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The use of indicators in French universities

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While the use of bibliometrics is still very limited – or limited to some disciplines [1] –, the use of indicators in the management of French universities is becoming more and more prevalent and advanced, at least as far as humanities and social sciences are concerned [2]. In this chapter we will provide evidence on the general use of indicators and on differences between disciplinary fields. In order to put these results in context we will first provide some information on the French system and how the recent reforms favoured the development of indicators. We will then describe what we have learnt from the qualitative study on the attitudes of the humanities and the sciences to indicators. We will then expose some lessons drawn from a quantitative study in which we were able to compare universities mainly specialized in humanities with universities mainly specialized in the sciences. In so doing, we will start out to look at the use of indicators. This issue has been largely studied in the management sciences and different authors have suggested different uses. Simons [3] for instance distinguished between diagnostic use of indicators (indicators are used to produce an evaluation of performance) and interactive use of indicators (indicators are used to reveal strengths and weaknesses and to learn about them). Cavalluzzo and Ittner [4] also distinguish between reporting (i.e. providing information about activities), and steering or making decisions (using indicators in order to introduce change).

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Drawing on these two typologies, we first look at cases where indicators are used to legitimize what has been done and to account for it. Indicators are produced in order to show that a level of performance is achieved, to provide data required by external actors, describing current achievements. We will also consider cases where data are produced in order to compare units or teams and thus to evaluate their activity. Finally, we look at cases where data and indicators are used in order to make decisions or choices and to take action. The legitimation, evaluation, discussion and decision uses of indicators will be studied for data on teaching, on research and on budgets in order to see whether different issues lead to different uses.

A second issue addressed by this chapter deals with disciplinary differences. In France, there exist some “complete universities” (with or without medicine) but also many universities specialized in law and economic sciences, universities with a strong orientation in the natural sciences, and universities that are specialised in the humanities and the social sciences. This allows us to compare the uses of indicators in the humanities and the science-dominated institutions (HSS institutions and NS institutions in the following): the former represent about 15% of the French universities and the second 14%.

Recent reforms and their impact on the development of indicators

French contemporary universities are in fact recent

La Sorbonne and many other institutions on French territory were founded in the Middle Ages. So French universities have a long history. However, this is a limited view [5]. Although the French higher education system is indeed ancient, the French university system as we know it today is celebrating only its fortieth anniversary. The Faure act that was passed in 1968 led to the re-creation of French universities by the beginning of the 1970s. This was a radical change of almost two centuries of supremacy of the discipline-based *facultés* (faculties) of Law, Medicine, Science and Humanities. Universities had been suppressed in 1793 after the French Revolution, leaving the way to the foundation of more professional schools – some of them being now among the best French *Grandes écoles* – aimed at training

a French elite.⁵ However, when Napoleon took power, he recreated the *facultés* as parts of a nation-wide university (the Imperial University). Different *facultés* representing each a discipline could be located in the same town but they were not linked one with another. By the end of the 19th century the Third Republic recreated a local level called “universities” in the different cities but they were administrative rather than academic and collegial structures: the role and prerogatives of the *facultés* were already so developed that they remained the main institutional structures in terms of decision-making, coordination on the French territory and interactions with the ministry. It is thus only in 1968, after students’ demonstrations, that a new act was passed with the explicit aim of redesigning French universities and weakening the *facultés*. The *facultés* constituting the University of Paris, la Sorbonne, were therefore reorganized into seven new universities, the University of Montpellier into three, etc.⁶ They were given new governance bodies and structures, autonomy (even if this was never fully implemented at that time), parity-based councils and a president elected from among the academics.

The conception of a university that was supported by Napoleon was very different from the Humboldtian model that was developed at about the same time in Germany. For Napoleon, the *facultés* were primarily dedicated to training and to delivering degrees, rather than research. It is only after the defeat of 1870 by Germany that French decision-makers (like Louis Liard, the director for higher education at the Ministry) tried to import the German system in France but they largely failed in trying to develop research [6] within the French *facultés*. Many years later, in 1936, the creation of a national research institution called the CNRS (National Centre for Scientific Research) intended to overcome this deficit in research by creating an institution outside the universities. The development since the mid-sixties of research units affiliated both to a university and to the CNRS has progressively transformed French universities into higher education *and* research institutions, even if the national research institutions (the CNRS and those that were created in the 1950s and 1960s) still play a very important role in the French research activities and production.

⁵ *Les Grandes écoles* is a specific group of institutions (cf. the website of the *Conférence des Grandes écoles* <http://www.cge.asso.fr/en>), the best of which trained the French industrial, administrative and intellectual elites. Most (especially engineering schools, and schools training the administrative and intellectual elites) are public and almost free (as French universities) in terms of fees while the business schools charge high fees and are mostly parts of chambers of commerce and industry. All the *grandes écoles* are highly selective.

⁶ Today, there is a movement in order to bring together the institutions that split in 1968. Some even merged as the three universities of Strasbourg in 2009 or the three universities of Marseille in 2012.

This specific trajectory of French universities is important to remember if one wants to understand the recent reforms. Their main objectives were directly linked to this history and based on the will to modify its development in two ways: first by strengthening the governance and the autonomy of French universities and second by transforming French universities into central actors in the French higher education and research system.

Two main reforms: the 2006 and the 2007 acts.

At the risk of over-simplification, the objectives of the reforms in the early 2000s empowered the university presidents on the one hand and weakened the national research institutions on the other. The latter were especially targeted in the 2006 act, called the LOPRI (*Loi d'Orientation pour la Recherche et l'Innovation*, Act for Research and Innovation) with the creation of a national research council (ANR, *Agence Nationale de la Recherche*) and an agency for the evaluation of research and higher education (AERES, *Agence d'Evaluation de la Recherche et de l'Enseignement Supérieur*).⁷ Before the LOPRI, the national research institutions (but also the Ministry) were acting as research councils and managing calls for proposals. In 2005, these budgets were taken away from them, reinforced and entrusted to the ANR, thus clearly reducing the programmatic role of the CNRS and other national research institutions like INSERM (for medical and life sciences), or the INRA (agricultural sciences).

The same act centralized the evaluation of training programs, research units and higher education and research institutions within one agency. Not only did it change the type of experts who were solicited (more international, appointed and not elected, etc.) but it also deprived the national research institutions of a key function: evaluating their research units with the help of national discipline-based committees. The CNRS and other national research institutions were furthermore asked to limit their roles to the functions of managing research resources (through the personnel they were responsible for and the operating budgets they allocated to the research units affiliated to them and to universities). Universities were to

⁷ Recently transformed into a *Haut conseil pour l'évaluation de la recherche et de l'enseignement supérieur* (HCERES, council for the evaluation of research and higher education) by the ESR act of July 2013.

become “research operators” i.e. to be responsible for the definition of their research agenda and become the main places for research.⁸

The 2007 act (called Pécresse act or LRU act, *Loi relative aux libertés et responsabilités des universités*, Act for the freedom and responsibilities of universities) completed these measures by reinforcing the autonomy of French universities and empowering their presidents by giving them more room for decision, by limiting the size of the university council and the possibility for a powerful opposition, or by giving them the possibility to block hiring decisions. The slow development of French universities into more autonomous and managed institutions, which started in the beginning of the 1990s with the introduction of strategic plans and the signing of four-year contracts between each university and the ministry [5] was thus accelerated. In parallel, the devolution to universities of the management of their payroll (previously managed by the ministry while universities only managed their operating budgets) represented a huge step as they became responsible for their global budgets.

Reforms favouring the development of indicators

The development of universities into autonomous organizations [7-10] that underlies the recent reforms has been one of the main drivers for the development of indicators and auditing in French universities. At the beginning of the 1990s, the introduction of the first four-year strategic plans and contracts already made universities aware of their ignorance about their own activities and led to the creation of new positions or offices in charge of producing the data for this quadrennial exercise.⁹ These contracts became more and more accompanied with indicators of the past activity and the forthcoming objectives and goals.

This phenomenon was amplified as universities were provided with more autonomy but were also simultaneously made more accountable, a classical process that Michael Power has

⁸ This may sound very curious to a non-French reader but a specificity of the French system is that universities were neither the most prestigious institutions in terms of training (the *Grandes Écoles* are the more prestigious), nor the more prestigious in terms of research (which the national research institutions are).

⁹ Every four years, each university signs a contract with the Ministry. The institutions have to submit an assessment of their strengths and weaknesses and develop strategic plans for the next four (now five) years. The contract represents around 15% of the university budget (salaries excluded).

analysed in his book *The Audit Society* [11]. The introduction of a new budgetary process in the French public sector in 2002 further accentuated this trend. It implies that each annual budget has to be justified by the objectives set up by each public entity and that their achievement is to be followed by means of indicators.

With the introduction of the AERES in 2006, there were finally changes in the evaluation processes and an increase in the use of indicators. This trend started well before but was invisible: by the end of the 1990s, the Ministry developed databases of information from the evaluation of the research units. However, this data was not made public and not (at least explicitly) used to make decisions. At the same time, the former agency in charge of evaluating the governance of universities (the CNÉ, *Conseil national de l'évaluation des universités*, the National Council for the Evaluation of Universities) – that was incorporated in the AERES in 2006 – itself produced public reports but this evaluation was disconnected from the process of budget allocation by the Ministry. This dramatically changed after the creation of the AERES: most of the evaluations are translated into grades (A+, A, B or C), and the grades and the reports are accessible on the AERES website. These evaluations are used by the Ministry, which has introduced a performance-based component in the formula for the resource allocation to universities. As a result, it became much more important than ever for universities to monitor their activities, their publications and their results, to know how many grants were obtained by their faculty staff, to develop better insight into student performance and entry into the job markets. Therefore, it was not surprising that, in our survey in 2011, we observed that 86 % of the registrars declared that their university has created an internal auditing office while this figure reached only 65 % in the survey led by Stéphanie Chatelain and Samuel Sponem [12] five years ago.

Availability and use of data in French universities

A first question to raise about the development of databases and indicators in the French system deals with attitudes vis-à-vis quantified information and whether these attitudes are different for academics in the humanities and the social sciences vis-à-vis the natural sciences. The interviews conducted with each group revealed rather contrasting conclusions. In this part of the paper we will therefore present the results from interviews with academics in the these three fields, undertaken in June 2011. About 100 interviews were carried out by the students of the Master of Sociology of Sciences Po in three French universities, one humanities-

oriented (UniHSS), the other science-oriented (UniScience) and the third complete with medicine (UniMulti) [13]. In the interview guidelines, some questions were dedicated to the use of indicators and how they were perceived.

In the interviews, academics in the humanities and the social sciences who were in charge of managing a research unit, a department, a *faculté* or elected in the university councils, were clearly more critical about the development of indicators than the natural scientists. The critique included complaints about the relevance of the data when applied to the humanities and the social sciences, especially when it comes to bibliometric indicators. Two professional associations developed in the 2000s (SLR, *Sauvons la recherche*, Save research, and SLU *Sauvons l'université*, Save the University): they both have websites on which very critical comments on the recent reforms are posted. They were also very active in 2012 after the socialist government came back to power and announced a new university act. They called for the suppression of evaluations and the reduction or suppression of project-based research, but did not succeed.

It is also clear that academics in the humanities and the social scientists first of all were less used than the natural scientists to these forms of quantification and with the idea that each contribution should be ranked. But they were also more anxious about the consequences of these developments for their domain and tried to conceive strategies promoting their research. In the words of a Vice President of an UniHSS:

We want to make the humanities and social sciences recognized for their potential and specific contributions. [...] It is the humanities and the social sciences for themselves, for their social utility as such, not only as a complement for the sciences. We need to valorize this sector of research and promote it.

One of the main fears comes from the dependence they experience vis-à-vis their institution: their dependence increases when their university starts allocating budgets according to performance or making resources dependent on specific results or behaviours, because they lack opportunities to attract other resources. Not being used to getting grants and finding

external funding, they looked on the development of indicators as a threat because it makes their relationships to the university managers much tighter. This tension was especially palpable in the interviews conducted in the multidisciplinary university where academics in the humanities and the social sciences are in direct competition with the natural and life scientists. The new managerial norms that were introduced, the new organization of research in this university (into teams and federations of teams) led to rather critical discourses in the humanities and the social sciences while the natural and life scientists, by contrast, quite welcomed the organizations in federations of laboratories and the fact that research performance was taken into account.

This picture should nevertheless be tempered by the university specialized in the humanities and the social sciences, a university known in France for the opposition of its students and academic staff against the reforms. Despite these circumstances the university managers (the president and his team of vice-presidents – most of them members of a leftist union in higher education – and the administrative directors working under the supervision of the registrar) started to develop indicators on the number of teaching programmes offered and the number of students attending each class, in order to make decisions about closing small classes and even set a threshold under which classes should be closed. This is of course a very hot topic in a university where rare languages are taught and teachers are struggling for students. But the managers succeeded in fixing a norm and defining the specific cases for which it could be set aside. From the beginning, they consulted the deans and asked them to define norms and to set priorities but also in to define the relevant indicators. They favoured the use of common indicators and the use of common data. Thus, even if it is impossible to draw general conclusions from this case, it seems that the reluctance of the humanities and the social sciences in using indicators is linked to how this policy is implemented and the extent to which indicators are adapted to these two fields.

Availability and use of data in French universities

In addition to the above presented interviews we undertook a survey of all French universities between May and September 2011. The sample addressed the presidential team (presidents and vice-presidents), the directors of the university administration and the registrar, the administrative and academic elected members of the deliberative bodies (university council,

academic councils and council for student affairs) of universities, the deans, heads of departments and directors of labs as well as their administrative counterparts. We received about 2,600 answers (total response rate: 22%; for HHS institutions: 16%; for NS institutions 18%). A report was written on the results of this survey [14]. Part of the survey concerned indicators and the use of indicators.

In view of the increase in information and data produced by universities and the increasing role of indicators in the French higher education system, the survey included a large set of questions on the available data. We more specifically tried to see which data were available and what they were used for when they became available. In this part of the chapter we only consider the disciplinary orientation of the institution of the informant. Their answers will be compared to those of the all sample (All-universities, i.e. the results for all the universities that participated to the study), including universities oriented towards the humanities and social science as well as natural science universities.

Available data in both groups of institutions

First looking at data that relate to teaching, Table 1 provides the average answers for all French institutions and for HSS-universities and NS-universities. Answers were organized along a Likert scale ranging from 1 (completely disagree) to 7 (completely agree), so the mean is at 4.

It appears that information about dropout rates, rates of success at exams, and the first salary of the former students (bold) are relatively easily available but in the case of salaries less easily available in HSS-universities and NS-universities than for all institutions. If we now compare HSS and NS¹⁰, we observe that evaluations by students are still rather rare in France, and rarer in HSS than in NS. By contrast, in NS-universities, data are less frequent than in HSS-universities about complementary hours (maybe because they are not as frequent in the natural sciences because of the decrease in student numbers) and on the social origins

¹⁰ Only the lines in bold are statistically significant (ANOVA = 0).

of their students.¹¹ As for the numbers of hours taught by the faculty staff, the figures are about the same in the two kinds of institutions and in both cases higher than for all institutions.

Table 1. Data available about teaching

<i>Questions: is it easy for your to get data about...</i>	HSS- University	NS- University	All	N
Drop-out rates	5.38	4.99	5.24	1,987
Students' evaluations of training programs?	2.95	3.82	3.71	1,907
Number of complementary hours?	4.23	3.76	4.01	1,945
Access of students to the job market?	4.23	4.32	4.29	1,991
Social origin of your students?	4.36	3.74	4.14	1,968
Rates of success at the exams?	5.65	5.24	5.52	1,994
Average salary at their first position?	3.44	3.73	5.52	1,973
How many hours each one teaches?	4.39	4.29	3.58	1,964

If we then turn to data available about research activities, it was quite a surprise to see that on average they are less available than for teaching: the highest score is 4.44 (number of publications in your unit). They furthermore exhibit more differences between the HSS- and NS- universities. Leaving patents aside, there are statistically significant differences about the number of grants and their origin, the running budgets, the number of publications and their quality. In all cases the science institutions are better informed (never reaching the number of

¹¹ In France, academics are supposed to teach 192 hours a year. Because the access to the undergraduate levels is not selective, the number of hours of teaching might be higher than the number of hours academics should teach. Therefore some of them accept more than 192 teaching hours and are paid extra for that: these are the complementary hours.

5 nevertheless), especially when it concerns the research grants and the quality of publications.

Table 2. Data available about research

<i>Question: is it easy for you to get data about...</i>	HSS- university	NS- university	All	N
The number of patents (if relevant in your field)	2.95	4.02	3.63	1,176
The number of research grants and their origin	3.89	4.15	3.96	1,867
Expenses and resources for each grant	3.23	3.59	3.35	1,830
The number of publications in your unit (department, lab, school...)	4.12	4.78	4.44	1,907
The quality of these publications	3.51	4.21	3.83	1,885

When looking at the data at hand, it therefore seems that the two groups of institutions do not exactly focus on the same type of data; HSS-universities being globally more aware of data on teaching than on research.

The use of indicators

A second group of questions in the survey was concerned with the use of data and looked at four specific types of use: (1) legitimization (or reporting about activities), (2) evaluation (diagnostic use of data to monitor organizational outcomes and correct deviations from present standards of performance [3], (3) discussion (interactive use of data in order to learn and interact about them) and (4) decision (using data for change and action). We asked

questions about the use of data on teaching, research and budgets. When looking at the results for “all universities” in the three tables below, the highest scores (closest to 5) show that for teaching (Table 3) and budget (Table 4) the principal use of data is linked to reporting, sometimes to evaluation but rarely to decision. It is somewhat different in the case of data on research (Table 5) where the main use is concerned with evaluating and where decision is more frequent. It therefore seems that French universities first of all produce data in order to report about their activities and thus look legitimize to those asking for such information. On the other hand, they almost never use data in order to act and make decisions, although one can see that the impact on the allocation of budget is always higher than 4. But more generally, there is still a rather rare use of data to evaluate and compare and make decisions based on such evaluation. But is what is true in general, also true for specific categories of universities? Do science oriented universities make different use of data than the humanities and the social science oriented universities? Again, only the statistically significant differences (ANOVA = 0) between the two groups will be taken into account.

Looking first at data on teaching (Table 3), even if some results are significantly different they do not reveal clear-cut discrepancies between HSS- and NS-universities. We can only notice that the use of data on teaching to allocate budgets is somewhat higher in HSS than in NS and that HSS is also more using these data to negotiate within the university. The same holds true for data on budget. Very few items are significantly different and when the differences are significant they are not striking.

Table 3. Uses of data on teaching

	<i>Question: Data on teaching are used to...</i>	HSS- university	NS- university	All	N
Decide	Decide how to allocate budgets	4.45	4.10	4.10	1,662
	Rethink teaching programs	4.11	4.14	4.17	1,675

Evaluation	Compare your unit to others	4.36	4.16	4.18	1,644
	Set objectives to your unit	3.84	3.71	3.78	1,656
	Evaluate the teaching programs of the university?	4.88	4.92	4.94	1,722
	Evaluate the quality of your teaching programs	3.73	4.04	4.00	1,679
	Assess how well your unit is achieving its objectives	4.55	4.60	4.60	1,687
Discussion	Have a common basis for discussion within the university?	4.29	4.20	4.18	1,664
	Discuss and debate on teaching projects	3.88	3.89	3.91	1,665
Legitimation	Negotiate with schools or departments	4.81	4.39	4.44	1,637
	Negotiate with the Ministry, the Region or other partners	5.26	5.19	5.11	1,651
	Do as everybody, but nobody uses these data	3.35	3.48	3.40	1,603
	Document the indicators for the LOLF ¹²	5.60	5.58	5.53	1,645

¹² LOLF = Loi organique relative aux lois de finances (a legislation that governs public finance)

Table 4. Uses of data on budget

	Data on budget and costs are used to	HSS-university	NS-university	All	N
Decide	Decide how to allocate budgets	4.74	4.69	4.68	1,675
	Make decisions on investments	4.44	4.37	4.43	1,656
	Give you information on your financial situation	4.21	4.24	4.19	1,689
	Decide how much to charge for teaching or research activities	3.35	3.86	3.69	1,596
Evaluation	Know the costs of the different training programs	4.73	4.52	4.59	1,677
	Know the costs of research activities	4.29	4.37	4.39	1,617
	Compare your unit with others	4.55	4.26	4.27	1,671
	Assess how your unit is managed	4.69	4.24	4.49	1,710
	Assess how the university is managed	4.99	4.75	4.89	1,746
	Set objectives to your unit	4.00	3.81	3.92	1,689
	Assess whether you achieved these objectives	4.72	4.52	4.57	1,697

Discussion	Have a common basis for discussion within the university	4.45	4.46	4.43	1,675
	Discuss and debate about priorities	4.10	4.06	4.07	1,679
Legitimation	Negotiate budgets with schools and department	4.72	4.63	4.62	1,674
	Negotiate with the Ministry, the Region or other partners	5.30	5.32	5.27	1,699
	Document the indicators for the LOLF	5.60	5.48	5.45	1,676

The comparison between the two groups of universities is more interesting and revealing when data for research is concerned (Table 5). On all items for which the differences are statistically significant, the results for science-oriented institutions are higher than the HSS-universities. They are therefore more able to decide about research priorities, to make decisions on investments, to compare their unit with others, to evaluate their research activities (at the level of their unit and for the university), to have a common basis for discussions within the university and finally to discuss and to debate about research priorities. This confirms what we observed in the interviews and must be connected to the scientists' rather positive attitudes vis-à-vis indicators, compared with the faculty staff in HSS.

Table 5. Uses of data on research

<i>Question: Data on research are use to...</i>	HSS-university	NS-university	All	N
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Decide	Decide how to allocate budgets	4.76	4.89	4.74	1,608
	Decide about research priorities	4.13	4.37	4.27	1,610
	Make decisions on investments	3.98	4.26	4.15	1,546
Evaluation	Compare your unit with others	4.70	5.18	4.83	1,612
	Evaluate the research activities of the faculty staff	5.17	5.33	5.26	1,654
	Evaluate the research activities of your unit	5.46	5.76	5.58	1,638
	Evaluate the research activities of the university	5.56	5.88	5.68	1,683
	Set objectives to your unit	3.86	3.97	3.94	1,604
	Assess whether you achieved your objectives	4.64	4.53	4.57	1,605
Discussion	Have common basis for discussion within the university	4.37	4.57	4.38	1,605
	Discuss and debate about research priorities	4.11	4.29	4.19	1,621
Legitimation	Negotiate with schools or departments	4.29	4.34	4.25	1,565
	Negotiate with the Ministry, Region, partners	5.24	5.36	5.27	1,609

	Do as everybody, but nobody uses these data	3.07	2.78	2.87	1,496
	Document the indicators for the LOLF	5.62	5.62	5.53	1,547

Conclusion

Producing and collecting data has become more and more usual in France after the reforms of the 1990s and 2000s and there is a clear development of internal auditing and performance measures in French universities. Although the acceptance of this trend seems easier in science-oriented institutions than in HSS-oriented institutions, the attitude towards indicators is also linked to how they were set and whether they are negotiated or imposed.

We also observed that the use of the data does not differ considerably between the two groups of universities, especially in the case of data on teaching and budget that are mostly used in these institutions as in all other French institutions first of all for reporting, and thus legitimizing what is done. For data on research there are clearer trends: NS-institutions have more information about their research activity than HSS-institutions and are more able than the latter to use them to promote evaluation and decision making.

The above conclusions are probably transitory because the development of performance measures and the use of indicators are still rather new but they nevertheless reveal a rather important change in French universities. This is especially true for research where the central role played by the ANR and the AERES in producing evaluation and providing norms about what research should be [15], legitimizes the attention paid to research indicators by the university managers by the directors of the research units.

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