籍する研究科長の同意が必要であり、研究科長はまず論文指導教官の意見を求める。
- 雇用主、博士課程学生、および学生(雇用者)が在籍する教育機関(大学・グランゼコール及び国立研究所)の間で、共同研究契約を締結しなければならない。この協定には、研究プロジェクト遂行のための物的条件、雇用主の施設での滞在時間、論文執筆の条件、博士課程研究科または雇用主が提供する学術交流や研修コースへの参加、成果の交換・共有・普及・活用に関する条件などが定められている。
- 雇用主は、博士課程学生が企業や組織内で研究を遂行できるよう、メンターを任命する。この指導者は、学位論文の指導教員と協力して、博士課程の学生(雇用者)を専門的な環境で指導し、研究活動の技術的・科学的なフォローアップを保証する責任を負う。

### **CIFRE 契約(Conventions Industrielles de Formation par la Recherche)**

CIFRE 契約制度は、民間企業が、大学や国立研究所の指導のもとで研究を行い、博士論文を執筆する博士課程学生を雇用するための資金援助を受けられる制度である。企業、大学・国立研究所、博士課程学生から高く評価されているこの産学連携研究制度は、官民の研究開発協力を強化し、かつ博士課程学生の民間部門での雇用を促進するための強力な梃子となっている。フランス企業のイノベーション・プロセスと競争力強化に貢献していると評価されている。CIFRE プログラムは、フランス高等教育・研究・イノベーション省が全額出資しており、同省はその実施を全国研究技術協会に委託している。

### **全国研究技術協会**

#### **(ANRT; ASSOCIATION NATIONALE POUR LA RECHERCHE ET TECHNOLOGIE)**

1953年に設立されたANRTは、研究・技術革新の分野で長年の実績を誇る。1901年7月1日に制定された法律に準拠する民間団体で、会員のために活動している。ANRTの使命は、会員の研究・技術革新活動を支援するために必要なあらゆる集合的資源を提供し、公的機関や適格なフランスおよび国際機関との交渉において会員を代表することである。

CIFRE プログラムの目的は産学間の研究パートナーシップの発展を促進することにあるが、そのための有効な手段として博士課程学生を企業が正規に雇用して、その研究成果が学術的な評価を受けるとともに企業のイノベーションに実質的に寄与する事を狙っている。博士課程学生にとってのメリットは、賃金労働者として生活を安定させながら博士号取得ができ、かつ企業が実際に必要としている研究テーマで研究者としての職業能力を身に着けることができることにある。彼らの企業就職率は優位に高くなっている。

#### 雇用主に対しての CIFRE の利用条件

ANRT は研究担当省に代わり、博士課程の学生を一人雇用するために年間 14,000 ユーロの助成金を企業に 3 年間支払う。雇用契約は、36 ヶ月の有期契約で、年間給与総額が 24,529.44 ユーロ以上であることが条件となる。雇用主は研究税額控除 (CIR) の対象となる。研究を円滑に進めるための大学との共同研究契約締結が必須であり、知的財産の所有権帰属と研究成果の使用に関する協定が結ばなければならない。

#### 博士課程学生に対しての CIFRE の利用条件

博士課程学生は雇用主の企業と雇用契約 (長期または 3 年間の有期契約で、年間給与総額が 24,529.44 ユーロ) を結ばなければならない。所属する研究室で博士称号を授与する責任を負う大学院に登録されている必要がある。所属研究室の論文指導教官と所属企業の科学指導メンター 2 人の指導責任者から指導を受ける。

#### 大学院研究室・指導教官に対しての CIFRE の利用条件

企業と長期的な関係を築きながら、雇用主の戦略やニーズに沿った研究を行う。大学教員・研究者は、基礎理論とビジネスニーズを満たすソリューションを組み合わせることで、新しいコンセプトを提案することができる。博士課程学生は、所属する博士研究科に在籍し、その研究科のすべての研修コースを受講する。博士課程学生の高い博士論文成功率と就職率は、実務研究を通じたこの訓練に大きな評価を与えている。フランス政府は、2017 年には 1,400 人だった CIFRE を、2027 年までに 2,150 人にするという目標を設定した。

以上





# What do we mean by professionalization of doctoral training, the doctorate and doctors?:

## An overview of existing initiatives, reforms and schemes in France.

Julien Calmand  
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## Introduction

Japan and France share common characteristics: a similar number of PhD students enrolled each year and a decline in the number of PhD graduates. However, the two systems differ widely, particularly when it comes to how doctoral students complete their theses. In Japan, the materials collected in the field show that they have fewer opportunities to finance their theses, as dedicated schemes are still underdeveloped by institutional players and universities. Also, unlike the French system, there is no real possibility for Japanese doctoral students to finance their thesis with private funds. Last but not least, in France, PhD students are now considered as salaried employees, whereas in Japan, their status is that of students.

In France, these differences stem from a movement that began many years ago to professionalize the doctorate, doctoral training and doctors<sup>1</sup>. This process is designed to provide a framework for thesis completion, as well as to secure the transition of PhDs to the job market, in particular by encouraging them to enter the private sector rather than public research. It is supported by a number of measures, ranging from the means of financing a thesis to access to training and the deployment of information tools on professional careers. Many players are involved in developing professionalization: the French government, universities, doctoral schools, associations and companies. Compared with France, Japan seems less concerned by these developments.

The aim of this report is to provide a detailed overview of doctoral training in France, and to assess possible developments in the Japanese doctoral program in the light of the French model. Over and above a simple presentation of the various features of doctoral training in France, the aim is to provide an assessment of the systems implemented.

In France, the question of the evolution of the doctorate is still topical, On November 17, 2023, the French government launched a mission on the recognition of doctorates in business and society at large. The mission's objectives are to strengthen existing mechanisms and propose new measures, by next spring, in order to:

- increase the number of PhDs among corporate researchers, and the number of engineers embarking on a PhD;
- strengthen support for PhDs as they build their career paths, to help them move more quickly and smoothly into the private sector;
- raise the profile of doctoral degrees in the private sector;
- in fine, to ensure that the skills and training of PhDs fully benefit our economy and our companies.

According to the French Ministry of Higher Education and Research:

*“At the start of the 2021 academic year, 71,500 students will be enrolled in doctoral programs, a number slightly up on 2020, but still well below that of 2011. At the same time, 13,600 doctoral students will have graduated, 15% more than in 2020 and 4% fewer than in 2011. Around 3 out of every 4 first-year doctoral students receive funding for their thesis.”<sup>2</sup>*

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<sup>1</sup> Julien Calmand, « La professionnalisation du doctorat : vers une segmentation de la formation doctorale et des parcours des docteurs ? » (Dijon, Université de Bourgogne Franche-Comté, 2020).

<sup>2</sup> [https://publication.enseignementsuprecherche.gouv.fr/eesr/FR/EESR16\\_R\\_38/le\\_doctorat\\_et\\_les\\_docteurs/](https://publication.enseignementsuprecherche.gouv.fr/eesr/FR/EESR16_R_38/le_doctorat_et_les_docteurs/)

In France, the organization of doctoral studies and the procedures leading to the award of the national doctoral diploma are defined by law. The decree of May 25, 2016<sup>3</sup> sets out the national framework for training and the procedures leading to the award of the national doctorate diploma. Recently, the decree of August 26, 2022 sets out these various aspects<sup>4</sup>. Since the end of the Second World War, a number of decrees have marked the emergence of doctoral training and the doctorate in France, but it was not until the mid-2010s that professionalization became a reality, thanks to the decree of August 7, 2006. In addition, the provisions set out in the 2022 decree are reinforced by certain articles of the French research programming law (Loi n°2020-1674 du 24 décembre 2020 de programmation de la recherche pour les années 2020 à 2030). These concern the introduction of a private-law doctoral contract, the enhancement of doctoral studies and changes to post-doctoral contracts.

### **Stronger supervision of thesis conditions**

The thesis process is governed by a contract: the “thesis charter” (Charte de these).

One of the key aspects of the professionalization process, as conceived and implemented in France, is to provide doctoral students with greater support during their doctoral studies. One of the most important of these measures is the introduction of a thesis charter, which provides a framework for the progress of the thesis.

As a preamble, it is important to note that the doctorate is prepared by a doctoral school (école doctorale) within the institutions accredited to award the most prestigious degree in higher education.

### *Presentation of doctoral schools*

The mission of doctoral schools is to:

1. Implement a policy for admitting doctoral students to their schools, based on explicit, public criteria, and inform students about the conditions of access, the skills required, the funding that may be obtained, and the nature, quality and rates of professional activity after obtaining a doctorate. They participate in the search for funding and propose its allocation, to enable doctoral students to prepare and defend their thesis in the best possible conditions;
2. Organize and coordinate doctoral training programs;
3. Organize scientific exchanges between doctoral students and with the scientific community; offer doctoral students training activities that promote interdisciplinarity and the acquisition of a broader scientific culture, including knowledge of the international research environment;
4. “Ensure that all doctoral students receive training in research ethics and scientific integrity;
5. Raise doctoral students’ awareness of the challenges of open science and the dissemination of research findings in society, in order to strengthen relations between scientists and the general public;
6. Ensure a quality approach to training, notably by setting up committees to monitor individual doctoral students, and offer thesis supervisors, co-supervisors and all those supervising or participating in the doctoral students’ work specific training or support aimed at preventing all forms of discrimination and violence;

<sup>3</sup> <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000032587086>

<sup>4</sup> <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000046228965>

7. Define and implement measures to support the pursuit of professional careers in the public and private sectors after obtaining a doctorate, and organize, in conjunction with the departments of the establishments concerned, the monitoring of the professional careers of doctorates trained. They participate in national surveys organized by the Ministry of Higher Education and Research, as well as in the preparation of the report mentioned in 11° of article L. 712-2 of the Education Code, and disseminate the results within their scope publicly and with open access;
8. Contribute to European and international openness, within the framework of cooperation with foreign higher education establishments or research centres;
9. Formulate an opinion on requests for the attachment of research units or teams.

The doctoral school sets out the conditions for monitoring and supervising doctoral students in a doctoral charter. The charter is signed when the doctoral student registers for the first time, by the parties involved: doctoral student, thesis supervisors, research unit managers, heads of public and private institutions. Once signed, a training agreement specifies the subject of the doctorate and the speciality of the diploma, and, if applicable, the conditions for financing the doctoral student, as well as the following elements:

Whether the doctorate will be full-time or part-time; in this case, the professional status of the doctoral student is specified;

1. The timetable for the research project;
2. The doctoral student's supervision, training and research progress arrangements;
3. Material conditions for carrying out the research project and, where applicable, specific safety conditions;
4. Integration into the research unit;
5. The doctoral student's career plan;
6. The individual training program linked to this personal project;
7. Objectives for promoting the doctoral student's research work: dissemination, publication and confidentiality, intellectual property rights according to the scope of the doctoral program;
8. Training and material support arrangements;
9. If all or part of the research work is carried out in an establishment other than a public higher education and/or research establishment, the time spent in the research unit;
10. A commitment to respect the principles and requirements of scientific integrity throughout their research work.

Follow-up of thesis work by the monitoring committee

While the introduction of a thesis charter and agreement sets out the expectations, rights and duties of everyone involved (doctoral students, thesis director, doctoral school) from the outset of the doctorate, the monitoring of thesis work is a key factor in the supervision of doctoral students.

An individual doctoral student monitoring committee ensures that the program runs smoothly, based on the doctoral charter and the training agreement.

The individual doctoral student monitoring committee provides support throughout the doctorate. The committee must meet before the student enrolls in the second year of the program, and

before each new enrolment until the end of the doctorate.

Interviews are organized in three distinct stages: presentation of work progress and discussions, interview with the doctoral student without the thesis supervisor, interview with the thesis supervisor without the doctoral.

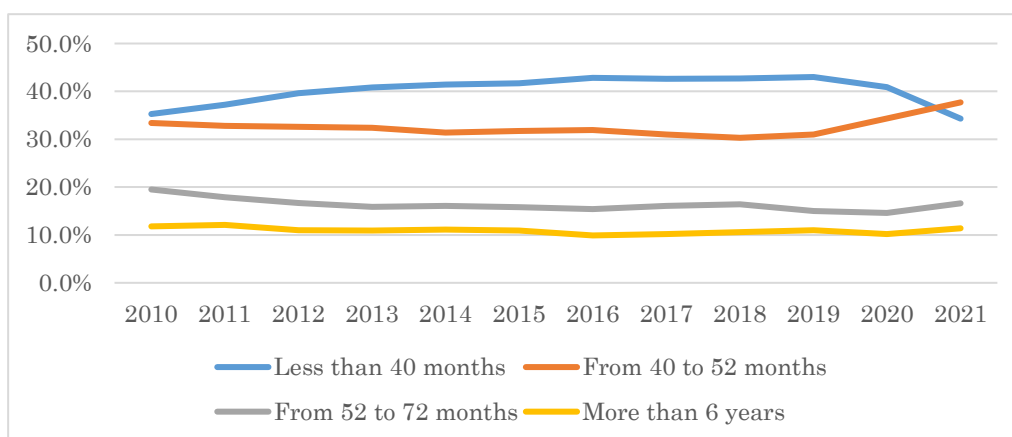
During the interview with the doctoral student, the committee assesses the conditions of his/her training and the progress of his/her research. During the interview, the committee is particularly vigilant in identifying any form of conflict, discrimination, moral or sexual harassment or sexist behaviour. It makes recommendations and sends a report on the interview to the doctoral school director, the doctoral student and the thesis supervisor.

#### Duration of the thesis

The duration of the thesis is a central point in initiatives aimed at providing a framework for thesis completion. By decree, the French government stipulates that, as a general rule, doctoral studies must be carried out within a doctoral school over a period of three years of full-time equivalent research time. In other cases, the maximum duration of doctoral studies is six years.

The graph below shows the evolution of thesis duration, based on administrative data from the French Ministry of Higher Education and Research.

Share of theses defended by duration interval (in %)



Source : MESR-DGESIP/DGRI-SIES

#### Thesis funding

Research carried out in Japan shows that most doctoral students are involved in self-financing. So, while some of them claim to have access to thesis funding, this is relatively low. As a result, in most of the interviews conducted with the panel of doctoral students we were able to interview in the field, they declared that they had recourse to student loans to finance their thesis. The situation is quite different in France.

Social science studies on the transition from thesis to job show the importance of thesis funding for the future of PhD graduates. It favours the successful completion of the thesis and determines the type of post-doctoral job, to such an extent that there is a segmentation of career paths according to the type of thesis funding awarded.

As we have already written, doctoral schools are responsible for their own funding policy, i.e.

they participate in the search for funding and propose its allocation, to enable doctoral students to prepare and defend their thesis under the best possible conditions. At the start of the thesis, funding conditions are set out in the tripartite agreement.

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
	19	19	18	19	18	17	17	16	16	16	16	16	16
<b>Total doctoral students enrolled in the first year of their thesis</b>	<b>769</b>	<b>182</b>	<b>232</b>	<b>031</b>	<b>103</b>	<b>262</b>	<b>158</b>	<b>847</b>	<b>827</b>	<b>039</b>	<b>374</b>	<b>069</b>	<b>398</b>
	18	18	17	18	17	16	16	16	16	15	15	15	16
<b>Doctoral students whose financial situation is known</b>	<b>564</b>	<b>499</b>	<b>414</b>	<b>227</b>	<b>445</b>	<b>570</b>	<b>475</b>	<b>391</b>	<b>186</b>	<b>360</b>	<b>886</b>	<b>789</b>	<b>085</b>
Doctoral students receiving funding for their thesis (excluding salaried doctoral students)	12	12	11	12	12	11	11	11	11	11	11	11	12
	761	426	605	405	122	894	847	863	748	428	717	708	509
<i>Percentage of doctoral students financed for their thesis (%)</i>	<i>68,7</i>	<i>67,2</i>	<i>66,6</i>	<i>68,1</i>	<i>69,5</i>	<i>71,8</i>	<i>71,9</i>	<i>72,4</i>	<i>72,6</i>	<i>74,4</i>	<i>73,7</i>	<i>74,2</i>	<i>77,8</i>
<i>MESR doctoral contract (%)</i>	<i>31,6</i>	<i>31,2</i>	<i>32,5</i>	<i>30,9</i>	<i>31,9</i>	<i>32</i>	<i>33,9</i>	<i>33,6</i>	<i>34</i>	<i>34,3</i>	<i>40,3</i>	<i>41,4</i>	<i>40,2</i>
<i>CIFRE (%)</i>	<i>9,4</i>	<i>9,8</i>	<i>9,9</i>	<i>9,9</i>	<i>9,3</i>	<i>9,8</i>	<i>9,4</i>	<i>9,5</i>	<i>10,6</i>	<i>10,2</i>	<i>9,8</i>	<i>10,5</i>	<i>10,3</i>
<i>Funding from a research organization (%)</i>	<i>11,2</i>	<i>12,2</i>	<i>10,9</i>	<i>11,4</i>	<i>11,2</i>	<i>10,9</i>	<i>10,4</i>	<i>10,3</i>	<i>10,5</i>	<i>10,7</i>	<i>12,5</i>	<i>12,5</i>	<i>16,1</i>
<i>Allocations from a local authority (%)</i>	<i>7,9</i>	<i>8,2</i>	<i>8,3</i>	<i>8,1</i>	<i>8,4</i>	<i>7,9</i>	<i>7,9</i>	<i>7,4</i>	<i>7,6</i>	<i>7,3</i>	<i>6,6</i>	<i>6,9</i>	<i>6,3</i>
<i>Funding for foreign doctoral students (%)</i>	<i>16,2</i>	<i>16,4</i>	<i>16,9</i>	<i>16,4</i>	<i>17,1</i>	<i>17,5</i>	<i>17,5</i>	<i>16,1</i>	<i>16,7</i>	<i>15,8</i>	<i>14,4</i>	<i>12,8</i>	<i>11,8</i>
<i>Other financing (%)</i>	<i>23,7</i>	<i>22,3</i>	<i>21,5</i>	<i>23,4</i>	<i>22,2</i>	<i>21,9</i>	<i>20,9</i>	<i>23,1</i>	<i>20,6</i>	<i>21,7</i>	<i>16,4</i>	<i>15,9</i>	<i>15,2</i>
Doctoral students working in a salaried job that is not financed for their thesis	3098	3249	3463	3545	3242	2898	2812	2772	2761	2644	2665	2609	2499
Percentage of doctoral students in paid employment	16,7	17,6	19,9	19,4	18,6	17,5	17,1	16,9	17	17,2	16,8	16,5	15,5
<b>Unpaid doctoral students</b>	<b>2 705</b>	<b>2 824</b>	<b>2 346</b>	<b>2 277</b>	<b>2 081</b>	<b>1 778</b>	<b>1 816</b>	<b>1 756</b>	<b>1 677</b>	<b>1 288</b>	<b>1 504</b>	<b>1 472</b>	<b>1 077</b>
<i>Percentage of doctoral students not in paid employment (en %)</i>	<i>14,6</i>	<i>15,3</i>	<i>13,5</i>	<i>12,5</i>	<i>11,9</i>	<i>10,7</i>	<i>11</i>	<i>10,7</i>	<i>10,4</i>	<i>8,4</i>	<i>9,5</i>	<i>9,4</i>	<i>6,7</i>

Although, as we have just shown, it is not legally compulsory to finance a thesis, the table above shows that for several years now, the number and proportion of funded doctoral students has been increasing in France. In fact, over the last few years, the possibilities for funding a thesis have greatly diversified.

### Doctoral contract

The doctoral contract is the main form of support available to doctoral students. The doctoral contract is open to all doctoral students who have been enrolled in the first year of their thesis for less than six months, regardless of age.

The doctoral contract is defined by Decree no. 2009-464 of April 23, 2009 on contractual doctoral students in public higher education or research establishments. This is a public law contract. This is concluded between a doctoral student enrolled in doctoral training and an employer whose employees are in the public sector.

It is a 3-year contract with a non-renewable trial period of 2 months. This 3-year period may be extended by a maximum of one year in the event of sick leave or maternity leave, provided that the corresponding supporting documents are submitted in good time. Two extensions of up to one year may also be considered if justified by exceptional circumstances concerning the contract doctoral student's research work (article 7 of the above-mentioned decree).

The doctoral contract defines the annual service entrusted to the doctoral student, which may be :

- teaching (up to 64h of presence with students, equivalent to 64 half-days of work);
- dissemination of scientific information or promotion of research results (up to 64 half-days);
- expertise (up to 64 half-days).

The gross salary is specified in the doctoral contract. Doctoral students under this contract are considered contractual agents of the State, and are governed by Decree no. 86-83 of January 17, 1986 on the general provisions applicable to non-tenured State employees. The minimum remuneration for a doctoral student under doctoral contract is set by ministerial decree .It is indexed to the civil service index point.

The establishments concerned by this type of contract are :

– a public scientific, cultural and professional establishment (EPSCP): universities, Écoles centrales

INSA, Universities of Technology, etc.

– a public scientific and technological establishment (EPST): CNRS, INRA, INSERM, INRIA, etc.

– a public administrative institution (EPA) for higher education: ENSI, IEP, etc.

– an EPA with a statutory mission of higher education or research.

### **Private doctoral contracts**

Created by the Research Programming Act (LPR) in 2020, it is codified in Article L. 412-3 of the Research Code and Article L.1242-3 of the Labor Code. Its implementing decree was published on September 25, 2021.

The private-law doctoral contract is a contract between a doctoral student enrolled in doctoral training and an employer whose employees are in the private sector: a public industrial and commercial establishment (EPIC), a foundation recognized as being in the public interest (FRUP), a private higher education establishment of general interest (EESPIG), or a company. This contract can be used as part of a CIFRE (see below).

The contract is for an initial period of 3 years, and can be extended by amendment twice for a maximum of one year each time.

Each year, by December 31 at the latest, the doctoral student must provide the employer with proof that he or she is enrolled in a doctoral program. The contract may be terminated early by the employer, without payment of compensation, if the doctoral student has not re-enrolled in doctoral training. In the event of termination of the doctoral contract, the employer immediately informs the



doctoral school.

- The guarantees provided to the doctoral student are based on close collaboration between the employer and the doctoral school:
- The employer defines a research project and circulates a job offer to the doctoral schools concerned; this job offer specifies in particular the subject of the doctoral project, the nature of the research and complementary activities entrusted to the doctoral employee, the skills expected, the conditions for completing the thesis and the remuneration envisaged.
- The conclusion of a private-law doctoral contract is subject to the agreement of the director of the doctoral school in which the doctoral student is registered, who will first seek the opinion of the thesis director.
- A collaboration agreement must be signed between the employer, the doctoral student and the institution in which the student is registered. This agreement sets out the material conditions for carrying out the research project, the time spent at the employer's premises, the terms and conditions for writing the thesis, access to scientific exchanges or training courses offered by the doctoral school or the employer, and the terms and conditions for exchanging, sharing, disseminating and exploiting results...
- The employer appoints a mentor to help the doctoral student carry out his or her research within the company or organization. This person is responsible for guiding the doctoral student in his or her professional environment and for ensuring the technical and scientific follow-up of the research activity, in collaboration with the thesis supervisor.

Other fixed-term contracts

When legal texts do not allow for the creation of a doctoral contract, the employer proposes an employment contract offering conditions equivalent to those of a doctoral contract.

The establishments concerned are, in particular :

- Public industrial and commercial establishments (EPIC): CEA, ADEME, CIRAD, CNES, etc.
- A research organization with foundation status, such as Institute Curie or Institute Pasteur.

Financing doctoral contracts

It is up to public higher education or research establishments to determine the financial resources they wish to devote to financing doctoral contracts. These are established by the head of the public institution concerned on the recommendation of the director of the doctoral school to which the doctoral student is attached.

It should be noted that regardless of the source of funding provided to the public higher education or research establishment (local authority, company), a doctoral contract can be created as long as the amount of funding enables the doctoral student to be remunerated within the minimum remuneration. The doctoral contract can also be based on co-financing.

### *The main funders of doctoral contracts (public)*

#### University

Financing by: Doctoral contract financed by the French Ministry of Education, Higher Education and Research – contract drawn up by the doctoral school.

Amount of support: € 2074.18 gross per month as of September 1, 2023

Duration of funding: 3 years

#### Region

This funding supports thesis work and strengthens regional skills in research and technology transfer.

Funded by : Region, (co-financing with a research organization or company is an asset)

Amount of support: €2074.18 gross per month as of September 1, 2023 (in line with MESRI)

Target group: Any student wishing to prepare a thesis in a regional research organization (university, CNRS, etc.) or technology transfer organization.

Duration of funding: Maximum 3 years

#### CNRS

The CNRS offers a quota of doctoral contracts to candidates intending to work in industry or the economy in general, and who wish to acquire additional training through research at the end of their studies. Beneficiaries of these contracts can be welcomed each year, according to the rhythm of the academic year, in CNRS or CNRS-associated research laboratories and training facilities, spread throughout France.

Funded by : CNRS (co-financing with a research organization or company is an asset)

Amount of support: Flat-rate gross remuneration (see CNRS)

Target group: Any student wishing to prepare a thesis in a CNRS research unit.

Duration of funding: Maximum 3 years

### **CIFRE contract**

The Conventions Industrielles de Formation par la Recherche (Cifre) scheme enables companies to benefit from financial assistance to recruit a young doctoral student whose research work, supervised by a public research laboratory, will lead to the presentation of a thesis.

Acclaimed by companies, laboratories and doctoral students alike, this flagship partnership research scheme is a lever for initiating and strengthening public-private R&D cooperation and promoting the employment of PhDs. It contributes to the innovation process of French companies and to their competitiveness.

The Cifre program is fully funded by the French Ministry of Higher Education, Research and Innovation, which has entrusted its implementation to the National Association for Research and Technology.

*The National Association for Research and Technology.*

Founded in 1953, ANRT is a long-standing player in the field of research and innovation. A private association governed by the law of July 1, 1901, it acts on behalf of its members. Its mission is to provide them with all the collective resources needed to help them in their research and innovation activities, and to represent them in their negotiations with public authorities and qualified French and international organizations.

ANRT is the cross-sectoral public-private network for French research. It provides its members with the best conditions for exchange, debate and confrontation, to build a shared strategic vision and a force for action.

It contributes to France's competitiveness through its commitment to :

- Helping companies in all sectors to gain access to research and innovation
- Representing research and innovation alongside other players in the public sector
- Build collective intelligence to the benefit of all its members
- Foster partnerships
- Deploy the Cifre program, which includes over 4,000 active partnerships with companies of all sizes and in all sectors. Under the Cifre program, ANRT acts on behalf of MESRI, the French Ministry of Industry, Research and Innovation.

The CIFRE program brings together three partners:

- The company entrusts a doctoral student with the research work for his or her thesis.
- The laboratory, external to the company, provides scientific supervision for the doctoral student.
- The doctoral student, holder of a Master's degree

CIFRE objectives :

- Place doctoral students in scientific employment conditions
- Promote the development of research partnerships between academia and industry

*CIFRE access conditions according to status*

For employers

The ANRT, on behalf of the Ministry in charge of Research pays an annual grant of €14,000\* for 3 years to hire a doctoral student. The employment contract, long-term or 36-month fixed-term contract, requires an annual gross salary of at least €24,529.44. Employers are eligible for Research Tax Credit (CIR). A compulsory collaboration contract to ensure that the research goes smoothly. It the sharing of intellectual property and the use of results.

For doctoral student

They have an employment contract (long-term or 3-year fixed-term contract with an annual gross salary of €24,529.44.

They are registered with the doctoral school responsible for to award the title of doctor where their research laboratory. They are supervised by two tutors: thesis director at their laboratory and their scientific supervisor in their company.

The research laboratory

They align their research with the employer's strategy and needs of employers, while creating long-lasting relationships. They enable researchers to suggest new concepts by combining concepts by combining fundamental approaches with solutions that meet business needs.

Doctoral students are enrolled in the doctoral school to which they belong with access to all its training courses. The high success rate and employability of doctoral students give great credence to this training through research.

The French government recently set a target of 2,150 CIFREs by 2027, compared with 1,400 in 2017.

The CIFRE program is increasingly popular. The number of applications has risen sharply over the past three years (+8% on 2018), demonstrating the great interest shown by companies (including associations and local authorities), public research operators and young graduates in this partnership research tool. The changes are as follows :

2018: as the number and quality of applications increased, it was decided to increase the annual volume of new Cifre grants from 1,400 to 1,450, for a total of €58.5 million.

2019: new cohort of 50 Cifre under the Artificial Intelligence plan.

2020: 1,500 Cifre per year.

From 2021: ramp-up of the system with the French research programming law, which provides for a 50% increase in the number of CIFRE theses to 2,150 per year by 2027, i.e. an increase of +100 new CIFRE theses per year.

The ICST and engineering sciences fields will continue to account for the majority of CIFRE theses accepted in 2020.

- ICST : 25 %
- engineering sciences: 17 %
- human and social sciences: 16% of accepted CIFRE theses

#### *Evaluation of the CIFRE system*

In 2020, IPP (Institut des Politiques Publiques) carried out an evaluation of the effect of CIFRE on participating companies and doctoral students<sup>5</sup>.

The evaluation shows that :

the Cifre scheme appears to have a positive effect on the labor market integration of PhDs, with a higher probability of holding a stable job, and a higher salary three years after graduation. stable employment, and a higher salary three years after graduation.

Cifre doctors also tend to defend their thesis more quickly.

However, the study highlights the lower quality of CIFRE theses in terms of academic criteria. Indeed, the quality of CIFRE theses appears to be lower than that of non-CIFRE theses on the basis of a number of indicators, imperfect though they may be, but nonetheless informative (publication before defense, obtaining qualification from the CNU QUALIFICATION).

For companies, it can be seen that taking on a Cifre doctoral student is part of the process of the company's engineering workforce. In two of the three empirical frameworks used, there was an increase in the value added generated by the company around the use of the scheme, which appears to be entirely redirected to the salaries paid out, thus accompanying the increase in R&D workforce, with no appreciable change in investment or profitability.

The Cifre program is modest in size, but dynamic over the period. It has had a positive impact

<sup>5</sup> Arthur Guillouzoic et Clément Malgouyres, « Évaluation des effets du dispositif Cifre sur les entreprises et les doctorants participants » (IPP, 2020).

on the professional paths of doctors, and is used by companies that are on an upward trend.

New funding for doctorates in public administration: COFRA (conventions de formation par la recherche en administration)

In order to strengthen the links between research and public action, in March 2022 the Ministers of Higher Education, Research and Innovation (MESRI) and of Public Transformation and Civil Service (MTFP) launched a trial involving the deployment of “Conventions de Formation par la Recherche en Administration (COFRA)”.

The aim of COFRA is to facilitate the production of theses within government agencies, within the framework of research contracts of the same name. The administration recruits a doctoral student on the basis of a 3-year project contract, and entrusts him or her with research work, the subject of the thesis.

The first wave of the experiment led to the conclusion of around ten COFRAs in 2022, and the second call for expressions of interest aims to roll out around a hundred COFRAs by the start of the 2023 academic year.

Administrations employing a doctoral student as part of a COFRA project will receive co-funding of €14,000 per year per COFRA for the 3-year duration of the project contract, with the rest of the funding provided by the host administration.

Le doctorat industriel européen – “European Industrial Doctorate”

The European Union is offering universities the opportunity to train young researchers in partnership with the private sector, thanks to a funding scheme known as the “European industrial doctorate” within the framework of the “Marie Curie” actions, open to all scientific disciplines. The aim is to enable an economic player and a university from different countries to work together on a joint project, which can fund from 1 to 5 theses.

The doctoral student prepares his or her thesis at a university, is jointly supervised by the two partners, spends 50% of his or her time with the private partner (companies, SMEs, associations, foundations, museums, etc.) and is employed by one of the partners, or may be placed on secondment.

### **The status of doctoral training and doctoral students**

According to the regulations, doctoral training is defined as follows:

*is training in and through research and professional research experience. It leads to the production of new knowledge.*

*It includes personal research work carried out by the doctoral student. It is supplemented by additional training validated by the doctoral school. It covers work of scientific, economic, social, technological or cultural interest. It culminates in the award of the national doctorate diploma. The diploma, issued by an accredited public institution of higher education, confers on its holder the grade and title of doctor.*

In addition to these aspects of the thesis, the professionalization of doctoral training aims to turn doctoral students into professionals rather than students. Several arguments tend to invalidate this observation:

- The development of thesis funding encourages the growth of salaried doctoral students within

doctoral schools, who are paid and have an employment contract.

- Within a research system as a whole, and in research laboratories in particular, PhDs are a necessary workforce for carrying out research work and projects.

What is the reality? Are doctoral students considered professionals?

Research in the social sciences shows that doctoral students have very different statuses. For example, the statistics presented above show that a significant proportion of doctoral students are unfunded, around 6.7% in 2021, and 15.5% are salaried, but not as part of their thesis work. Sociological studies exploring the representations of doctoral students during their thesis also highlight the ambivalence of the doctoral diploma between training and the acquisition of professional experience. These analyses, based on qualitative interviews, describe the socialization mechanisms at work during this period. They show that representation as a professional or as a student varies according to the material conditions of the thesis, the funding from which the doctoral student may have benefited, or membership of a particular research laboratory<sup>6</sup>.

### **The value of a doctorate in the job market**

One important aspect of professionalization is the number of initiatives and schemes designed to enhance the value of doctorates and PhDs on the job market. These schemes are diverse and involve many different players.

Recognition of doctorates by companies

The LPR law for the years 2021–2030 makes the recognition of doctorates on the job market a central objective. It stipulates that organizations bound by a branch agreement or, failing that, by professional agreements, must examine the conditions for recognition of the national doctorate diploma during compulsory negotiations.

It also specifies that obtaining the national doctorate diploma, rather than the title of doctor, is equivalent to professional research experience that can be recognized in collective agreements.

Finally, it specifies that doctors can use the title in any job and under any circumstances. The aim here is to encourage the use of the title “doctor” when entering the job market.

The 1000 doctoral students for territories platform ‘1000 doctorants pour les territoires’

1000 Doctorants pour les territoires is a platform that puts local authorities in touch with students who volunteer to come and carry out research work in their departments. The local authority is subsidized for this 3-year contract, via the Cifre scheme (14,000 euros per year). Ultimately, the young researcher validates a doctoral thesis, carried out in a local authority / association or public establishment eligible for the subsidy scheme, on a local public policy issue (ecological, digital, economic, demographic, health transition...).

In 2018, only 81 local authorities and associations with a social action applied for a grant via this scheme to hire a PhD student in their departments. Our aim is to make local public players and the SHS research sector aware of the existence of this type of scheme.

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<sup>6</sup> Séverine Louvel, « Les doctorants en sciences expérimentales : futurs collègues ou jeunes collègues? », *Formation Emploi* 96 (2006): 53-66; Valérie Erlich, « Etudiants doctorants Conditions d’ études et de vie », *Etudes et Documents* 16 (2000); Ronan Vourc’h, « Les doctorants, profils et conditions d’ études », *OVE INFOS*, n° 24 (2010).

## Presence of associations promoting doctorates and PhDs

For many years now, associations in France have been working to promote doctorates and doctors in society. Andes (Association Nationale des Docteurs) and CJC (Confédération des Jeunes Docteurs) are two active organizations in this field.

### Andes

Founded in 1970, the “Association Nationale des Docteurs” has been recognized as a non-profit organization since 1975. It has three main missions:

- promote the doctorate :
  - highlighting the added value of professional doctoral experience to reveal the skills of doctors;
- put the talents of PhDs to work for society:
  - contribute to the decompartmentalization of professional spheres by positioning PhDs as “border crossers”,
  - leverage the expertise and know-how of PhDs to meet the challenges of tomorrow’s world;
- create and synergize doctoral networks:
  - increase the collective visibility of PhDs,
  - enable each individual to develop his or her own professional network,
  - encourage interaction between network creators

### CJC

It brings together associations of doctoral students and non-permanently employed PhDs, who are involved on a voluntary basis in promoting the doctorate and its recognition as a professional experience, as well as defending the rights of young researchers (working conditions, remuneration, etc.). At a national level, its expertise in doctoral studies makes it a privileged contact for public authorities (Government, Parliament, Conseil National de l’Enseignement Supérieur et de la Recherche, etc.) and any organization wishing to discuss the subject (associations, companies, unions, etc.).

## References

Calmand, Julien. « La professionnalisation du doctorat : vers une segmentation de la formation doctorale et des parcours des docteurs ? » Université de Bourgogne Franche-Comté, 2020.

Calmand, Julien., Masayo, Fujimoto., Hiroatsu, Nohara., «Les dispositifs publics d'aides aux doctorants et leurs avenir professionnels ; comparaison France-Japon», in progress

Erlich, Valérie. « Etudiants doctorants Conditions d'études et de vie ». *Etudes et Documents* 16 (2000).

Guillouzouic, Arthur, et Clément Malgouyres. « Évaluation des effets du dispositif Cifre sur les entreprises et les doctorants participants ». IPP, 2020.

Louvel, Séverine. « Les doctorants en sciences expérimentales : futurs collègues ou jeunes collègues ? » *Formation Emploi* 96 (2006): 53-66.

Vourc'h, Ronan. « Les doctorants, profils et conditions d'études ». *OVE INFOS*, n° 24 (2010).



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フランスにおけるイニシアチブ、改革、スキーム

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