RESEARCH UNIT SELF-ASSESSMENT DOCUMENT

—

2023-2024 EVALUATION CAMPAIGN
GROUP D

LAMSADE (Paris Dauphine University - PSL & CNRS)

Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur

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1 GENERAL INFORMATION FOR THE CURRENT CONTRACT

1.1 Unit Identification

Unit name: Laboratoire d'Analyse et de Modélisation de Systèmes pour l'Aide à la Décision

Acronym: LAMSADE

Label and number: UMR 7243

Main scientific field:

Scientific panels (in the Hcéres classification) by descending order of importance

ST6 - Sciences et technologies de l'information et de la communication.
ST6-1- Informatique

Executive team:

- Director: Daniela Grigori
- Deputy Director: Stefano Moretti
- Administrative Manager: Marie-Clotilde Quinio

List of the research unit's supervisory institutions and bodies: Paris Dauphine University - PSL, CNRS

Doctoral schools of affiliation: Sciences of Decision, Organizations, Society and Exchange (SDOSE, DS 543)

1.2 Presentation of the unit

History, location of the unit: LAMSADE is the Computer Science research unit of the Université Paris Dauphine - PSL (UPD). It was created in 1974 and obtained the labelization from CNRS in 1976. This institutional configuration remained unchanged, with the difference that Paris Dauphine is now part of PSL university.
The original research themes of LAMSADE were operation research and decision sciences and, more specifically, multiple criteria decision aiding. The unit has broadened its research themes to include theoretical computer science and, more recently, data sciences, while still keeping its original identity as a research unit focused on Decision Sciences and Technology. We celebrated the 40th anniversary of LAMSADE in 2014.
The unit is located at the main campus of Paris Dauphine University-PSL.

Structure of the unit: LAMSADE is presently organized into three Teams (Pôles): "Decision", "Algorithms and Optimisation" and "Data Sciences". These Teams partition the members of LAMSADE and are tools for scientific animation and administrative management. Each teams has a seminar and a budget.
Research is conducted with Research Projects that often involve more than one Team. Members of LAMSADE are often involved in more than one research project. The current research projects are:

- Preference Modeling and Multiple Criteria Decision Aiding;
- Intelligent Agents for Decision and Reasoning;
- Games and Social Choice: Axiomatic and Computational Aspects;
- Policy Analytics;
- Mathematical Programming and Discrete Structures (Mathis);
- Guaranteed Performance Algorithms (AGaPe);
- Multiple Objective Combinatorial Optimisation (MOCO);

— Machine Intellligence and Learning Systems (MILES);

— Massive Data Management, Analysis and Exploration (MADAX);

— Web services discovery, composition and analysis.

The purpose of these projects is to carry out research, both fundamental and applied, that is directed towards addressing long-term challenges in either scientific or societal domains.
The scientific structure of LAMSADE is presented in figure 1.

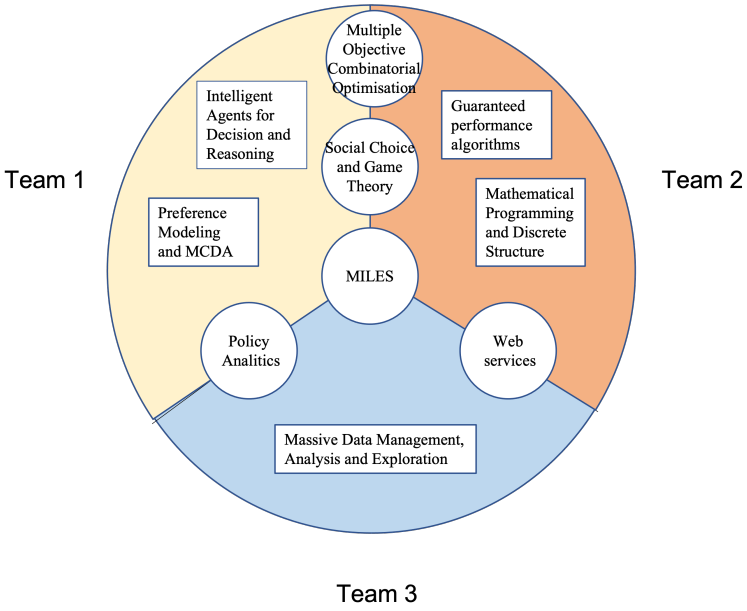

FIGURE 1 – Scientific structure of LAMSADE

Teams, platforms, shared services, etc. The establishment of the Data Sciences team during the previous five year term and the deep learning experiments conducted within the MILES project pushed the unit to invest in the creation of a “Big Data Cluster” (co-funded by the LAMSADE, the CEREMADE and the MIDO Department, and managed by the LAMSADE) as well as to acquire dedicated hardware for deep learning experiments (a GPU computing platform composed of 6 servers, funded by MIDO, LAMSADE and an ANR project). While Miles’ members use national platforms like Genci for their experiments, the internal hardware are used for rapid testing of their algorithms. The big data cluster and the GPU platform are also used for the training of master students.

Size and composition of the teams (if applicable) at 12/31/2022: LAMSADE has 127 members including 52 permanent researchers (37 ”enseignants-chercheurs”, 15 CNRS researchers), 5 emeritus professors, 1 PAST, 4 administrative and technical staff, 53 doctoral students and 5 postdocs as shown in table 1.

Scientific orientations of the unit and its teams (if applicable) The scientific topics addressed by the three teams of the unit are the following:

— Decision Aiding (Team 1): Intelligent agents for decision and reasoning, Preference modeling and Multi-criteria decision support, Policy analytics, Computational social choice and Game theory;

— Combinatorial, algorithmic optimization (Team 2): Algorithms with performance guarantees, Discrete mathematical programming and structure, Multi-criteria combinatorial optimization, Algorithmic game theory;

— Data science (Team 3): Machine learning, Management, analysis and exploration of massive data, Web services and workflows.

1.3 Scientific subjects and their implications

Throughout its history, LAMSADE has maintained a strong identity around the broad theme of "Decision Sciences and Technologies". The research conducted within the LAMSADE aims at approaching the problem of improving both decision making and decision support (aiding to decision making) taking into account the axiomatic, algorithmic and pragmatic dimensions of these topics. The axiomatic dimension includes research on the foundations of decision models, preference models, learning procedures, optimisation techniques, reasoning formalisms, formal languages (from representation ones such as graph theory to query languages for massive data bases). The algorithmic dimension includes research on complexity, parametrised complexity, more generally about the efficiency of structures (data, knowledge etc.), of procedures (optimisation, learning, computing) and services (both computer guided ones such as web services, data services and human guided ones such as health services). The pragmatic dimension includes research both on foundational topics (What is a decision problem? How to formulate a decision problem?) and on practical ones (How to conduct decision aiding activities within a given problem context? How to measure the impact of a policy? How to consider the intervention of decision aiding within a decision process? What is the organisational impact of decision aiding?).

The research questions addressed by the LAMSADE lead us go beyond the frontiers of Computer Science and explore themes at the interface with other disciplines. Among them are: mathematics (optimisation, game theory, statistical learning), economics (social choice theory, game theory, econometrics), social sciences (analysis of decision processes, policy impact), management (innovation, design theory, public management) and more recently law (data protection, data privacy, social responsibility of algorithms). On such subjects the LAMSADE entertains solid relations with all research units of Université Paris Dauphine-PSL besides including within it a relatively large component of researchers who are not computer scientists.

The mission of the LAMSADE is essentially to conduct fundamental research in its area of expertise. This being said, the field of Decision Sciences and Technologies requires strong connections with the real world, since it aims at helping real decision makers to improve the ways through which they handle real decision problems. We maintain such strong connections through a wide network of industrial and policy making partners feeding our research with empirical findings, new challenges and, last but not least, with critical resources otherwise unreachable.

The strong identity of the unit around the broad theme of "Decision Sciences and Technologies" is well established nationally and internationally. In France, while they are groups of researchers working on similar topics in other generalist units that cover a large spectrum of topics in computer science (LIP6, IRIT, LIG, GSCOP, LaBRI), LAMSADE is the only unit specialized in decision sciences and using complementary expertise of its members to treat different aspects of this topic. At the international level, we are well known for our contributions in the field of algorithmic decision theory, polyhedral combinatorial optimisation, parametrized complexity, graph theory, computational social choice, game theory, trustworthy artificial intelligence, data science.

1.4 Activity profile

Activities (Distribute 100 points on these 7 items)	
Research administration (responsibility for steering research (VP, Institute Management, Scientific Director, etc.), participation in evaluation systems (CNU, CoNRS, CSS, etc.), responsibility for IdEx, project management (ANR, Horizon Europe, ERC, CPER State-Region contract, France 2030, etc.), editorial responsibilities in national or international journals or collections.	20
Technical expertise (for national and regional public authorities, businesses, international bodies (UN, FAO, WHO, etc.)	3
Contribution to innovative teaching based on research (University Research Schools - EUR, structuring training through research - SFRI, etc.)	10
Research dissemination (sharing knowledge with the general public, scientific outreach, interface between science/society)	4
Research and research supervision . ((involvement in supervision at doctoral level and post-doctoral level))	60
Valorisation, transfer, innovation.	3
Other activities. (please detail, one line maximum).	0

1.5 Research environment

Research at Dauphine - PSL is founded on six disciplines (management, economics, sociology and political science, law, mathematics, and computer science), all of which center around the organizational and decision sciences. The 6 research centers of Dauphine are CEREMADE (research center in applied mathematics), CR2D (Dauphine Center for Research on Law), DRM (Dauphine Research Center), IRISSO (Interdisciplinary Research Institute for Social Siences), LEDA (Dauphine Economics Laboratory) and LAMSADE.

LAMSADE entertains solid relations with all research units of Université Paris Dauphine - PSL (co-tutoring of PhD students, joint seminars, joint training programs, joint research projects) on topics in the fied of mathematics (optimisation, game theory, statistical learning), economics (social choice theory, game theory, econometrics), social sciences (policy impact, measurement, peace studies), management (theory of innovation, design theory, public management) and more recently law (data protection, data privacy, social responsibility of algorithms).

Concerning the teaching, we manage the computer science degrees delivered by Mathematics and Computer Science Department (MIDO), but we participate also in the other teaching departments of Dauphine: LSO (Organizational Sciences: Bachelor), MSO (Master - Management and Organization) and DEP (Executive Training Programs). Lamsade is part of the SDOSE (Sciences of Decision, Organizations, Society and Exchange) doctoral school (Computer Science Programm). Together with CEREMADE we play an important role in Dauphine Digital project, whose ambition is to promote a world-class research and training ecosystem and to produce transdisciplinary work on digital transformation, taking advantage of the overlapping expertise of several disciplines existing in Dauphine.

Paris Dauphine University is a founding member of PSL, IDEX that obtained funding from PIA calls. Unlike other IDEXs that are fusion-based, PSL is a collegiate university that consists of multiple schools and only one university, which is Paris Dauphine. PSL's research landscape includes 18 research fields populated by 140 PSL laboratories. In the field of Computer Science, there are two research units: LAMSADE and Département d'informatique de l'ENS.

Thanks to funding obtained through a project selected from the SFRI call (Structuration de la formation par la recherche dans les Idex), PSL created 18 Graduated programs, in which takes place the preparation for the doctorate.

Together with DI ENS, we participated in the creation, management and teaching of the Graduate program in Computer Science. We have also a primary role in the Data Science Program, that is a cross-disciplinary program that covers the PSL education in AI and at the interfaces of other scientific disciplines. It offers a training of excellence in AI for students with any background.

Other PSL innovative teaching structure is the CPES Multidisciplinary Undergraduate degree, in which we also participate.

We participate in the new 3IA (Interdisciplinary Institute of Artificial Intelligence) known as PR[AI]RIE (4 chairs and a Deputy Scientific Director). It should be noted that, via the PR[AI]RIE institute, Université PSL is present within PariSanté Campus which brings together all the innovation and digital players in the field of health.

Lamsade collaborates with all the structures and actors of valorization and transfer within its scope of activities: Dauphine Incubator, INS2I valorization, etc. Lamsade has been a member of Réseau francilien en sciences informatiques (RFSI), one of the DIM (Domain of Major Interest) supported by Ile de France Region between 2018-2022.

1.6 Consideration of the recommendations in the previous report

1.C - Training through research: PhD thesis duration.
The average PhD thesis duration was 3.9 years during the previous period and the evaluators considered that it could be improved.
The average duration of the doctoral theses over the all period 2017-2022 period remains moderately high (3.89 years) and is mainly due to the impact of a longer duration over the period 2017-2019 (average duration: 3.96 years). As shown in Figure 2, 52% of doctoral students over the all period 2017-2022 have defended their thesis in less than 4 years, and the average duration of doctoral thesis over the entire period is clearly impacted by the presence of few outliers (mostly of them defending their thesis over the first period 2017-2019), showing an average reduction of the thesis of 1.6 months during the last three years, compared to the period 2017-2019 (and despite the strong impact of the pandemic on thesis duration during the last three years).

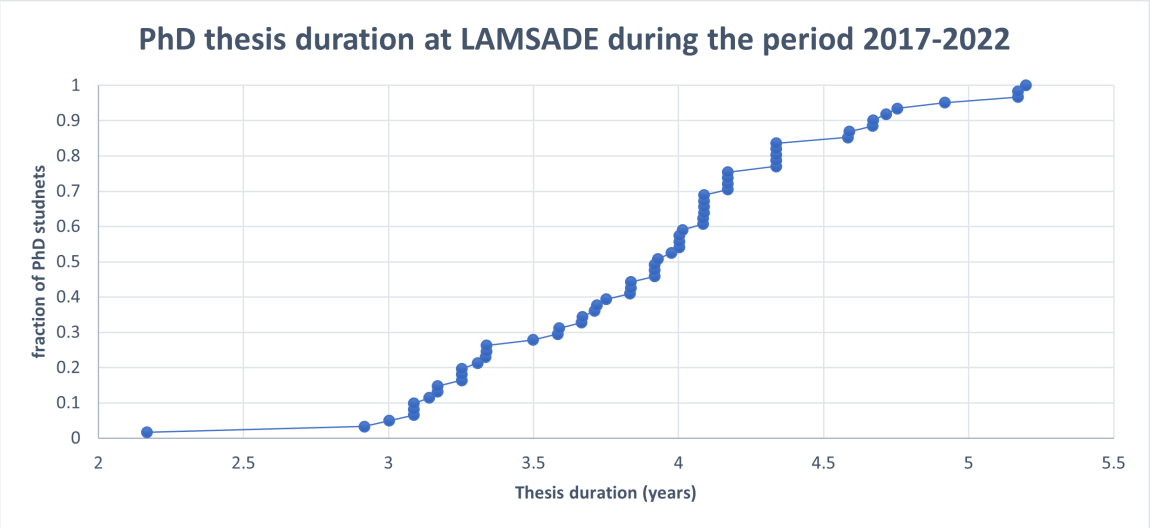

FIGURE 2 – Empirical Cumulative Distribution of thesis duration for PhD students at LAMSADE.

1.C - Training through research: Implication of CNRS researchers and research masters.
The HCERES evaluators recommended increased involvement of CNRS researchers in LAMSADE's training programs to further develop or enhance master's courses on key research topics of the unit.
During the assessment period, CNRS researchers played a greater role in LAMSADE's training programs. Almost all CNRS researchers are now involved in teaching in LAMSADE's programs. There have also been new responsibilities assigned, such as the graduate program being overseen by a CNRS researcher and the Computer Science program of the Doctoral school being renewed and managed by another CNRS researcher. Additionally, three CNRS researchers have taken on positions as Attached Professors, with a teaching load of 64 hours and significant involvement in training-related administrative responsibilities. While the conditions of these positions still need to be refined and accepted by other colleagues, they have allowed for a more meaningful involvement of CNRS researchers in LAMSADE's training programs.

Our research masters have been reinforced taken advantage of the PSL context and its organisation of doctoral training in graduate programs (see element of portfolio on Graduate programm in Computer Science). The ISI Master (Informatics, Intelligent Systems) has been replaced by the master IASD (Artificial Intelligence, Systems, Data), which is a joint PSL Master program between Paris Dauphine, École normale supérieure, and Mines ParisTech. Thus, together with MODO master (Modeling, Optimization, Decision and Organization) they cover the key themes of the laboratory.

A – Recommendations concerning the valorization of research products and societal impact.
HCERES comment: The LAMSADE has the potential to strengthen its interactions with its environment and its impact on the economy and society, by being more proactive in displaying its skills, as well as in the dissemination and valorization of software prototypes developed in the laboratory. The laboratory would gain visibility and impact by developing a dissemination and promotion of the software prototypes it produces, and by leading a reflection on the sharing of ownership intellectual property of the results obtained in particular within the framework of CIFRE theses.

Our collaboration with the UPD and CNRS valorization teams has allowed us to organize presentations during LAMSADE day that highlighted the available support and opportunities for valorization. Our website showcases the prototypes and tools developed by our team, and the Dauphine Digital site serves as a platform to showcase our skills and expertise. Before submitting any projects to enterprises, we ensure to discuss and negotiate the intellectual property shared agreement through the Cifre thesis with the assistance of the Dauphine lawyer, who is a member of the Valorization team. As a result of our efforts, the valorization activities of the unit increased. Two valorization projects have been submitted (but not accepted) and one start-up project is ongoing.
The number of industrial contracts has increased compared with the previous period. (18 'CIFRE' contracts, 4 PRESTATION & EXPERTISE, 5 'CONTRATS R&D' vs 17 CIFRES and 2 contracts in previous period).
Our societal impact, as reflected in evaluation area 3, has also increased.
However, there is still room for improvement in the valorization of prototypes and tools developed by our members. As suggested by evaluators, the technical team should be strengthened to provide better support in the development, integration, and maintenance of tools mainly developed by our students (non-permanent members).

B– Recommandations concerning the organisation and the life of the unit: Offices for doctoral and postoctoral students.

The evaluators considered that finding a solution for improving working conditions for PhD students and postdocs should be a priority.
Currently, the PhD students occupy 3 offices at 6th floor wing P (where most offices of the unit are located) and one office in wing B. A coffee room has been redesigned to be for more convivial and is available for all member units. Unfortunately, despite our efforts, UPD has not been able to provide us with sufficient additional office space. The office situation has even worsened since September 2022 due to renovation works, resulting in the relocation of the occupants of 10 offices of the LAMSADE into 8 offices on the second floor (Wing P), causing further dispersion within the building. Given the limited number of offices, we have focused on optimizing their use. PhD students have been involved in discussions about improving working conditions, office allocation, and layout. We have allocated an additional office for doctoral students (B214) and created dedicated spaces for Cifre doctoral students (available by reservation). The isolated offices on the second floor of wing B are used by PhD students who need a quiet space for work (such as preparing their thesis manuscript or a paper). Noise-canceling headphones have been provided to students who need them. The sudden increase in the number of postdocs in 2019 required us to find a temporary solution, mainly based on voluntary office sharing by permanent members. We also optimized short-term absences (such as conference missions or visits) by offering a shared calendar of available offices. Lamsade has made one or two meeting rooms available for reservation through a QR-code. Some offices have been made available to Lamsade members involved in the PR[AI]RIE Institute at the Paris-Santé Campus (unassigned offices in flex office)., but they are inconveniently located far from LAMSADE.

C– Recommandations concerning the scientific perspectives and project.
Participation in European projects.

In the previous period, LAMSADE lacked involvement in European projects. To address this, LAMSADE hosted the CNRS ERC cell presentation at Dauphine in 2019, which informed colleagues on the ERC grants and support available for preparing a proposal. Our efforts to encourage ERC grant applications were successful, resulting in the submission of three ERC projects (one ERC advanced in 2019, one ERC starting in 2022, and one ERC synergy in 2022), with plans for another submission in the next three years. (Dominik Peters has been successful in obtaining the PSL ”Young team” award, which is intended to support excellent young researchers, possible candidates for an ERC grant.) In addition to the ERC projects, LAMSADE has also been successful in securing two other European projects, a H2020 project and an INTERREG project.

Positioning in relation to PSL.
LAMSADE has strengthened its presence within PSL. In terms of training, LAMSADE collaborated with DI ENS to establish a graduate program and manage the Data Science Program, a cross-disciplinary initiative. LAMSADE also participates in the CPES Multidisciplinary Undergraduate degree and the Dauphine-PSL Double Bachelor’s degree in Artificial Intelligence and Organizational Sciences. In terms of research, LAMSADE works closely with DI ENS and manages the PG program, with plans to encourage joint PhD students through grants and targeted project calls.
LAMSADE has established a joint professor position with ESPCI, supported by funding from PSL, Dauphine, and ESPCI. The research for this joint position is conducted at LAMSADE and the teaching is carried out at ESPCI, resulting in new research collaborations, including the funding of a PRIME thesis by CNRS.

2 PORTFOLIO INTRODUCTION

In the portfolio of the unit, complementary to scientific contributions presented in the teams' portfolios, we choose the following elements to illustrate the diversity of our activities:

— a summary of our interdisciplinary contributions in research and teaching, to show that interdiscplinarity continues to be one of LAMSADE distinctive features.

— the PSL graduate program in Computer Science for its important role in structuring our research training, attracting good students and reinforcing collaborations inside PSL.

— two important contributions related to voting methods (the use of Majority Judgement method and the experimental platform Un Autre Vote 2022) as examples of the societal challenges that we address and of our societal impact.

— RASTA (acronym of '' Recognizing Art STyle Automatically") is a deep learning model trained on a dataset of 60,000 annotated images to recognise the art style of paintings. The demo of this project (available online (click here)) was a great tool for engaging with the general public. The project was featured in the popular science magazine ''Science & Avenir". The portfolio element contains the RASTA scentific paper published at ACML 2017 and the associated ''Science & Avenir" article.

3 SELF-ASSESSMENT DOCUMENT

3.1 Self-evaluation of the unit

Evaluation area 1: Profile, Resources and Organisation of the Unit

Standard 1. The unit has set itself relevant scientific objectives.

In this section, we will begin by introducing the scientific and administrative staff. We will then move on to discuss the scientific policy and governance structure of the laboratory.

Workforce.
This section is divided in two parts: the first one concerns the permanent scientific staff as well as the PhD students, the second one concerns the administrative staff.

TABLE 1 – Number of employees of LAMSADE for each category and each year and workforce on 31/12/2022 (Source ADUM plus DFIS)

	2017	2018	2019	2020	2021	2022	31/12/'22
PR	9	10	11	11	11	12	11
MCF	24	24	26	27	26	24	23
Chercheur associé	4	4	4	4	4	4	3
DR	7	7	8	8	8	9	9
CR	6	6	6	4	6	7	6
DREM	0	0	0	0	0	0	0
PREM	4	3	4	4	4	4	5
Total	54	54	59	58	59	60	57
Personnel admin. (titulaire)	4	3	3	3	4	4	3
Total permanents	58	57	62	61	63	64	60
Doctorants	53	54	55	53	60	53	53
Post-doc	6	5	5	6	12	11	5
Chercheur contractuel	1	1	1	1	1	0	0
Ass.prof.(mi-temps)	2	2	3	2	2	2	1
Personnel admin. (non titulaire)	2	1	1	1	1	1	1
Total	149	146	155	152	164	141	127

TABLE 2 – Gender of permanent workforce on 31/12/2022.

	F % (number of staff)	**M % (number of staff)**
PR	$27\%(3)$	$73\%(8)$
MCF	$39\%(9)$	$61\%(14)$
Chercheur associé	$100\%(3)$	(0)
DR	$22\%(2)$	$78\%(7)$
CR	$33\%(2)$	$67\%(4)$
PREM	$40\%(2)$	$60\%(3)$
Total	$35\%(20)$	$65\%(37)$
Personnel adminstratif (titulaire)	$33\%(1)$	$67\%(2)$
Total permanents	$35\%(21)$	$65\%(39)$

Permanent scientific staff.
Table 1 presents the evolution of the scientific staff of the unit.

In 2017 (when the last report was presented) the unit had 54 permanent scientific members: 27 associate professors (among which 3 'externals'), 10 full professors (among which 1 'external'), 6 CNRS junior researchers, 7 CNRS research directors, 4 emeritus. At 31/12/2022, the LAMSADE had 57 permanent scientific members: 26 associate professors (among which 2 'externals'), 12 full professors (among which 1 'external'), 6 CNRS junior researchers, 7 CNRS research directors, 5 emeritus.
In 2023 we have two assistant/professor ongoing recruitment, one retirement (DR CNRS), one outgoing transfer (CR CNRS). The number of permanent scientific staff increased and so has the ratio senior/junior researchers.

During these 5 years, the LAMSADE presented on average more than 5 candidates annually for CNRS positions. As a result, we have seen the arrival of two new recruited CNRS researches: one in ML (who left after one year for a R&D position at Apple) and one in social choice. Three CNRS researches chose to join our unit by transfer from other units: one DR (section 39) and two CR (section 6). This shows that our lab is attractive both from a scientific and quality of work ambiance point of view. Moreover, two CR researchers have been promoted to DR researchers and choose to continue as LAMSADE members. Unfortunately, we lost prematurely a brilliant DR researcher (Jérôme Monnot). One research colleague in section 37 joined another unit (CREST and Department of Economics of the Ecole Polytechnique), but still collaborates with us.

During the period, one associated professor temporarily left the unit (2 years) to complement his academic experience by working in R&D in the private sector. One associated professor (HDR) moved to Italy for a research position at CNR (National Research Council of Italy. One professor and one associated professor retired. We recruited two professor and four associated professors and we have two positions (one professor and one associated professor) published for the 2022-2023 campaign. The support for these positions are the open positions described before due to retirement or promotions (in this or previous period). The unit benefits from the policy of the university, which opens all positions vacated by a departure (retirement, promotion, mutation). Moreover, UPD allowed us to open a supplementary position corresponding to a long term leave (for family reasons) of an associated professor.

All recruited people were 'externals' (no local PhD student was hired as associate professor, and no local associate professor was promoted to full professor), and for a large part international. [1]

Moreover, we had a new professor position (funded by PSL, Dauphine and ESPCI) whose teaching load is mainly at ESPCI and research affiliation is LAMSADE. We had attracted also an AI fellows (5-year position) coming from the University of Wisconsin-Madison. The AI follows positions have been funded by PSL from budget obtained from from the France 2030 competitive call for projects entitled Skills and jobs of the future("Compétences et métiers d'avenir") on artificial intelligence.

At present, the unit hosts most of the computer scientists of Dauphine (more precisely, all of them but two), plus 6 CNRS scientists who are not computer scientists (essentially economists and management scientists).

1. Three Associate professors recruited in this period arrived from post-doc positions: one from University of Wisconsin-Madison, one from Gran Sasso Science Institute in l'Aquila, one after several postdocs including University of Toulouse, Ecole Normale Supérieure de Lyon, University of Oxford, .., and one from a assistant professor position in an enginner school ESEO. Two full professors arrived from Université d'Angers and Université Paris Sud.

Recruitment policy The recruitment policy for associated professors and professors is to recruit only applicants from outside the university. Job profiles are defined by the CCR (Representative Consultative Commission). The profile of positions vacant due to a promotion are assigned to their original teams, unlike positions vacant due to retirement, the profile of which is discussed in relation to the laboratory's strategic priorities.

PHD students.
During the same period we undertook a serious effort to increase our capacity to tutor PhD students, by inciting the associate professors to defend their "habilitation à diriger des recherches" (HDR). Indeed, during these years, 6 among our Associate Professors obtained their HDR and at least two plan to do it in the near future (1-2 years). This increased tutoring capacity joined to a global effort to attract more PhD students allowed to move our annual recruitment of PhD students to an average of 13 annually (compared to 10 in the previous period) with an increasing trend in the last year (see Table 4).
According to data from ADUM, during the evaluation period of 2017-2022, LAMSADE hosted a total of 115 PhD students, with 80 of them registered after January 2017 and 54 still working on their theses as of December 2022. Among those 115 PhD students, only 4 dropped out during the same period. Almost half of the 80 PhD contracts of PhD students enrolled after January 2017 were financed by public institutions, with the main sources of funding being "Financement d'État" (38 grants, including 3 ministerial ones per year, approximately), while around 28 $\%$ were "Conventions CIFRE" (22 contracts).

To illustrate our interdisciplinary research, we mention 4 PhD inter-disciplinary grants obtained by the unit : 2 new PhD thesis have been funded by MITI CRNS (La Mission pour les initiatives transverses et interdisciplinaires), one by Dauphine Digital call for double PhD thesis, and one by AI4theSciences COFUND PSL project.

As shown in Figure 4, there has been a steady increase in the number of PhD grants financed by both public and private sectors since 2018. This trend is reflected in the Table 4 by the rise in the number of newly enrolled students since 2018. It is worth noting that around 30% of the PhD students at LAMSADE during the evaluation period came from masters programs located outside of France. This data confirms the laboratory's ability to attract students from all regions of the world, as depicted in Figure 5.

Postdocs. The unit had each year between 5 and 12 postdocs funded by ANR projects, Prairie chairs, France Relance R&D call, Ile de France region, etc.

TABLE 3 – Summary on enrelled PhD students during vthe evaluation period

	number of PhD students who have either defended their thesis after January 2017 or are currently in the process of completing their thesis	**total number of PhD students who enrolled after January 2017**	**number of PhD students with ongoing thesis at the end of December 2022**
Males	82	58	38
Females	33	22	16
Total	115	80	54

ATER.
The recruitment of ATERs is managed by the CCR (Commission Consultative Representative - Representative Consultative Commission) in computer science, currently made up of 20 members of the laboratory. This commission is chaired by the director of the laboratory and

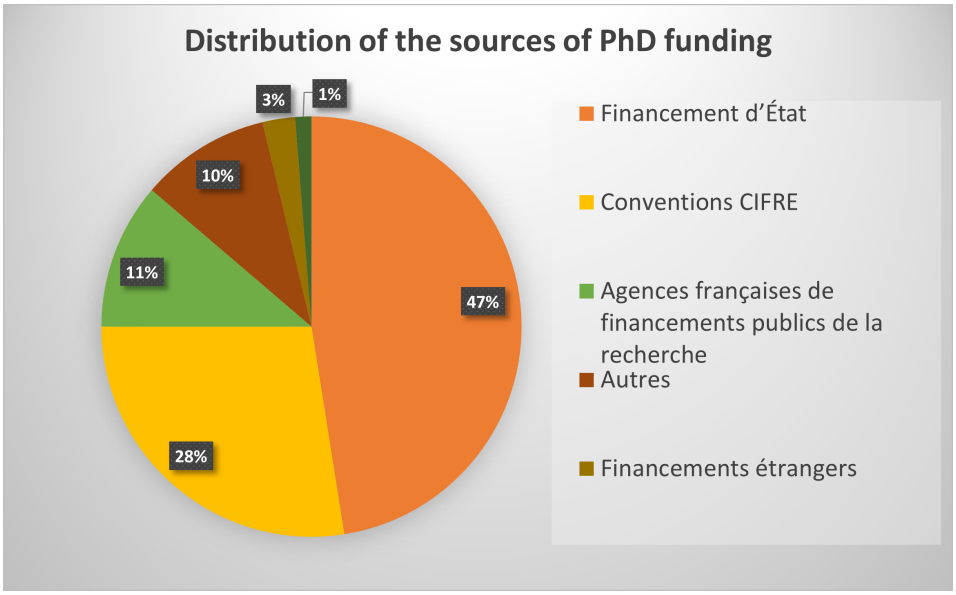

FIGURE 3 – Distribution of the funding sources that support the contracts of the 80 PhD students who were enrolled at LAMSADE during the evaluation period.

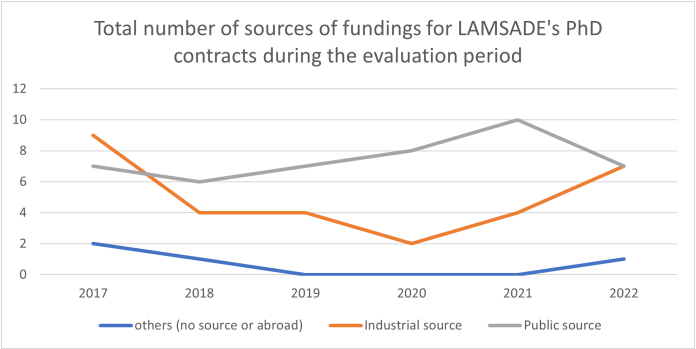

FIGURE 4 – Evolution of the funding sources that support the contracts of the 80 PhD students who were enrolled at LAMSADE during the evaluation period.

the co-director of the department participates as an appointed member. The recruitment policy aims to:

— to provide a position for all doctoral students in the 4th year at the start of the school year.

— to allow some external candidates supported by members of the laboratory to have a position.

It is possible to divide ATER positions to hire two half-ATERs, where two full positions are equal to three half positions. This provides flexibility in adjusting the number of positions based on the demand from doctoral students and their teaching workload, allowing students to focus on their thesis writing. Additionally, UPD permits the conversion of temporary vacant professor positions into ATER positions or one-month visiting professor positions.

Administrative and technical team.
Starting with January 2018, LAMSADE had 4 administrative staff. Among these 4, 2 are permanent CNRS staff (one secretary and the computer engineer of the unit), 1 is a permanent employee of Dauphine (the head of the administrative staff of the LAMSADE) and one employee is under contract (a secretary). The administrative team traversed a difficult period star-

TABLE 4 – PhD students at LAMSADE each year over the evaluation period (together with the number of new enrolled PhD students shown between parenthesis)

	2017	2018	2019	2020	2021	2022	total
PhD student per year	53	54	55	53	60	64	115
(including newly registered)	(18)	(11)	(11)	(10)	(14)	(16)	(80)

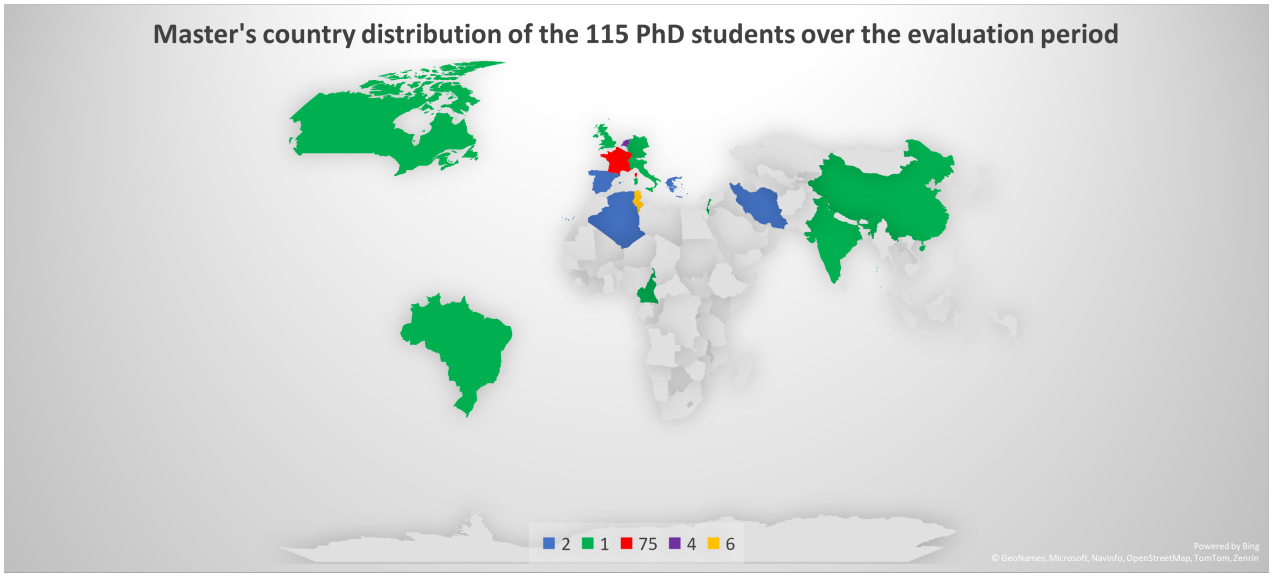

FIGURE 5 – This chart shows the master's country of 115 PhD students (where they completed their master's studies). Countries with the same number of PhD students are represented by the same color. Approximately 30% of the PhD students of the LAMSADE pursued their master's studies outside of France.

ting with the year 2022 due a long-term seak leave of one of its members and one position left vacant and for which not suitable candidate could be found. This period, the administrative support continued to be offered to unit members thanks to the dedication of the head of the administrative staff and to the help that we received from INS2I and UPD after reporting the problem. Moreover, the CNRS secretary transferred to another unit (nearest from its home and for an up-level position). Currently, the administrative team has 4 members, but one is on a temporary (one year) position that CNRS funded in order to support us in the transition period before finding a permanent CNRS secretary.

Administrative staff management The annual activity interviews are conducted by the administrative manager, with the possibility of an additional interview with the director.
The staff benefits from bonuses granted by the direction via the Annual Individual Complement (CIA) (for CNRS agents) and end-of-year bonuses (for university staff) within the limit of the overall envelope which is allocated in the laboratory. There is a significant difference between the amount that can be attributed to Dauphine and CNRS employees.
Training is an element of support for agents to be able to respond to new missions and master new tools. All agents have attended at least two training courses per year. The training correspondent is Marie-Clotilde Quinio, who develops and distributes the training plan.
Finally, the management accompanies and supports requests for promotion, advancement and preparation for competitions. For the period 2017-2022, we obtained 2 grade changes and 1 body changes. Thus, each permanent member of the administrative team has benefited from at least one promotion.

Scientific policy.
The main goals of LAMSADE, as stated in our previous report five years ago, were as follows:

(a) strengthen the international position of the unit as one of the European leaders in decision sciences and technologies;

(b) improving the attractiveness of computer science training at Paris Dauphine University - PSL;

(c) contribute to reinforcing the position of LAMSADE in the Paris Dauphine University and more largely inside PSL;

(d) help junior researchers to make their way in their careers;

(e) consolidate the scientific structure and secure funding for long term research;

(f) make LAMSADE a nice place to work, to study and to produce good science.

These goals remained our guidelines during the present period of evaluation. We briefly discuss our actions relatively to each of them.

(a) International recognition In order to strengthen our international recognition, we have been pursuing three main directions. The first one consisted in strengthening our role in the animation of research communities (see Evaluation area 2, reference 3.1) The second direction consisted in maintaining our recruitment policy for PhD students, post-docs and new colleagues, looking for scientific excellence at the international level. We are proud to have been able to attract (and keep) people coming from all over the world to come study with us, to work with us or even to visit us. LAMSADE truly is an international laboratory (see for example figure 5 showing the master's country of our doctoral students). The third direction was to take advantage of the expertise of the new created data science team and of our multidisciplinary expertise to strengthen our position in the field of decision sciences and technologies. We encouraged the collaboration between the three teams via our recruitment and funding policies. As a result, new research topics have emerged like: optimization for machine learning, graphs and machine learning, deep reinforcement learning for difficult combinatorial optimization problems, reinforcement learning for computational social choice.

(b) Attractiveness of computer science training. LAMSADE is not responsible for the design and management of Computer Science programs at UPD (this is the responsibility of the Mathematics and Computer Science Department: MIDO). However, improving the attractiveness of computer science at UPD is a major goal for LAMSADE. Indeed, this attractiveness is instrumental for attracting good PhD candidates, maintaining a stimulating environment for consolidating and creating knowledge, improving our international visibility and attractiveness. Our research masters have been reorganized into a graduate program, as explained in section 1.5. This newly created graduate program is presented in our portfolio. Our newly created research master on data science and AI attracts very good students (ENS Ulm and other ENS, Mines, engineering schools, renowned master programs) and, more recently, international students. This is a result of a conjunction of facts: the increasing importance of AI, to which we responded by a solid master offer, built with our PSL partners (Mines and ENS). The interdisciplinary program of Peace Studies which has been created under our initiative, today presents a big success for the whole university and the PSL, with plans to include it in UPD's London campus. We participate in the newly created Double Bachelor's degree in Artificial Intelligence and Organizational Science that will attract students with diverse profiles to our masters. Finally, in order to respond to the growing needs of training AI specialists, we have increased the capacity of our existing training programs and created new executive training programs.

(c) Reinforcing the Position in Dauphine and PSL As explained in section 1.5, we have an important role in the Dauphine Digital program, in 3IA institute PR[AI]RIE (for which PSL is a founding partner), in PSL training offer. The joint construction of the graduate program in computer science with DIENS was a first step towards collaboration, next planned steps include the call for bilateral projects and theses (funded by CS graduate program).

(d) Junior researchers LAMSADE strive at rapidly integrating junior researchers into the scientific life of the unit. For this purpose LAMSADE has a special fund (of around 30k€ per year) dedicated to PhD students and newly recruited colleagues. This allows us to finance scientific missions that would otherwise be impossible to undertake. Moreover, when allocating our PhD grants, proposals coming from our junior members receive special attention. This gives them the opportunity to start supervising a PhD student (this being one of our fundamental missions). We also encouraged the mobility of our members and international collaborations though funding visits to foreign universities. For further details of our policy to support the scientific production of young researchers please refer to section 3.1 (Evaluation area 3, standard 2).

(e) Structure and funding The structure of the unit has already been presented in Section 1.2 and in figure 1. Our three teams are aimed to conduct research animation (seminars, invitations, etc.) and to offer to colleagues sharing a broad scientific area a place of discussion and debate. These three teams partition the members of LAMSADE.
Within our ten research projects we conduct long-term research activities on topics we believe will remain active during a sufficiently long period of time (around 10 years). These projects are expected to raise their own resources. Researchers participating in these research projects may belong to more than one of our three teams. A researcher often contribute to more than one project. Five of them intersect two or even three of the teams both in terms of research subjects and people involved. The more recent team, Data Science, created during the preceding five years term, is now a solid team. Projects in which members of this team participate are attracting significant funding and gaining significant international visibility. As a result of our recruitment and funding policies, new topics emerged and new collaborations with the other two teams have been formed.

In choosing our research priorities, we consider the following guidelines:

- allow the LAMSADE members to pursue their own individual research interests,
- provide a clear scientific identity to the unit that is compatible with the identity and policy of UPD and PSL,
- fulfill the high standards in terms of quality and management required by the CNRS,
- be able to conduct both fundamental research and to respond positively to the societal challenges in terms of tools and expertise.

As a CNRS research unit, our primary mission is to conduct fundamental research. However, we recognize the unique nature of our research in decision sciences and technologies, which requires us to consider the practical applications of our research. Our objective is to improve decision-making processes for both people and automated systems, as well as to assist analysts in this endeavor. As decision-making is an empirical activity, we rely on real-world situations as input to our research and innovation in this field.
To achieve this, LAMSADE maintains close ties with the society around us and considers societal challenges as research challenges. A portion of our research activities is dedicated to tackling practical decision-making scenarios and developing models, algorithms, data structures, and services to support them. As a result, we strive to maintain a balance between fundamental research and objective-driven research that addresses specific challenges.

Unfortunately, the number of ministerial allocations (around three PhD grants per year), which is one of the instruments to support our fundamental research goals, is too low relative to unit size. To address this, we have allocated additional resources to funding a supplementary PhD grant during this period. Moreover, this grant has been allocated to an interdisciplinary research topic. We have also obtained four 3IA chairs and one PSL young team, which although person-oriented, have benefited other colleagues working on machine learning and artificial

intelligence topics. Together with an important number of projects funded by the French National Research Agency (ANR), these resources have significantly strengthened the ratio of fundamental research to applied research in our funding (see section 3.1).

(f) Stimulating working atmosphere A baseline of our policy is to make the LAMSADE a nice place to work and study. Besides doing our best in supporting our members to conduct their research, we try to promote cooperation, mutual respect and understanding, equal opportunities and a lively environment for discussion and exchange of ideas. The high number of foreign researchers visiting or joining LAMSADE help us achieving this goal. This nice working atmosphere survived somehow the difficult times of the COVID crisis.

Governance.

The organization of LAMSADE's management structure, which includes a director and vice-director, a Council, an administrative team, and three teams each led by their respective coordinators, is presented in Figure 6.

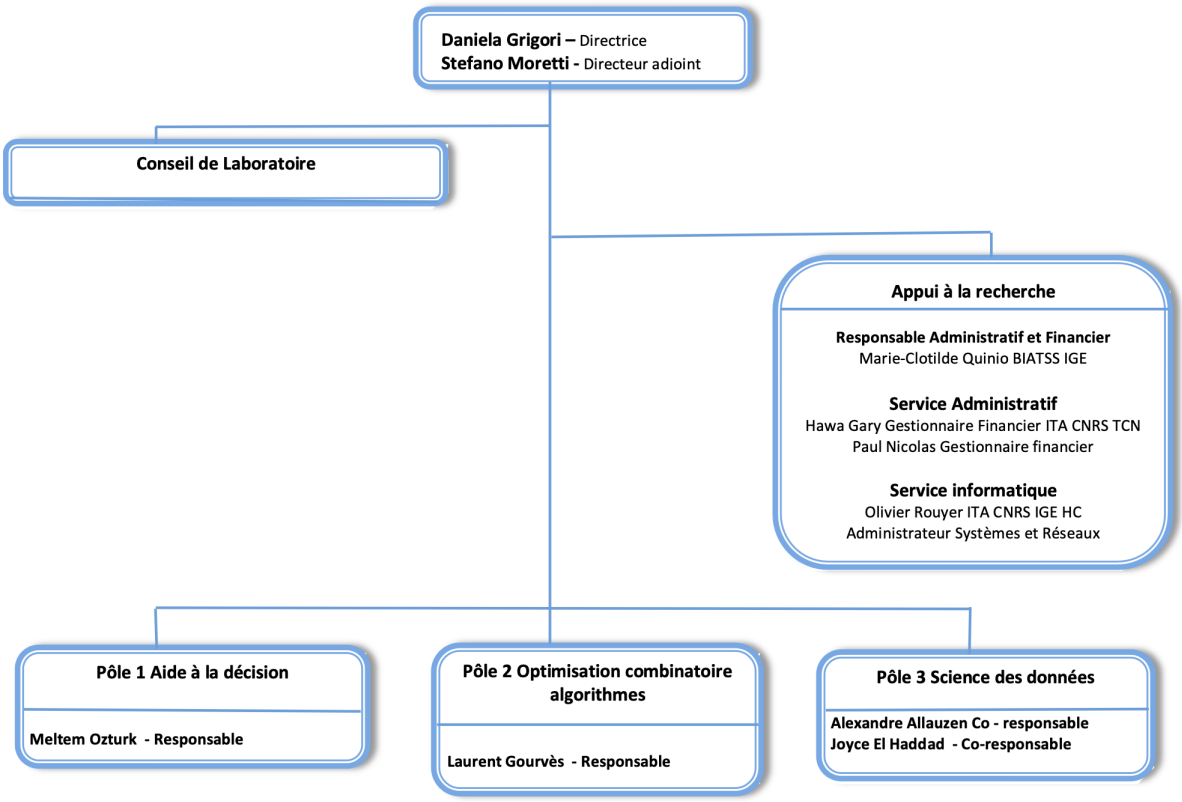

FIGURE 6 – Management structure of LAMSADE

The management of a research unit of the size of LAMSADE is relatively simple. First of all there are two major regular collective moments in the life of the unit:

- the LAMSADE day, occurring usually at the beginning of spring, dedicated to scientific discussion, the presentation of the new colleagues, of new research projects etc.; a speed presentation (180 sec.) of the first year PhD students also takes place;
- the general assembly (GA) of LAMSADE, taking place yearly, where the policy of the unit is discussed for at least one critical issue (training, scientific strategy etc.).

The organisation of the LAMSADE days started in 2012 and evolved to the present format which seems to satisfy most of the members. The main subjects discussed in the GA of the

unit have been the evolution of our training offer in Computer Science (graduate program), the position of the unit concerning the measures of the LPR (Research programming law), election of the CCR, reducing the greenhouse gas emissions of the unit.

The life of the unit is essentially organised by the 3 teams and the 10 projects. However, as far as management is concerned, the 3 teams regularly meet in order to discuss at a decentralised level topics related with the policy of the unit, while this is not the case of the projects. The teams mission is to animate discussions (seminars and policy issues). The teams also have a budget (15K € annually coming from the general budget of the unit) which is expected to support missions and other scientific animation activities. On the other side the projects (5 of which are transversal to the teams, see Figure 1) are expected to conduct research (most of the times through PhDs and Post-Docs), to organise scientific events and to contribute to the global fund raising of the unit. Under such a perspective the projects do not receive a regular budget from the general one (although may occasionally ask for some support), but their members compete for a critical resource which are the PhD scholarships. The unit is managed by the director (and the vice-director) assisted by the administrative staff in interaction with the Council of the unit. The latter is the typical consultative structure of all CNRS units: it is expected to be consulted on all critical issues of the unit's life. It is composed by 15 members (plus the co-director of MIDO, if he is not an elected member, and the administration responsible who are permanently invited):

- the director and vice-director;
- 9 elected members (7 among the scientific staff, 1 among the administrative staff and 1 among the PhD students);
- 4 appointed by the director.

It meets 8 times during the year (always on Tuesdays at noon) on rolling dates which are now becoming stable. Besides discussing regular topics (budget, recruitment, etc.) it also has a special mission: identifying every year the subjects for which we look for PhD candidates, organise the interviews of the candidates and prepare a ranking which is submitted to the Doctoral School. In this regard, the laboratory has implemented a comprehensive internal regulation for the fair allocation of ministerial doctorate scholarships, which has resulted in a significant number of laboratory members participating as supervisors for doctoral students across various research topics over the years. For managing most of the everyday issues the direction and the administrative responsible weakly meetings are sufficient. An enlarged version of the direction including the three team leaders meets as often as necessary (urgent decisions, covid19 crisis, etc).
Parallel to the Council there is the CCR (Representative Consulting Committee) required by the statutes of Dauphine and concerned by the hiring of scientific staff (in the case of LAMSADE in Computer Science). This Committee is led by the director of the LAMSADE, it is composed by 20 members (10 full professors or research directors and 10 associate professors or researchers), 16 of which are elected, 3 being appointed by the director, the director being also a member. This committee meets at least 3 times during the year:

- in late autumn in order to fix the essential lines of any recruitment profile and to identify the person in charge of the selection committee (any long term policy issues are also discussed in this meeting);
- in late winter in order to approve the profile of any recruitment and the selection committee;
- in early summer in order to rank the applications for invited professors and the applications for assistant (not permanent) professors.

As already mentioned the LAMSADE is one among the few research units in Computer Science with more than one third (35%) of its permanent scientific staff being women. We actively pur-

sue ways aiming to maintain this situation with particular emphasis to all recruiting opportunities.

Standard 2. The unit has resources adapted to its activity profile and research environment and mobilizes them.

Financial resources.
The LAMSADE has a highly favorable financial status. General funding from Dauphine University-PSL (including the BQR) and from the CNRS are presented in table 3.1, resulting in a budget of 1,323M€ for the evaluation period.

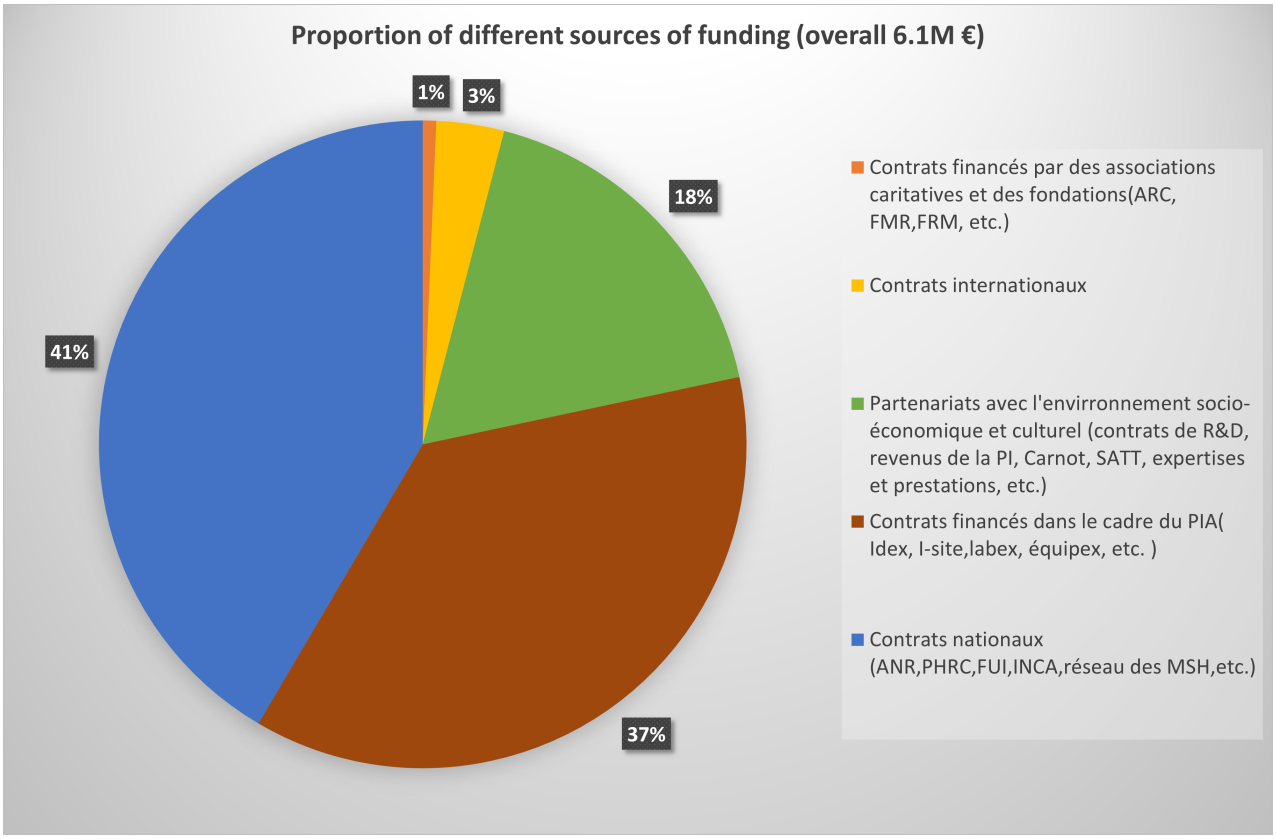

FIGURE 7 – Distribution of the sources for research funding.

Budget (k€)	2017	2018	2019	2020	2021	2022
UPD	144 k€	140 k€	169 k€	170 k€	192 k€	195 k€
CNRS	40 k€	45 k€	50 k€	48 k€	55 k€	75 k€

All the other sources of income (i.e., the whole set of sources in the tab 6 of the ”Characterization and production data” file) amounts in total approximately 6.1M€ (including funds such PhD thesis and postdocs paid directly by the the unit). Consequently, the global funding of Lamsade for the period was 7,423M€, resulting in a yearly budget of 1,2M€. The recurring general budget from our supervisory institutions represents 17% of our global budget, which shows that we are able to attract significant resources. The own funding sources include 4 ‘PIA - CHAIRE PRAIRIE 3IA’, competitively obtained project funding (14 ‘ANR’ projects, 3 ‘CONVENTION EUROPEENNE’, 34 contracts from ‘AUTRES FINANCEMENTS PUBLIC’), and funding obtained from industrial partners (including over 18 ‘CIFRE’ contracts, 4 PRESTATION & EXPERTISE,

5 'CONTRATS R&D'). These sources can be further grouped into two main categories of funding sources: those driven by applied research objectives (from socio-economic and cultural partners), which is represented in green colour in Figure 7 and corresponds to approximately 18 % of the total budget (i.e., 1.1M€), and the category of funding sources more oriented to fundamental research, which cover the remaining 82 % of the total budget in the "Onglet 6" (i.e., around 5M€) and groups all the categories in Figure 7 except the green one. The evolution of these two main categories over the years is represented in Figure 8 which shows two peaks for the category of fundamental research mainly due to the beginning of two PRARIE in 2019 and starting date of several ANR projects in 2021, while the profile of the applied research category results quite stable over the same period. A more detailed picture of the distribution of contracts in the category of fundamental research is provided in Figure 9, which shown again the strong contribution of ANR projects and PR[AI]RIE for the funding of LAMSADE's fundamental research.

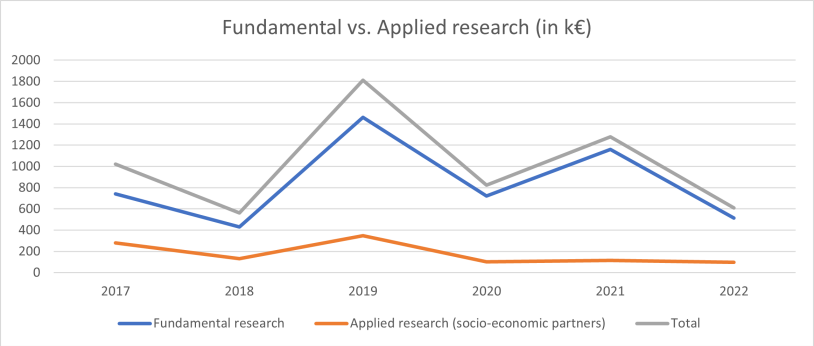

FIGURE 8 – Global funding trends of the whole budget.

By pooling resources (fungibility of budget from our tutors and own resources, especially the budget accompanying Cifre contracts) we have been able to found a PhD grant (for which we followed the same selection procedure as for the ministerial grants). As explained in section 3.1, the unit funds six internships every year in an effort to encourage the development of innovative topics and those that intersect across different domains or disciplines. In order to facilitate the mobility of our members and foster new collaborations with foreign universities, we have allocated a budget of 24,000 euros for a call for mobility projects. Each project can receive a maximum of 4,000 euros. We are planning also to finance a secretary position by using part of the budget allocated to several of our PEPR projects.

Offices (D1.R2.C3)

The research unit is located on the main campus of Paris Dauphine University (UPD) and currently has 40 offices and one coffee roam, but this falls short of meeting the needs for individual and collective workspace. The PhD students and post-docs are the most affected by this shortage. The offices are dispersed throughout the building (2nd, 4th and 6rd floor wing P, 2nd and 3rd floor wing B) negatively impacting the collective life of the unit. Despite repeated requests, the university has been unable to provide sufficient additional offices. Some offices have been made available at Paris Santé Campus for colleagues working on AI, but they are far from the unit's location.

UPD started renovation works of its main building in 2022. The team of the university in charge of the new campus project tries to limit noise pollution as much as possible (e.g. the noisiest works are scheduled outside the working hours, as much as possible, for example) but the working conditions remain and will remain difficult for some years. The management of the unit participates in all meetings on this issue and makes their point of view heard by the the University's governance. A group of researchers of LAMSADE have been also solicited by

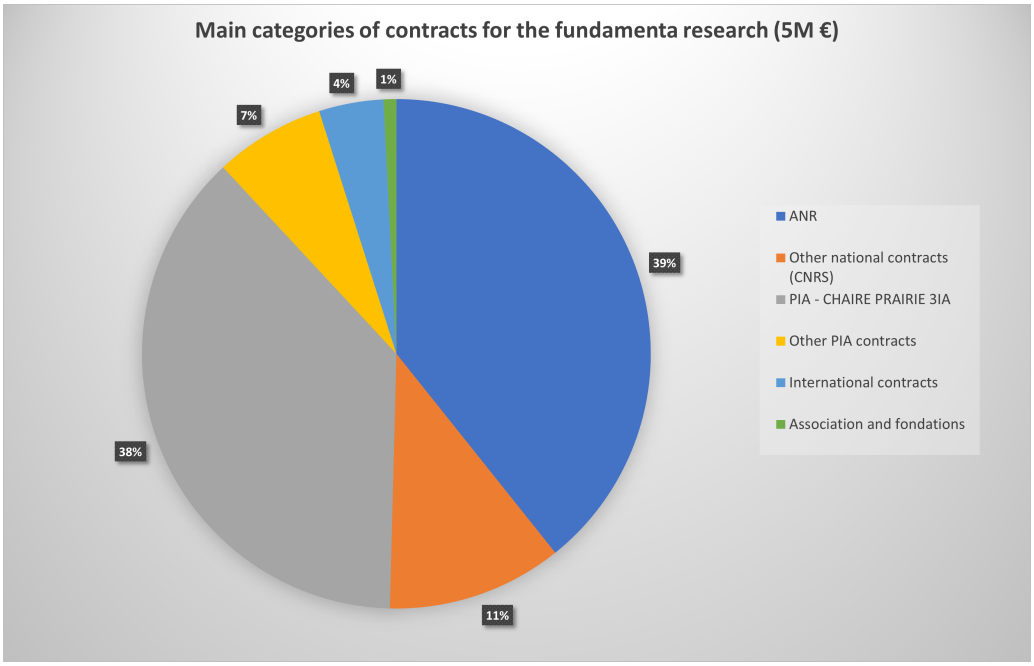

FIGURE 9 – Distribution of the sources for research funding over national and international contracts.

the governance to apply their expertise in order to ensure equity and optimisation of office reallocation and sharing.
At the end of this work, the laboratory will have renovated offices that meet safety standards and with a surface area slightly larger than today's. The offices will be grouped on the same floor, shared with the CEREMADE unit with which we have research and teaching collaborations. Although the construction of a new wing is expected to provide more space for the research unit, special attention should be given to preserving the unit's life during the renovation period. During this time, fewer offices will be available, offices will need to be relocated for in situ renovations of different wings of the building, and work conditions may temporarily deteriorate. Our solutions for the management of offices was explained in section 1.6.

Our scientific infrastructure (D1.R2.C3) has been been presented in paragraph Platforms of the section 1.2 and is presented in more details in section 3.1 (Evaluation area 2, Reference 4).

Standard 3. The unit's functioning complies with the rules and directives defined by its supervisors on human resources management, safety, environment, ethical protocols and data as well as scientific heritage protection.

Parity and equality (D1.R3.C1)

The ratio man/women of our different category of members are presented in table 3.1. We are proud to be the second best research unit in terms of parity ratio among research units belonging to INS2I (statistics done by the parity cell of INS2I). We have also a perfect parity in the scientific governance of the unit (directors and heads of the teams). We should note also that 8 members from the 15 members of the unit council are women.
The unit has two parity and equality referents who have the role of coordinating the unit's actions on this subject, of proposing actions in terms of equality to the director. They also have the role to raise awareness among members of the lab, among students, but also among the

youngest, by promoting initiatives dedicated to elementary schools, colleges and high schools. In the context of the "Chiche!" program [2] we are about to start sending in high schools teams of two researchers (mixed-gender) to help sending the message that computer science is not for male only, so as to contribute, as much as we can, to raise the number of women in our licence and master programs.
A mentoring process has been put in place to support laboratory members in their professional development (at any stage of their career) by facilitating transition periods. Mentoring is offered on the request by volunteering members of the unit, which have had a special training and are designed by a mentoring committee.
We also have two cognitive bias referents who do a short presentation at the beginning of the meetings of selection committees for the recruitment of teaching positions to raise awareness about cognitive biases that could interfere in evaluating candidates evaluation. They provide also parity indicators (statistics on the percentage of women and men among the different categories of associated professors and professors). In addition, they also did the same type of presentation during the selection committee of candidates for a PhD thesis grant.

Health, safety and working conditions (D1R3C2)
Marie-Clotilde Quinio is our referent for Health, safety and working conditions. We pay special attention to the working conditions of the members of the unit. During the sanitary crisis, we implemented the decisions taken by Dauphine and had a covid referent. To minimize the disturbance caused by the ongoing renovation work, we made headphones available for individuals who were affected by the noise. Additionally, in order to foster a sense of belonging and address the potential negative impacts of remote work, we have implemented a monthly breakfast meeting.

Protection of scientific heritage and information systems
In order to protect computer systems as well as the related scientific heritage of the laboratory, a large number of traditional protective measures are implemented (e.g. encryption of all disks, secured connection from outside, ..) in accord with the PSSI (Information System Security Policy) of the different supervisory authorities. Our computer scientist engineer participates in monthly meetings organized by Dauphine Head of Information Systems Security (RSSI) for all the CSSI (Information Systems Security Correspondents) of research units; during these meetings all the important security problems are addressed. Personal data are handled following the advice of the Data Protection Officer of Dauphine in order to comply with the GDPR.

Sustainable environment (D1R3C4)
The unit is very committed to pursue goals of sustainable development. A dedicated group has been established in 2021. One of the mission of this group was to to carry out a report on the greenhouse gas emissions of the laboratory's activities in 2019. This report has been presented during Lamsade day. We participate to the collective Labos1.5 initiative since 2021. A General Assembly of the members of the unit has been devoted to present the proposals of the group concerning specific measures to reduce the greenhouse gas emissions of the unit. To mobilize our research skills on these subjects, a research project has been submitted as a strategic project for the INS2I call for projects. The objective of this project, that has been funded, is to apply techniques from computational social choice and optimization to compare alternative scenarios arising from the implementation of Personal Carbon Trading and Carbon Tax mechanisms in our laboratory. We also contribute to pioneer efforts of Dauphine related to this issue, with members of the laboratory involved in the environmental council of the university. We participate in the mandatory course on this topics for undergraduate students and in organizing invited talks and seminars on this topic.

2. https://www.fondation-inria.fr/projet-chiche/ Chiche

Business continuity plan (D1R3C5)
During the COVID-19 crisis, protective measures were put in place at the Dauphine site with the distribution of masks, etc. A Business Continuity Plan (BCP) and Disaster Recovery Plan (PRA) have been defined. The transition to remote work for the administrative team was easy (most of our administrative staff were already equipped with laptops with an adequate working environment). Digital tablets have been purchased to ensure the continuity of teaching and of scientific exchanges.
We have tried to keep a link between us by adapting our communication (virtual cafes, Teams space dedicated to informal exchanges, slack, etc.). We have tried to continue the organisation of our usual events by adapting to sanitary conditions (LAMSADE 2021 Day online, AG 2021 online, adapted back-to-school pot,..). A periodic follow-up of all the personnel of the unit was carried out to raise the human difficulties and labor difficulties. A survey was carried out by Dauphine doctoral students (including a doctoral student from the laboratory) showing difficulties during the first confinement, the survey was reported to the doctoral school. Finally, an extension of theses has been granted to doctoral students whose thesis has been impacted, via Dauphine and CNRS.

Synthetic self-evaluation

Strong points

- reinforced position in Paris Dauphine-PSL
- scientific policy facilitating the emergence of new topics and the interdisciplinarity
- wealthy financial situation, increased budget
- policy and budget for young researchers
- increase in the number of PhD students
- good parity indicators

Improvement points

- reinforcing the administrative team
- reinforcing the technical team to facilitate the valorization of research prototypes and results
- finding solutions for improving working conditions of PhD students by allocating more offices
- continue to be vigilant about working conditions and collective life during renovation works

Evaluation area 2. Attractiveness

In order to show the attractiveness of the unit, in the following we provide examples to highlight significant achievements without being exhaustive. The full list can be found in the self-assessment document of each team.

Standard 1. The unit has an attractive scientific reputation and contributes to the construction of the European research area.

Conferences Organization (D2R1C1)
During the evaluation period, we participated in the organization of many scientific events. Among these, we list in the following the conferences that we have organized at Dauphine University:

- the 13th European Meeting on Game Theory (SING13), 5-7 July 2017, 200 participants,

- the 15th International conference on Scalable Uncertainty Management, (SUM22), 17-19 october 2020, 50 participants,
- the 86th meeting of the European Working Group “Multiple Criteria Decision Aiding”, September 21-23, 2017, 90 participants.
- IEEE GRSS second workshop on Remote Sensing Data Management Technologies in GeoScience (RSDM-GeoSci), 2022, 50 participants.
- INFORSID national congress (The Informatics of Organizations and Information and Decision Systems, 2019, 100 participants,
- the International conference in memory of Jérôme Monnot, 2021, 50 participants
- the Workshop celebrating Mike Fellows’ DHC in june 2022, 30 participants,
- SPOC’18 ”Machine Learning, Networks and Combinatorial Optimization”, 2018, 75 participants.

We also participate in the organization of periodic events like:

- Workshop D-TEA (2017-2022): Decision: Theory, Experiments and Applications, Paris School of Economics. (click for the web page)
- Online social choice seminar series (click for the web-page).
- Online ComSoc seminar series (click for the webpage)
- IPEC (International Symposium on Parameterized and Exact Computation 2019-2022), ISCO (International symposium on combinatorial optimization 2018-2022), and PACE 2017-2020 as members of the steering committees.

Invitations and mobility

We have been invited to give several keynote talks in

- international conferences: IJCAI 2022 (International Joint Conference on Artificial Intelligence, Vienna, 2022), SUM 2022 (International Conference on Scalable Uncertainty Management, Paris, 2022), ALGO 2022, CLAR 2020 (International Conference on Logic and Argumentation, Hangzhou, China, 2020), ISDA 2020 (International Conference on Intelligent Systems Design and Applications, 2020), IDRiM 2019 (International society for Integrated Disaster Risk Management, Nice, 2019), ICDCIT 2018 (International Conference on Distributed Computing and Internet Technology, Odisha, India, 2018), International Conference on Computational Science and its Applications 2020, International conference on Knowledge Management, Information and Knowledge 2017 (tutorial),
- national conferences: JIAF 2019 (Journées d’Intelligence Artificielle Fondamentale, Toulouse, 2019) , ROADEF 2018 (congrés annuel de le société Française de Recherche Opérationnelle et d’Aide à la Décision, Lorient, 2018),
- workshops: DA2PL 2022 (From Decision Aiding to Preference Learning, Compiegne, 2022), CMSS 2022 (Centre for Mathematical Social Science Summer Workshop, 2022, Auckland), Linz Seminars 2022 (Austria, June 2022), Aggregation across disciplines: connections and frameworks 2021 (Neuville-sur-Oise, 2021), NLJA 2019 (Nonclassical Logics and Judgment Aggregation, Prague, Czech Republic, 2019), INDEPTH 2019 (Institutional Design and Economic Preferences, Saint Etienne, 2019), Knowledge Representation and Collective Decision Making 2019 (Toulouse, 2019), RAMOO 2017 (Recent Advances in Multiobjective Optimization, Kaiserslautern 2017), Logic In Bochum III 2017 (Germany, 2017), DARLIAP@EDBT 2022,
- schools for PhD students: Automne Institut in IA (Porquerolles, 2022), Journées Plénières du GDR IA (2 talks: 2019 and 2022), PhDs in Logic IX 2017 (Ruhr University Bochum, Germany, 2017), Summer School on Game theory and Rationing (Campione d’Italia, 2017), French-Brazilian School on Big Data and Smart Cities in 2017, MCDM Summer School in 2018.

Many of our colleagues have had the opportunity to visit foreign universities during the evaluation period. In the following, we give examples of long visits:

- Jérôme Lang, as winner of one the Humboldt Research Award 2021, has a budget to work in one or several German universities for 12 months,
- Virginie Gabrel, 1 month at RMIT in Melbourne, Australia, European project H2020 (GEOSAFE).
- Clément Royer, three-week visit in the United States (Lehigh University, University of Michigan and Johns Hopkins University) in March 2022, supported by a grant from CNRS INS2I (young researcher project).
- Laurent Gourvès, 2 stays of one week at NTUA (Athens Greece), in 2018 and 2019 (financed by the unit)
- Myriam Merad, International Risk Governance Council (Switzerland, one month)
- Florian Sikora, invited professor in 2018 at the University of Bergame (Italy).

Thanks to our long-standing collaborations with some universities, our colleagues have done shorter visits ranging from a few days to a few weeks. These universities include Bilgi University, Ghent University, Heinrich Heine University Düsseldorf, Technische Universität Berlin, UCL Department of Security and Crime Science, Université Libre de Bruxelles and Université de Mons, Yaounde 1 in Cameroon (projetc funded by CNRS), RMIT University and ANU University in Australia, Université de Nagoya (project funded by CNRS and Sakura programm of MAEDI-JSPS), Polytechnic University of Turin, etc. Some of our colleagues have had the privilege of attending Dagstuhl seminars, a prestigious gathering for researchers in computer science and related fields.
We are we are in the process of setting up a collaboration project with UM6P (Université Mohammed VI Polytechnique Rabat) that will be proposed as a a CNRS International Research Programme (IRP).

Editorial responsibilities
The members of the unit participate in numerous steering committees or have been chairs of conferences like IJCAI (2018 chair), ECAI (General chair 2020), Algorithmic Decision Theory series of conferences, HICSS, ISCRAM International Conference on Information Systems for Crisis Response and Management, International Conference on Smart Cities and Green ICT Systems, National EDA Conference (Data Warehouses and Online Analytics),Track Program (co)-Chair for ”Data and Knowledge Management” in the international conference on Future Internet of Things and Cloud (Prague, 2017), Crisis Management Mini Track and Smart City Mini Track in Hawaii International Conference on System Sciences.

Unit members participate in the program committees of most of the major conferences in their fields: IJCAI, AAMAS, AAAI, STACS, AAMAS, SODA, MFCS, WG, et APPROX, ACL, NAACL, NEURIPS, ICML, IJCAI, AAAI, ICLR, SS-DBM, BPM, ICWS, ICSOC, CoopIS, ICPM, WISE, VLDB, SIGMOD, CIKM, EDBT, ODBASE, BDA, EGC, AISTAT, ICWS.

Unit members have editorial responsibilities:

- Artificial Intelligence: ICGA (International Computer Games Association) Journal, Journal of Argument and Computation, Journal of Autonomous Agents and Multi-agent System
- Decision, Algorithmics and Operations Research: EURO Journal on Decision Pro- cesses; International journal Applied Mathematics and Computation ; International newsletter of MCDM (International Society on Multiple Criteria Decision Making); Operational Research - An International Journal (ORIJ); RAIRO; Operations Research and Theory of Computing Systems, EURO Journal of Decision Processes, Decision Analysis, Journal

of Multicriteria Decision Analysis Games; Journal of Multicriteria Decision Making in Economics & Finance; Mathematical Social Sciences; Social Choice and Welfare; Theory and Decision.

- Combinatorial optimisation, algoritmics: RAIRO - Operations Research (Co-editor in Chief), Computers and Industrial Engineering (Area Editor), Advisory Editor of EURO Journal on Computational Optimization, Theoretical Computer Science (editor of TCS-A track), Foundations of Computing and Decision Sciences, *Annals of Combinatorics*, Journal of Optimization Theory and Applications, Journal of Project Management (Growing Science), Journal of Industrial Engineering (Hindawi), guest editors of special issues (of *Discrete Applied Mathematics*, *Annals of Operations Research*, *Journal of combinatorial Optimization*, etc).
- Data science: MethodsX (Elsevier), Data in Brief (Elsevier), Data journal (MDPI), Big Data and Cognitive Computing (MDPI)
- Simulation and environment: Biological Invasions; Environment, systems and Decisions journal; Journal of Artificial Society and Social Simulation.
- National journals: Rédaction de Botanique; Revue scientifique pour la biodiversité du Massif central.

Steering body for research and scientific expertise (D2R1C4-C5)
At national level, we participated in CNU (5 members), HCERES, project evaluations for ANR, ANRT, ECOS nord programm.
Colleagues served on the board of Roadef (Société Française de Recherche Opérationnelle et d'Aide à la Décision), (click for the web page), of the Society for Social Choice and Welfare (click for the web page) and GDR MADICS.
Jamal Atif is project manager (chargé de mission) "Data Science and Artificial Intelligence" at INS2I CNRS. He was co-moderator and main writer of the national report GENIAL-Allistene, involved in the animation of the Allistene Cloud AI working group, member of the board of "France is AI". He is also Director of the Dauphine Numérique program of Paris Dauphine University-PSL and Deputy Scientific Director of the 3IA PR[AI]RIE.
At the european level, we are involved in evaluating projects for H2020, FNRS (Belguim), FNRS (Luxembourg), Polish Academy of Sciences. As an example at the international level, Khalid Belhajjame is coordinator of the IEEE GRSS Database Working Group on Teledection Data Management.

Awards and Recognition (D2R1C6)
During the period, members of the unit received several national and international awards:

- Jérôme Lang has received the Humboldt Research Award in 2020, (click for the web page).
- Eunjung Kim received the CNRS bronze medal and Jérôme Lang has received the CNRS silver medal and in 2017,
- two junior and two senior chairs awarded from PaRis Artificial Intelligence Research InstitutE (PR[AI]RIE) (Clément Royer, Florian Yger, Tristan Cazenave, Jerome Lang)
- Best paper awards
  - Outstanding Paper Award at the prestigious international conference AAAI in 2022 for Jamal Atif and Virginie Do and their co-authors for their work on online certification of preference-based fairness for personalized recommender systems
  - The article "S.Airiau, H. Aziz, I. Caragiannis, J. Kruger, J. Lang, and D. Peters, Portioning Using Ordinal Preferences: Fairness and Efficiency. In Proceedings of the

Twenty-Eighth International Joint Conference on Artificial Intelligence, IJCAI 2019" ([1]) has received the Honorable Mention at IJCAI 2019, (click for the web page).

- Most Reproducible Paper Award at VLDB in 2022 for Dario Colazzo and his co-authors for their work on witness generation for json schema,
- Paul Beaujean got the prize of the best student paper at the conference COCOA 2018 for the paper: Cristina Bazgan, Paul Beaujean, Éric Gourdin, Relaxation and Matrix Randomized Rounding for the Maximum Spectral Subgraph Problem, COCOA 2018, pp. 108-122 [2].
- The article "Nicolo Bertrani, Abdellah Boukhatem, Enrico Diecidue, Patrice Perny and Paolo Viappiani, Fast and Simple Adaptive Elicitations: Experimental Test for Probability Weighting, 2021" has received the 2021 DAS Student Paper Award by the Decision Analysis Society INFORMS.
- Best Paper Award at the national conference BDA in 2020 for Dario Colazzo and his co-authors for their work on witness generation for json schema

- Competitions/challenges:
  - Tristan Cazenave and Quentin Cohen Solal have received many gold medals in Computer Olympiads 2020, 2021, 2022 (click for the web page): 6 gold medals in 2022 (games: Ataxx, Breakthrough, Draughts Canadien, Draughts International, Santorini, Surakarta) ; 11 gold medals in 2021 (Amazons, Breakthrough, Bresilian Checkers, Canadian Checkers Dames canadiennes, Hex 11, Hex 13, Hex 19, Havannah 8, Havannah 10, Othello, Surakarta,) and 5 gold medals in 2020.
  - Winner of the best score for motion prediction at the Clinical BCI Challenge of IEEE WCCI in 2020 for Florian Yger and his team

- PhD Thesis and doctoral students awards:
  - The PhD thesis of Anaëlle Wilczynski supervised by Laurent Gourvès and Julien Lesca, defended in 2019, received the following distinctions: Thesis prize AI 2019 (ex aequo) from the French Association for Artificial Intelligence (AFIA), Young researcher award 2019 from Fondation Dauphine and Accuracy, Honorable mention of the dissertation prize "Artificial Intelligence, Data Sciences and Interfaces" from PSL and ADELI
  - The DGA thesis prize for Anne Morvan for her work in sketching
  - Best Scientific Poster Award at Dauphine Digital Days in 2022 to Virginie Do for her work on "Optimizing generalized Gini indices for fairness in rankings"

Standard 2. The unit is attractive for the quality of its staff hosting policy

Doctoral students

Follow-up of doctoral students is carried out by the computer science programm of the Doctoral School SDOSE (https://edd.dauphine.fr/).

Starting with 2022, we organize a welcome meeting. However, as doctoral students start their PhD at different moments (delays related to visa, ANRT acceptance results, ..), the information for new PHD students should be available at any moment. The responsible of the CS doctoral program keeps a web page (link) containing all the information (administrative procedures, required courses, coming meetings and talks). A seminar is organized for doctoral students where students in second year are invited to present their work in front of all the other students (advisors and permanent researchers are welcomed). The seminar is organized in hybrid mode on Thursday and has an associated Teams group and mailing list. This seminar is also an opportunity to informally discuss among all the students (a coffee time is included).

The organization of the CSI (thesis monitoring committees) has been discussed several times in the unit council, with useful feedback and suggestions from the doctoral students (presented by the student member of the council). Doctoral students have a mandatory course on ethics and scientific integrity. They are strongly encouraged to attend a summer school (paid for by the young researchers fund), and to attend seminars. It is worth noting that each of our invited professors gives at least one seminar that is open to students. In some cases, they may also offer tutorials, mini-courses, or even full-length courses as part of their visit.
New PHD students are invited to give short presentation ("My thesis in 3 minutes") during LAMSADE day, as an opportunity to present themselves to all the colleagues. Recently, our students presented posters during Dauphine Digital Days.

Junior and senior researchers

In order to improve reception and integration, Dauphine organizes a welcome day for new researchers. A 2-day pedagogical training seminar is also organized for new colleagues.
Since 2017, 3 CR CNRS, 1 DR CNRS, 2 professors, 4 associated professors joined the unit, that shows that the unit is able to attract talented researchers. Most of these new colleagues have an international experience. The new colleagues are invited to give a talk during LAMSADE Day, in addition to talks organized by the hosting team. They are encouraged to submit a proposal for the call for projects targeted to young researchers (INS2I unique call or Dauphine call) as an opportunity to propose an integration project that is discussed in details with the other colleagues. (All new colleagues had their proposal accepted). Our new junior researchers actively take part of the life of the unit short time after their arrival. Examples of responsibilities in which new colleagues are involved are: communication, environment initiatives (labo 1.5), members of the CCR. Moreover, we propose also to CNRS researchers to participate in teaching activities. Senior researchers are systematically involved in administrative tasks.
All new members can benefit from the following facilities:

- The budget for young researchers presented in section 3.1 funding missions, visits, etc (30k)
- Foreign students and researchers can receive assistance from the PSL welcome desk.

Renown visiting researchers (D2.R2.C3)

In the last 6 years, we had about 15 one month-positions of invited professors per year. As a result, around 80 researchers visited the unit during the period. Proposals for invited researchers from all the permanent members are discussed in the CCR. Shorter visits are organized around conferences participation or projects collaborations (funded by the unit or, respectively by projects). The origins of our visitors are diverse: mainly from Europe (England, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal), but also from all around the world (Australia, Cameroon, Israel, Japan, Tunisia, Turkey, USA). These visit result often in joint publications, as illustrated by Figure 10, which shows our international collaborations (countries from which depend the scientific structures of the co-authors of LAMSADE publications).
Some examples of well-known researchers are:

- Nelson MACULAN, who received the title of Honorary Doctor of Dauphine in 2022
- Mike Fellows, who received the title of Honorary Doctor of Dauphine in 2022. A workshop for this celebration has been also organized attracting 50 participants.
- Christos Papadimitriou, who visited us in the context of the International Scientific Day (may 2019) to celebrate 50 years of Dauphine, where he was one of 6 speakers representing the major research domains of Dauphine. (C. Papadimitriou is also a Honorary Doctor of Dauphine 2015). Another talk, for the computer science community, has been organized during his visit.
- Warren Hare (University of British Columbia, Canada) who prolonged his one month invited professor position for a 3 months visit (October-December 2022) during his sabbatical leaf.

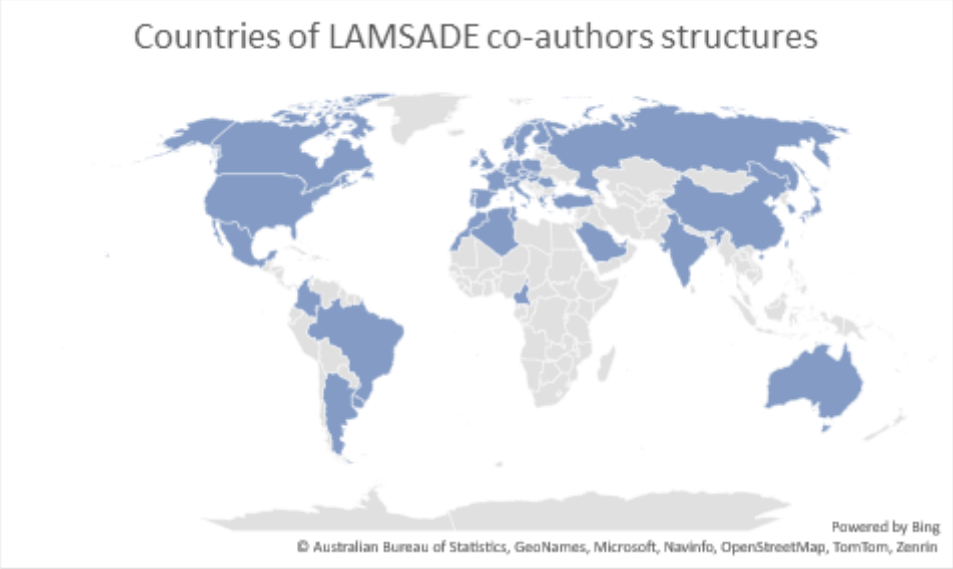

FIGURE 10 – Countries on which the scientific structures of the co-authors of LAMSADE publications depend (HAL field: structCountry_s).

Open science (D2.R2.C4)
In order to make colleagues aware of the challenges of open access to publications and research data, we hosted several workshops in the laboratory organized by the Dauphine library on open science (as part of Dauphine Open Access week 2019 and 2021, breakfast event in February 2023). A member of our team is actively involved in the Open Science working group at Dauphine, which has produced a comprehensive roadmap.
The members of the unit are strongly encouraged to put their publications on HAL (including the pdf). All of those publications constitute the official HAL collection of the laboratory (https://hal.science/LAMSADE-DAUPHINE) which brings together all the documents deposited by its members with the affiliation of the laboratory (HAL affiliation code: 989). The management of the collection at the moment is carried out by the vice-directory of the laboratory, which deals with the supervision and the eventual elimination or addition of documents deposited with incorrect affiliation. The collection manager periodically takes care, towards the end of the academic year, of sending email to the members of the laboratory with instructions for the correct deposit of their documents in the HAL collection.

The members of the unit also massively use electronic repositories such as arXiv to allow early dissemination of their work. The prototypes' code associated with the research proposal follows the FAIR principles and is made publicly available on repositories, as required by renown conferences and journals.

The laboratory does not use its budget to cover the expense of publishing in "gold" journals (where authors pay fees). Only research projects are eligible to cover these costs. Furthermore the authors are encouraged to retain copyright rights for their productions.
The Research Support service of the library provides an expertise on the quality of publication supports, and can perform on request the necessary checks to make sure journals or conferences are not predatory. Tools to make these checks are also available on the library website (link). UPD also provides financial support to diamond journals (Open Edition, EDP Sciences) and to trusted infrastructures via COUPERIN (DOAJ initially).

Given that the assessment of researchers is seen as a significant obstacle to the adoption of

open science practices, UPD and CNRS have endorsed the DORA declaration. Accordingly, we are committed to implementing the DORA principles in our recruitment procedures. Furthermore, we have made a valuable contribution to this area by our research work demonstrating the limitations of certain bibliometric indicators.

Scientific integrity
Juliette Rouchier represents the laboratory in the Dauphine Research Ethics Committee. This committee can be consulted on various issues related to scientific integrity and in particular, for the validation of research projects involving the use or collection of data on human subjects (that can be required for a project to be funded or published).

Standard 3. The unit is attractive because of the recognition gained through its success in competitive calls for projects.

Our own resources represent 83% of our total budget. The figure 7 gives the repartition of our own resources in 5 big categories: the national contracts (ANR, FUI...) represent 41%, contracts of PIA type represent 37%, the contracts with the socio-economic actors represent 18%, and finally the european and international contracts represent 3% and contrats finan ced by associations and foundations represent 1%.
The unit obtained 3 international contracts, 2 european projects, 14 ANR projects (4 coordinated by us). Concerning the collaboration with socio-economic actors, we obtained 18 ‘CIFRE’ contracts, 4 PRESTATION & EXPERTISE, 5 ‘CONTRATS R&D’.
In the category of PIA contracts, 4 members have obtained a chair of PR[AI]RIE 3IA institute. Another young colleague was one of the four recipients of the PSL grant for young teams (150k€).
Through our resources we recruited during the period 15 new postodcs.
The unit is active in the PEPR Cybersecurity, Digital Health, and AI initiatives and Hydrogen (coordinates AIDHY project). In this context, we plan to hire an administrative person to help in the management of the budget.

Standard 4. The unit is attractive for the quality of its major equipment and technological skills.

The Lamsade’s technical infrastructure includes:

- 4 servers dedicated to providing internal laboratory services such as DNS, firewall, LDAP, printing, NFS, GitLab, Nextcloud, Hadoop cluster, backups, Ceph cluster, DRBD redundancy, and more;
- 12 servers that utilize central processing units (CPUs) for various computational purposes;
- 8 servers that utilize graphical processing units (GPUs) for specialized calculations, mainly machine learning tasks;
- additionally, there are several small, low-power devices using ARM processors used for various backup and emergency access purposes. These devices also provide server administration and IDrac (integrated Dell Remote Access Controller) functionality when IPMI (Intelligent Platform Management Interface) is not available.

The evolution of the cluster infrastructure is ensured very regularly thanks to various funding sources (ANR, MIDO department, own credits, etc.).
The computing cluster is used by members of the laboratory and occasionally by colleagues from other Dauphine research units that have specific projects. It is also opened to students of IASD masters for practical lessons on data science.
Access to external supercomputing resources. After initial numerical tests conclusive on the laboratory cluster, researchers who wish to carry out very large simulations have the ability

to scale up and use high performance calculators outside the laboratory. LAMSADE researchers frequently use the resources made available by GENCI, whose mission is to promote the use of supercomputing associated with Artificial Intelligence for the benefit of the academic and industrial research communities, at national and European level.
The IT department of the unit is composed by a single engineer, responsible for two missions: management of the infrastructure systems composed of information systems and the computer network on the one hand, and support for using the cluster on the other hand. The IT department is undersized compared to the activity of the unit and its infrastructure.

Synthetic self-evaluation

Strong points

- 4 chairs IA, 2 CNRS medals (2017), 1 Humboldt Research Award
- hosting many well-known visiting researchers
- welcome policy for young researchers
- very good results in national calls for projects
- 8 scientific events organized at Dauphine
- scientific reputation recognized through editorial responsibilities and program committees

Improvement points

- increase our presence in European calls for projects
- reinforce the welcoming policy and actions towards doctoral students
- reinforce the technical team composed of a single computer science engineer.

Evaluation area 3. Scientific production

At the time of reporting, the LAMSADE's HAL collection https://hal.science/LAMSADE-DAUPHINE contains 1070 documents signed by at least one of its members. The overall distribution among categories are presented in the pie chart of Figure 11.
About 84% of the documents in the collection are journal articles (410), communications in a conference (417) and book chapters (62). On the same period, LAMSADES's members have also participated to the writing of books (15), proceedings or collections (14), preprints (87) and reports (11), other kind of documents (10) and 46 thesis have been deposited in LAMSADE's HAL collection by LAMSADE's PhD students.
As shown in Table 3.1, over the evaluation period 2017-2022, LAMSADE's members have published 889 articles in international journals, communications in a conference and book chapters, i.e. 148.2 publications per year. Figure 12 shows a relatively consistent production from one year to the next and despite the impact of COVID in 2020 and 2021 production.

n. of publications (journal articles, communications in conferences and book chapters)	n. of conference proceedings of rank A and A* (CORE)	average number of authors per publications	number of papers involving PHD students	Number of papers involving at least two poles	number of documents per year
889	132	3.7	242	72	148.2

Publications reflect collaborative works with an average of 3.7 authors per publication. Countries from which depend the scientific structures of the co-authors of LAMSADE publications are shown in Figure 10.
See Figures 13 and 14 for an example of most targeted publication venues.

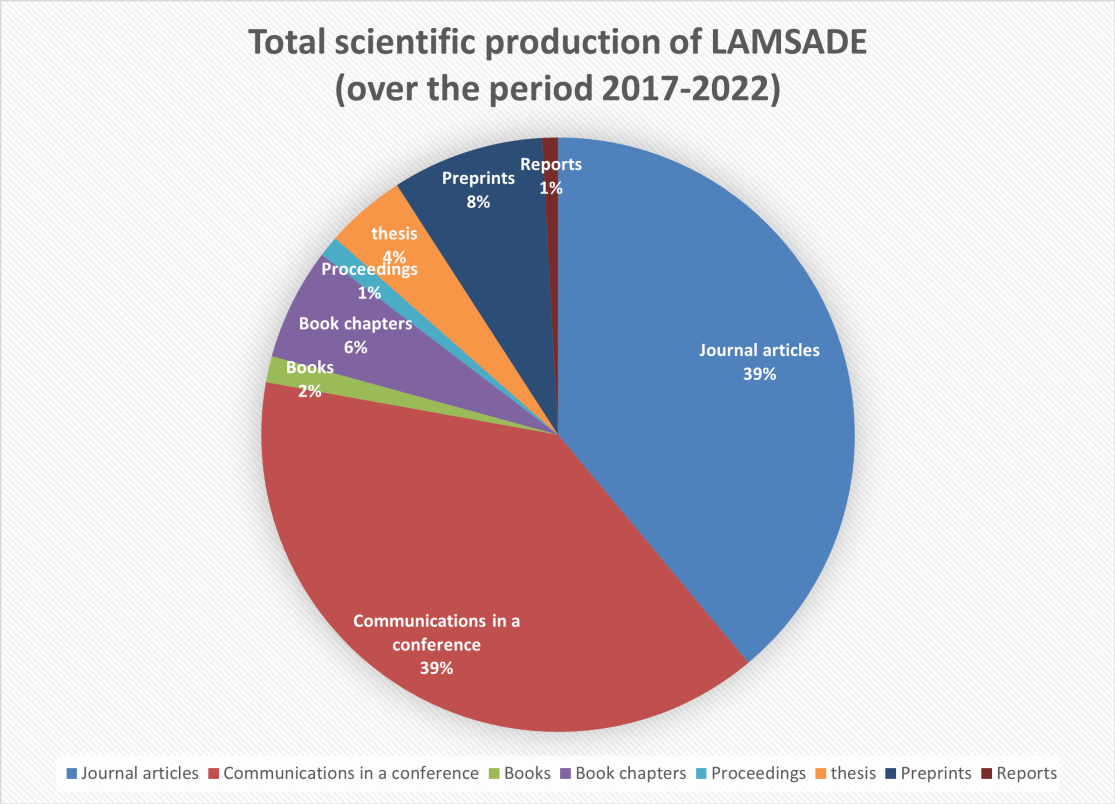

FIGURE 11 – Overall scientific production of LAMSADE during the evaluation period (HAL collection LAMSADE-DAUPHINE).

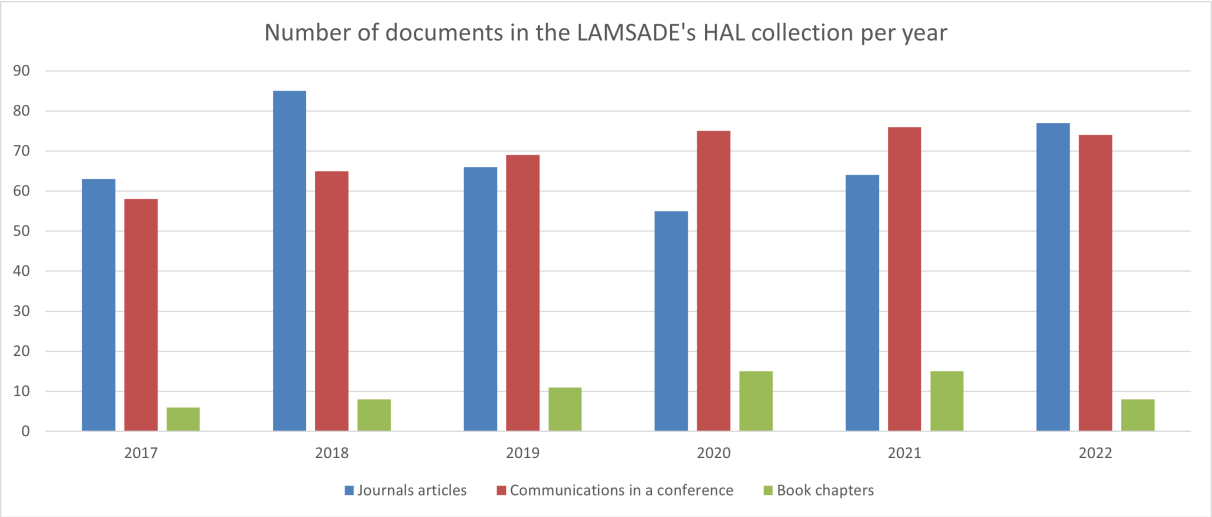

FIGURE 12 – Scientific production of LAMSADE during the evaluation period (journal articles, communications in conferences and book chapters; total number 889 documents).

Standard 1. The scientific production of the unit meets quality criteria.

The laboratory's scientific output has a constant significant impact on the national and international level, particularly in the areas of artificial intelligence, applied mathematics, economics, and decision sciences. This is evidenced by the laboratory members' frequent publication in

high-quality journals and conferences. Figure 13 indicates that the journals which published multiple articles during the evaluation period (at least 4 articles published between 2017 and 2022) are mainly ranked in the Q1 and Q2 quartiles according to the Scimago Journal & Country Rank (SJR) rankings in the main areas of Applied mathematics, Computer science, Social Science, Artificial intelligence, and Decision sciences, as well as in Industrial and Manufacturing, Economics and econometrics, which further confirms the laboratory's strong multidisciplinary focus.

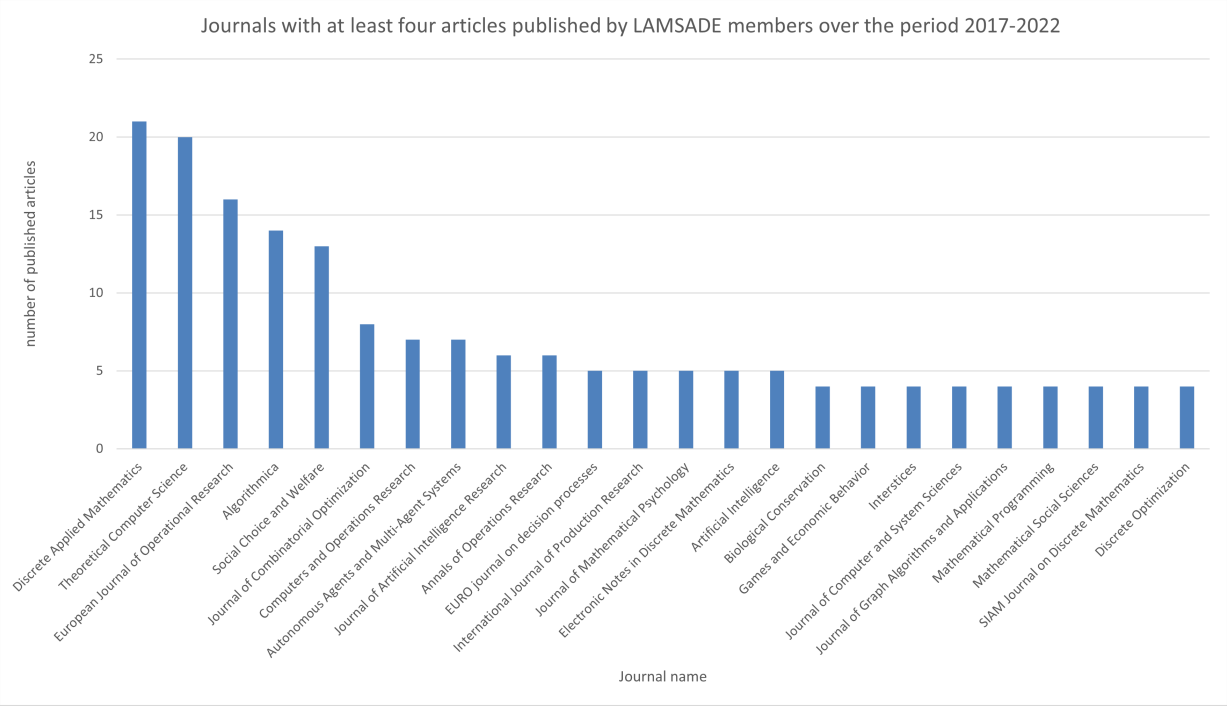

FIGURE 13 – Journals with at least 4 articles published by members of LAMSADE.

Another indication of the laboratory's excellent scientific output is the frequent participation of its members in highly selective international conferences to present their research findings. Figure 14 shows the presence of the laboratory's publications in Class A and A* conferences listed by CORE, with at least 3 publications on proceedings in the evaluation period. In total, approximately one third of the 417 documents present in the 'Communications in conferences' section of the HAL database correspond to publications on proceedings of rank A or A* conferences, according to CORE's classification.
In addition to our portfolios, a few examples of the laboratory's significant contributions to various fields through its research findings are the following:

- the monograph on Mathematical Foundations of Game Theory, Springer [5]
- the establishment of the Erdös-Pósa property for holes, thus resolving a major open question [3, 4]
- an original theoretical framework combining game theory, statistical learning theory and information theory to derive strong theoretical results on the nature of equilibria between attackers and defenders in machine learning ([6] ICML 2020).

Standard 2. Scientific production is proportionate to the research potential of the unit and shared out between its personnel.

Over the evaluation period 2017-2022, more than 75% of laboratory members signed (or co-signed) at least 8 publications (among journal articles, communications in conferences and

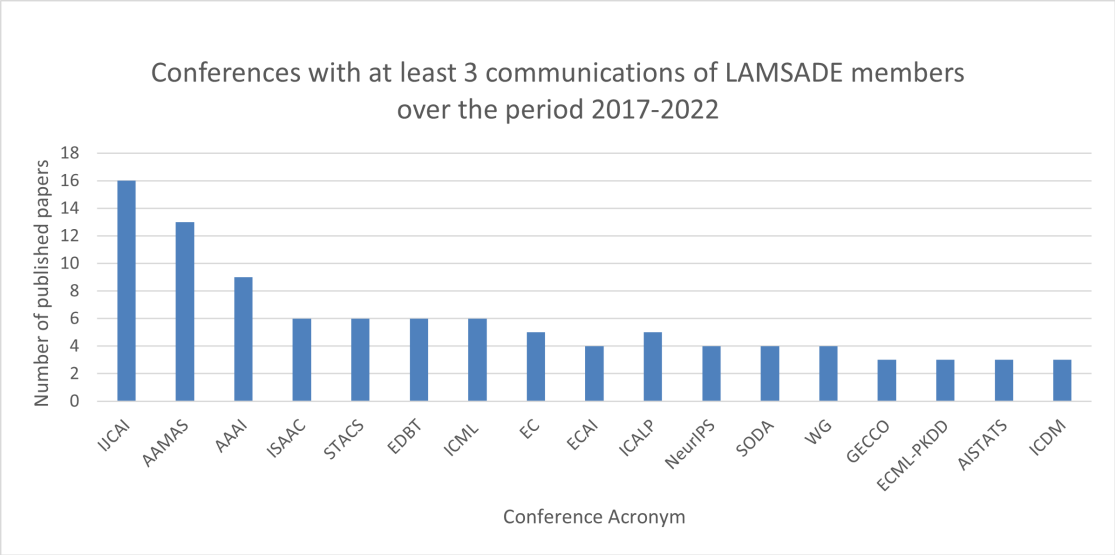

FIGURE 14 – Conferences proceedings with at least 3 papers published by members of LAMSADE in A or A* conferences (CORE).

book chapters) and more than 25% of its members at least 28 documents, with an average of 19 publications per member over the evaluation period (we considered for the calculations only those permanent 55 members who spent at least two years at LAMSADE over the period 2017-2022).
LAMSADE is also characterized by a relevant level of interactions among its research members, even from different poles. About 8% of the publications are realized within the framework of collaborations of members from at least two distinct poles (see Figure 15 for a detailed picture of the publications involving members from different poles).
LAMSADE is also deeply concerned by policies aimed at stimulating the scientific production of PhD students. The 27% of LAMSADE's publications (in journals, communications in a conference or book chapters) involve at least one PhD student of the laboratory. 81 PhD students of the LAMSADE over the evaluation period have at least one of their publications in the HAL as journal article, a communications in a conference or a book chapter, for an average of 3.3 publications per PhD student; so far, 46 PhD students have deposited in HAL their PhD thesis.
Since many years, our laboratory have established an incentive program designed to encourage publication among young colleagues, including doctoral students, Post-Docs, and newly recruited colleagues with less than two years of experience. This program was put in place to prevent these young colleagues from getting stuck in the search for funding and contract management, instead of focusing on their research activities. The goal of the program is to keep young researchers engaged in fundamental research, especially during their most creative period. The program is supported by a Young Researchers Fund with a budget of approximately 30,000 euros per year, mostly funded by the '*Bonus-Qualité-Recherche*' BQR of Paris Dauphine. The fund is managed autonomously by three LAMSADE members from the three poles, with clearly defined procedures. Priority is given to missions funded from the Young Researchers budget that result in publication, following a selective acceptance process. Up to one or two missions without publication, for a reasonable total amount, can also be supported. These missions typically focus on encouraging new collaborations and better integration into each researcher's disciplinary community. Until February 2020, before the health crisis, and since 2022 again, after its conclusion, the program had been highly successful, with a significant volume of high-quality publications in leading international journals and selective conferences signed by LAMSADE's PhD students.

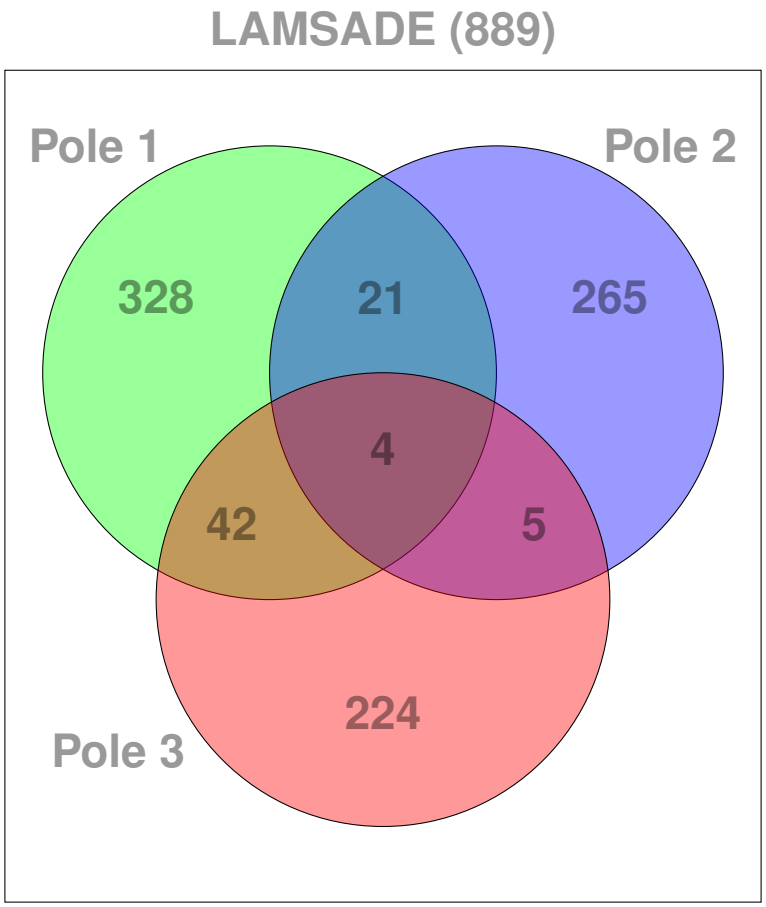

FIGURE 15 – Scientific productions of LAMSADE's poles over the total of 889 documents in the HAL database (journals, communications in a conference, book chapters).

The advancement of Ph.D. students is carefully analyzed by the CSI (composed of members of the unit), which recommends actions for concreting publications and warns the direction in case of difficulties. Colleagues finishing a period of heavy teaching administrative tasks or coming back from a parental leave are supported in requesting a sabbatical leave or CNRS delegation. Our policy of funding internships and visits in foreign universities can also help in starting new research directions and collaborations.

Standard 3. The scientific production of the unit respects the principles of scientific integrity, ethics and open science. It complies with the applicable guidelines in this field.

The policy of the unit concerning open science and scientifc integrity is described in Evaluation area 2, Reference 2 (section 3.1, D2.R2.C4).
The unit has a HAL collection (https://hal.science/LAMSADE-DAUPHINE). Among the 889 documents in this collection in the categories journal articles, communications in conferences and book chapters, 656 are Open Access (so, 3 papers out of 4). The code of the prototypes accompanying the research proposals are made available on public repositories following the FAIR principles. The unit has a github https://git.lamsade.fr/ allowing to archive source codes, that is used mainly for internal projects.

Synthetic self-evaluation

Strong points

— Homogeneous publications level between teams

— Publications in high quality venues

— Student supervision activities resulting in a high number of publications involving PhD students

Improvement points

— Continue supporting unit members via personalized mentoring and follow-up

Evaluation area 4. Contribution of Research Activities to Society

Standard 1. The unit stands out by the quality and quantity of its non-academic interactions.

Relations and partnership relations with the economic, social and health worlds.
In the evaluation period, we have started 18 new CIFRE contracts and 5 collaboration contracts with non academic partners (EDF, SNCF, LogPickr, Adway, SHDFS).
Members of the unit have sustained relations with the economic, social and health worlds, as well as long-term partnership relations with large groups, small groups and start-ups:

— Projects with economic and social world: Convention with the Ministry of Sustainable Development (Crisis managment unit) on the Decision support in critical situations, Convention with IRSN (Institut de Radioprotection et de Sûreté Nucléaire) on decision support for the managment of a major nuclear issue in a sea context, Project *France Relance* of postdoc funding with the Logpickr startup (currently part of iGraphx) (2021-2022), Project on ”Aggregative research using external sources” and ”Reading recommendation” with Credit Agricole CIB (CACIB), Collaboration with Emvista a stratup specialized on NLP, collaboration with Prison Insider ONG.

— Projects with health world: Participation to the ANR Deep Integromics on health and collaboration in this framework with practitioners of the APHP, partnership with CHU Lyon on research evaluation support for medical diagnostic support META-Conseil, colaboration witj Italian National Cancer Institute and the French National Authority for Health.

— Research collaborations: with the consulting companies ADWay and Square, Senior consultant (one member) in evolutionary optimization and learning in the R&D team of InstaDeep, a multinational startup company specialized in Artificial Intelligence.

In these collaborations with non academic actors we address societal challenges like managing environmental risks, improving participation in public decisions, voting methods, trustworthy AI, using AI methods for medicine, as well as technological challenges like optimization of networks, of processes, massive data integration challenges. Some examples of addressed topics, illustrating these challenges, are:

— developing algorithms for walk of exoskeletons dedicated to the rehabilitation of paraplegic patients (CIFRE thesis with Wandercraft)

— developing models to predict the onset of certain diseases based on patient metagenomes (ANR Deep Integromics)

— fairness in recommender systems (CIFRE with Meta)

— calculating a prison life index (multi disciplinary partnerships with NGO Prison Insider).

Platforms developed or shared or used by the external actors
Lamsade is one of the founder of Decision Deck platform (click for the web page) which collaboratively develops Open Source software tools to support the Multi-Criteria Decision Aiding (MCDA) process by developing multiple software resources that are able to interact. Its purpose is to provide effective tools for consultants, students and teachers. Two of our members are active members of the project, they are also in the board of Decision Deck.

Staff exchange with non-academic structures (D2.R1.C4)

In the context of France Relance R&D plan, the unit had one project with the startup Logpickr (now part of igraphx) funding a postdoc for one year. One of our colleagues chose also to work for 2 years in the R&D in a private company (”disponibilité” leave).

PhD students funded by non-academic partners (D2.R1.C5)

During the reference period, we had 29 CIFRE theses and two thesis financed by industries. Our partners are:

— AFPCNT, Alten SA, Caisse des Depots Groupe, Naval Group Research, NOKIA, Prison Insider NGO, VINCI Energies (Decision Aiding Team),

— Decision Brain, Orange Lab (4 thesis), ADIAS, Huawei, mainly on on optimization in communication networks (Team 2),

— META (Facebook), Google Brain, Foxstream, TalentSoft, SAP, Air France, Criteo, Coheris, STmicroelectronics, Wavestone, Huawei, and Wandercraft (Data science team)

The management at LAMSADE is striving to enhance the value of the CIFRE system’s theses by encouraging PhD students to participate to public conferences that focus on the impact of artificial intelligence on society. These conferences encompass a wide range of topics including the effects of AI on health, finance, media, platform regulation, and ethics. As an instance of such events, Dauphine Digital Days took place in November 2022, where over 1,000 individuals, including 40 global experts, convened to discuss the technical underpinnings of AI and machine learning and their application in economics and social sciences. A poster presentation on ”Optimizing generalized Gini indices for fairness in rankings” by Virginie Do, a doctoral student in computer science at LAMSADE, earned her an award. The poster tackled the theme of ”Equity in statistical learning: the perspectives of social choice” and was conducted within the framework of her CIFRE thesis at the company Meta AI (Facebook AI Research).

Executive training for non academic actors (D2.R1.C6)

Unit responded promptly to the need of training programms for non academic actors related to recent develoments in the field of data science by opening a first Data Science Certificate in the previous period. In the evaluation period, more executive programs have been opened:

— Executive Master IASD (Artifical Intelligence and Data Science)

— Chef de projet IA pour les ingénieurs automobiles, developed in partnership with the Society of Automotive Engineers (managed by Dauphine, Mines et PR[AI]RIE)

— Data/AI product owner for Société Générale (managed by Dauphine, Mines et PR[AI]RIE)

— Data protection officer (we participated at its creation together with lawyer colleagues from CR2D)

Standard 2. The unit develops products for the cultural, economic and social world.

A patent resulted from a collaboration in a CIFRE thesis: ”Parameter learning processes of a neural network for the generation of a trajectory of an exoskeleton and movement of the skeleton”

Another example of valorization is the attempt to make PhD students aware of the importance to deposit the code produced during their thesis work into internationally recognized open source repositories together with an adequate documentation, as in the case of the R package socialranking related to a research project of a Felix Fritz of Team 1 and whose version 1.0.0

has recently been accepted by the CRAN repository.

FlauBERT is one of the first large scale language model dedicated to French, and the first as an open science project: every step is shared, from the data collection and pre-processing to how to use such kind of model. This resource is publicly available and its purpose is to offer a powerful tool for researchers (in computer science or linguistic) and beyond to startups.

To show our efforts for the valorization of our research, we can mention two projects that have been submitted for valorization calls, but that have not been funded: a prematuration project submitted to the INS2I valorization cell in 2022 (PMAP project) and another project (RASTA) for the prematuration project call 2018 of PSL.

Startups
We collaborate with Dauphine Incubator to offer our support for the creation of companies. Célibe Beji, in the continuation of her PHD thesis, started a startup creation project. Her projet MyTreatment has been selected for funding (10 000€). It was one of the 4 projects selected among around thirty applications for the first edition of the Zeugma Competition, the competition of the 8 Île-de-France Nuggets which combines research and entrepreneurship.

Disseminates of results to actors in the social, economic and cultural world
One member coordinates and participates in the thematic lecture series on emerging topics for the Dauphine Digital Partner Circle.
Members have taken various initiatives for vulgarisation, such as organizing a national competition for the best industrial project in OR/AD, publishing the Roadef newsletter or being on the editorial board of Interstices (online journal of INRIA) or International newsletter of MCDM (International Society on Multiple Criteria Decision Making).

Standardisation, norms and guides
Khalid Belhajjame is member of the working group on Knowledge Graph Construction of W3C community.
Myriam Merad is actively engaged in the development of practical guides and methodologies to support decision-making and risk management in different contexts. For instance, to accompany the National Plan for the Management of Radioactive Materials and Wastes (PNGMDR) or to accompany the development of a methodology for prioritizing biological and chemical hazards in foodstuffs (for Anses) or to assess the risks associated with establishing a monitoring program for waters intended for human consumption.

Expertise or recommendations to social actors
The following researchers have given advice to governmental services or associations:

- Jérôme Lang is a co-author of two reports for the think tank Terra Nova: one on the effect of proportional representation for the French legislative elections (for which he was received at Elysée by some advisors of the President) and one on the citizen initiative referendum.
- Rida Laraki is member of the Association Mieux Voter, which gave advice to LaPrimaire.org and to the Paris municipality.
- Myriam Merad provides her expetise on risk to the Ministry of Defense, the Ministry of Environment, UNFCCC, UNDRR, SNCF, Edf RetD, ANSES, Santé Public France, EdF CEA, Alten SA, and Vinci Energies.

Standard 3. The team shares its knowledge with the general public and takes part in debates in society.

As an unit in the field of AI, we are regularly solicited to participate in public debates on hot topics related to AI and critical DA problems. More generally, our research work on different topics, even more theoretical, attracts attention of media.

Tristan Cazenave shared insights on both general aspects of AI and its specific applications in board games in over twenty interventions. He contributed to a wide range of media outlets, including newspapers like Le Monde and Le Figaro, radio stations such as France Info and France Inter, TV networks such as BFMTV, and specialized journals like New Scientist and the CNRS journal.
Myriam Merad is a well-known expert in the field of risk prevention and governance, lending her insights to various media outlets. She has made appearances on TV channels like France 5, as well as on radio programs such as France Culture and RFI.

We are particularly proud about one of our PhD students communications. Théo Delemazure published an article in the Political Newsletter of Liberation and on www.causette.fr (click for the web page) about the speaking time of our deputies, a study based on statistics (male deputies would speak 40% more than female ones). But, his more visible communications are about "De gauche ou de droite" platform, whose success story and its amazing media coverage is related in the blog of the author link.

The Prison Life Index has been promoted in various media channels. Among other journal articles or youtube videos (Dalloz, Le progrès, Le Poste, Media Cité), see for instance an article in the journal "Le Monde" (click for the article) or this intervention on France3 tv channel: (click for the video).

RASTA (Recognizing Art Style Automatically in painting with deep learning), the implemenation of a scientific publication presented in ACML'17, has been the object of two communications: in "Science et avenir" (26/10/2017) (link), and Artension no.152 (link).

Four members were involved in the podcast *Ex-Machina* created by *Dauphine Numérique*. This podcast develops a scientific discussion between researchers from Dauphine Université about the impact of AI and algorithm on our lives, the society and the future. After a first season with more than 10 000 listeners, the awarded podcast has started a second season. We participated to the following programs (included in the portfolio of Data Science team):

- Ethics and algorithm: How to keep the control on AI systems ;
- AI and History;
- Art & AI: Robots, "draw me a sheep";
- Algorithms get the power, what is the impact of the democracy ?;
- AI: the humans workers behind the machines ?

More arid topics like theoretical computer science, can still be vulgarized via funny applications. A member of Pôle 2, F. Sikora has written "The shortest way to visit all metro lines in Paris", seen in the magazines *Sciences et Avenir* and *Ça m'intéresse!*, mentionned on the radio (France Inter) and in an article of *Interstices.info*. The topic has been also made accessible to a large public during the Forum "La recherche, Sciences et Avenir" in La cite des Sciences, Paris (2017).

We can also cite articles of popularization of science: an article about data integration in "Big data à decouvert" volume edited by CNRS and about theoretical computer science topics addresed by Jérôme Monnot (a tribute to Jérôme Monnotpublished in the journal *1024* of the *Société Informatique de France*.

A nice vulgarisation of research done in our unit has been synthesised in 6 articles of the volume [3] "50 years of Research in Dauphine: Yesterday, Today and tomorrow", published in 2020.

We are also involved in programs targeting elementary and high school pupils:

- "Chiche!" program [4], whose aim is to put secondary school pupils in contact with researchers in order to learn about digital technology.
- DECLIC (Dialogues Between Researchers and High School Students to Get Them Interested in the Construction of Knowledge).
- "Samedi des lycéens" organized by Dauphine (in order to answer questions about our training programs to students that want to join our university)

As presented in the portfolio of Decison aiding team Juliette Rouchier has created a game called "Pollution Solutions" and used it with middle school students.

Synthetic self-evaluation

Strong points

- more visibility in media compared with previous period
- more implication in societal debates and more societal impact (see the experimentation and use of voting methods presented in the portfolio)

Improvement points

- Reinforce valorization and transfer actions

3.2 Teams self-evaluation

The three teams of the units are the subject of separate documents following the plan suggested by HCERES ST6.

3. https://dauphine.psl.eu/fileadmin/images/WI/fichiers/50-ans-recherche-a-dauphine.pdf
4. https://www.fondation-inria.fr/projet-chiche/ Chiche

4 UNIT TRAJECTORY

LAMSADE is the Computer Science research unit of the Université Paris Dauphine. It was created in 1974 and obtained the labelization from CNRS in 1976. This institutional configuration remained unchanged, with the difference that Paris Dauphine is now part of PSL university.

The original research themes of LAMSADE were operations research and decision sciences and, more specifically, multiple criteria decision aiding. The unit has broadened its research themes to include theoretical computer science and, more recently, data sciences, while still keeping its original identity as a research unit focused on Decision Sciences and Technology.

The research conducted within the LAMSADE aims at approaching the problem of improving both decision making and decision support (aiding to decision making) taking into account the axiomatic, algorithmic and pragmatic dimensions of these topics.

The axiomatic dimension includes research on the foundations of decision models, preference models, learning procedures, optimisation techniques, reasoning formalisms, formal languages (from representation ones such as graph theory to query languages for massive databases).

The algorithmic dimension includes research on complexity, parametrised complexity, more generally about the efficiency of structures (data, knowledge etc.), of procedures (optimisation, learning, computing) and services (both computer guided ones such as web services, data services and human guided ones such as health services).

The pragmatic dimension includes research both on foundational topics (What is a decision problem? How to formulate a decision problem?) and on practical ones (How to conduct decision aiding activities within a given problem context? How to measure the impact of a policy? How to consider the intervention of decision aiding within a decision process? What is the organisational impact of decision aiding?).

The research questions addressed by the LAMSADE lead us go beyond the frontiers of Computer Science and explore themes at the interface with other disciplines. Among them are: mathematics (optimisation, game theory, statistical learning), economics (social choice theory, game theory, econometrics), social sciences (analysis of decision processes, policy impact), management (innovation, design theory, public management) and more recently law (data protection, data privacy, social responsibility of algorithms). On such subjects the LAMSADE entertains solid relations with all research units of Université Paris Dauphine besides including within it a relatively large component of researchers who are not computer scientists.

The strong identity of the unit around the broad theme of “Decision Sciences and Technologies” is well established nationally and internationally. In France, while they are groups of researchers working on similar topics in other generalist units that cover a large spectrum of topics in computer science (LIP6, IRIT, LIG, GSCOP, LaBRI), LAMSADE is the only unit specialized in decision sciences and using complementary expertise of its members to treat different aspects of this topic. At the international level, we are well known for our contributions in the fields of algorithmic decision theory, polyhedral combinatorial optimisation, parametrized complexity, graph theory, computational social choice, game theory, trustworthy artificial intelligence, data science.

The mission of the LAMSADE is essentially to conduct fundamental research in its area of expertise. This being said, the field of Decision Sciences and Technologies requires strong connections with the real world, since it aims at helping real decision makers to improve the

ways through which they handle real decision problems. We maintain such strong connections through a wide network of industrial and policy making partners feeding our research with empirical findings, new challenges and, last but not least, with critical resources otherwise unreachable.

LAMSADE is presently organized into three Teams (Pôles): “Decision”, “Algorithms and Optimisation” and “Data Sciences”. These Teams partition the members of LAMSADE and are tools for scientific animation and administrative management. Each teams has a seminar and a budget.
Research is conducted with Research Projects that often involve more than one Team. Members of LAMSADE are often involved in more than one research project.
After major restructuring efforts in previous 5-year terms, in the evaluation period the structure of LAMSADE has been consolidated, by favoring interactions between its teams in order to facilitate the emergence of new topics at the intersection of domains or disciplines. This effectively conducted to new topics addressed like: optimization for machine learning, graphs and machine learning, deep reinforcement learning for difficult combinatorial optimization problems, reinforcement learning for computational social choice.

The current structure of LAMSADE seems to satisfy most of its members. The partition in teams facilitates management and animation, while projects offer unit members the possibility to join several research groups and to the unit, the flexibility to adapt to the evolution of research topics.

The position in Dauphine and PSL has been straightened and the attractiveness of research masters improved. The publication record is excellent and the the unit is very attractive as resulting from Evaluation area 2 analysis. We responded to critical societal challenges as well by our training programs and our research topics. Our researchers have been more implied in communication and vulgarisation compared with previous period, responding to an increasing interest of media and society around developments and future of AI.

During the self-assessment of our unit, we conducted a thorough analysis of our current research structure and scientific perspectives. This process led to the identification of new opportunities for research and the evolution of existing projects to better align with our research goals.

One of the outcomes of this process was the creation of a new project called ”Decision Aiding and Optimization under Uncertainty”. This project will focus on the intersection of team 1 and team 2’s research areas, and will bring experts from both teams. In addition to this new project, we also evolved an existing project focused on web services to address topics related to mining business processes and software.
Overall, the self-assessment process allowed us to take a critical look at our current research activities and identify opportunity for improvement, allowing us to be better positioned to make meaningful contributions to the field and address real-world challenges in decision-making.

4.1 SWOT analysis

Strengths.

— the IASD master, organised by PSL and where many members of LAMSADE are involved (both in teaching and managing) was launched in 2019. It is very attractive, both among students from France (including students from ENS or Ecole des Mines) and among international students.

— LAMSADE is also very attractive for PhD students; their quality is very high and is improving every year. Many (approximately 30%) of our PhD students come from abroad.
— we have continued our external hiring policy, both at the MCF and the PU level (with one exception in the context of 'repyramidage').
— our publication level (both quantity and quality) is outstanding
— the team structure of LAMSADE is efficient, as each team has its specificity, its unity, and its internal life; nevertheless, this team structure is not a scientific barrier, as proven by the number of publications co-authored by members of different teams as well as the number of PhD's co-supervised by members of different teams of LAMSADE
— our visibility in the media is increasing
— our collaborations with other laboratories in Dauphine is increasing, especially IRISSO (social sciences) and CEREMADE (mathematics).
— among all laboratories in France with computer science as the main topic, LAMSADE is the second best according to the proportion of women among faculty members (MCF, PR, CR, DR).
— we continued our policy of inviting well-known international researchers for one-month invited professorships (except during the pandemics)
— our finances are very healthy, due to the existence of many projects and contracts.

Weaknesses.

— our administrative team is real too small: it has the same size as it had 15 years ago while the size of the laboratory has been multiplied by 1.5 and the number of projects and contracts, and their complexity, has increased dramatically.
— we are not part of any European project, and we made very few submissions.
— the MODO master has lost a little bit of its attractivity. This might be due to the AI boom, which drives a lot of students towards the IASD master and less to MODO.

Opportunities.

— some ERC projects are being submitted or on the verge of being submitted
— within PSL, joint research between LAMSADE and DI-ENS could improve in the coming years, as contacts have been tightened.
— in the near future there could be more frequent, deeper multidisciplinary collaborations within Dauphine, especially with IRISSO, CEREMADE, and hopefully LEDA and DRM.

Threats.

— if the administrative team remains understaffed, there is a risk of collapse.
— while LAMSADE is still an interdisciplinary laboratory, its 'interdisciplinarity level' has gone down due to the departure between 2018 and 2023, of several non-computer science researchers (Matias Nuñez, Denis Bouyssou, and soon Yves Meinard)
— there is a increasing risk that high-skilled researchers and students could be driven to industry;
— many of our MCF have their habilitation to supervise researchers and have difficulties finding a professor position elsewhere, and therefore may experience frustration. Repyramidage can partly solve the problem but could on the other hand lead to resentments within the laboratory.
— physical attendance in the laboratory is low, and in the long term this may be bad for collaboration, especially for students and junior colleagues. Pandemics and construction works in Dauphine are two obvious reasons for that, and the latter reason is not going to be over until 2027.

4.2 Future

We think of the future trajectory of LAMSADE as a mixture of continuation and change.
The laboratory is relatively homogeneous topicwise, in any case more than most laboratories of similar size. It is successful from all points of view: scientific excellence, international attractiveness, multidisciplinarity, excellent internal management and excellent financial health.
In view of all this, one might say that it is enough to do nothing and continue as we are. However, LAMSADE's short- and medium-term developments make it necessary to constantly adapt to an environment (human, institutional, scientific, societal, technological) that is also in constant evolution. The laboratory — not only its future direction team but also all its members — will have to think collectively, and then take decisions, on these important subjects, which we present in a structured way.

Management, governance, internal life

- Most importantly, we will do everything that is possible to *strengthen our administrative pole*, whose size should be commensurate with the importance and ambitions of the laboratory.
- We will promote physical attendance of the laboratory members by organising on-site events (with coffee, breakfast, lunch etc.)
- We will implement governance methods adapted to the 2020s, including public debates and collective decisions, so that all of us should be able to participate, according to their interests and means, in important (and less important) decisions.
- A fair and yet efficient management of the constraints imposed by the Dauphine reconstruction works, especially regarding office allocation and use.

Hiring policy

- Our recruitment strategy for the next 5 years will differ from what was in place until recent times: recent developments ('repyramidage', junior professor chairs, the increasing role of PSL) make it necessary to continue thinking about our strategy, both in terms of form (what types of positions?) and in terms of content (whom are we looking for?).
- The preservation of our multidisciplinarity. This is one of the main reasons why LAMSADE is so special in the French academic landscape (which is unfortunately often subject to disciplinary compartmentalisation), and we have reason to be proud of it. However, several recent departures point to a decrease in multidisciplinarity, and our hiring policy should make its best to make it great again.
- We will strengthen our links with the other PSL components, essentially ENS (and to a lesser extent, Mines), both teachingwise and researchwise.

Research

- We said above that our multidisciplinarity is threatened. We will try to hire non-computer scientists CNRS researchers non-CS, for instance on the interface between AI/decision and social sciences. For this we plan to have a dialogue with the CNRS.
- We will tighten our connections with high-tech companies, through CIFRE theses and partnerships.
- We will launch and promote new research topics, in connection with crucial societal issues such as environment and climate change, participative democracy, applied decision making (ethics, finance, political science, law, medicine)
- Our research strategy will be better integrated in a European and extra-European context. We will push our members to submit ERC and similar projects.

Teaching

— Even if this is not *strict sensu* the responsibility of a research laboratory (but rather of teaching departments), we will do our best to hire more extra-europeans students, in particular students coming from Asia (China, Indian subcontinent, South-East Asia, Middle-East).

— Our programs will be adapted to changes in the socio-economic context. The internationalisation of our courses, an excellent articulation with PSL, a rapid thematic adaptation to the evolution of teaching needs, are reasons to be proud of LAMSADE. But there is still room for improvement: accelerating the internationalisation of student recruitment, combating the gender imbalance in our courses, better integration into the socio-economic context, agile adaptation to the increasingly rapid evolution of demand.

Society

— We will develop a strategy to respond to the environmental crisis (a crucial issue for the coming years, on which a reflection and a project have already started) and to societal challenges, including the fight against all forms of discrimination.

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A ANNEX - LIST OF PUBLICATIONS

List of all journal articles, communications in conferences and book chapters in the HAL repository of the LAMSADE during the evaluation period (https://hal.science/LAMSADE-DAUPHINE)

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