CHAPTER 17

National Strategy for Higher Education and Research: Challenges and Pitfalls from a French Perspective

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INTRODUCTION: STRATEGIES, A NECESSARY EVIL?

For hundreds of years, science has had a privileged position. But it no longer sits on this pedestal. There is this increasing confusion and distrust of scientific advice among citizens. As a result, the role of science in policy-making has become extremely complex.

Governmental strategies for higher education and research can have various motivations, from a sincere trust that investment in science will be beneficial to the society, to the project that science can help to gain or to maintain leadership in a specific field, usually technical or industrial. Bert van der Zwaan (2017) has reminded us that universities are now under scrutiny, and are "under the spell of production and quality". Indeed, no strategy goes without specific deliverables and milestones. And, sometimes, just as when a finger points to the moon, the fool watches the finger, these milestones and deliverables become the centre of all passions, and one forgets the values and basic objectives that the strategy is supposed to target to.

The prospectus of our meeting asked how we can: "perceive the future challenges faced by our institutions" and "provide the leadership to prepare them to undergo the necessary changes". The purpose of this paper is to explore the possibilities and the limits of an answer to these basic questions in the form of a national strategy. Of course, I do not intend to demonstrate what is a good

or a bad strategy, but merely to point out some lessons from shared experiences about these strategies, their advantages and their pitfalls. I will merely attempt to analyse some of the mechanisms for their elaboration, and try to draw some very basic lessons for both the policy-maker and the actors of these policies, especially the universities. And, of course, writing this paper as a new member of the Parisian technocracy, I have to be careful that I don't suffer from the "Stockholm syndrome", which would lead the former university president to defend administrative attitudes which he has criticized in the past.

GOVERNMENT STRATEGIES FOR SCIENCE AND UNIVERSITIES: EXAMPLES

French national strategy for research

A French "National strategy for research" was issued in 2015 (French Ministry for Higher education and research, 2015). It was written after a long process of consultation of institutional stakeholders. It proposes a coordinated strategic vision of French priorities for research. Let us stress two words in this definition: "coordinated" and "French".

Coordinated: this is not a straightforward issue, as the situation in France is very diverse, with many stakeholders working more or less independently. In a parliamentary report on this strategy, it was said, in an ironic tone, that France could only be the absolute world leader for research, "because we have 14 ministers of research" (Le Déaut & Sido, 2017). Coordination is therefore a major goal of such a national strategy.

French priorities: of course, the French government is pushing its own strategy, but this questions the role of a national strategy in a totally globalized field. Even though the strategy's punchline is "France Europe 2020", it is sometimes hard to combine national and global issues. To attempt to bridge this gap, it aligns with the European policies for science and innovation and the Horizon 2020 program, thus focusing on three axes: 1. Excellent science, 2. Industrial leadership, 3. Societal challenges. The intention to make research strategies cross-readable and compatible is, in theory, a very positive goal, considering the international nature of modern research. In a recent report of the European Commission that he coordinated, Pascal Lamy stressed in his introduction that their recommendations would be effective only if applied not only at the level of the European institutions, "but also by other stakeholders, national governments, companies, universities, research institutes, non-governmental organisations and all others engaged in research and innovation within the EU and beyond" (European Commission 2017b).

The strategy has led to select a restricted number of scientific priorities in order to respond to the grand economical and societal challenges confronting

the country, prioritize these priorities and avoid a global coverage of the whole scientific field. It aims at federating all the stakeholders around this global national strategy and to initiate a prospective view, with all stakeholders (the various administrations, academic and industrial scientists, companies).

Another issue is that this was a research-only strategy; in parallel, a national strategy for higher education was also issued, and rather independently! As both did not seem to be coordinated enough, a white book was published in 2016, which has attempted to synthesize these strategies into a global approach (Monthubert, 2017). The fact that after the last elections, a fully-fledged minister was appointed, responsible for all aspects of the "knowledge triangle", can only reinforce the idea that we need a global strategy involving simultaneously all aspects of the academic world, i.e. education, research and innovation.

The Dutch National Research Agenda

The Dutch National Research Agenda was conceived in a very different way, its elaboration process started with a unique bottom-up procedure. The general public was invited in early 2015 to submit questions about science. This resulted in 11700 questions submitted by the general public, academic institutions, the business community and civil society organisations. Five academic juries were appointed to meet and assess the questions. This was followed by three conferences in June 2015 whose purpose was to bring order to the questions, and to further aggregate the questions where possible, based on these three perspectives.

This process ultimately led to 140 overarching scientific questions and 16 example routes. The questions reveal the complexity of the issues challenging Dutch society today, and provide a glimpse into the areas where Dutch scientific research plans to focus on in the coming years (Dutch National Research Agenda, 2016).

The Japanese Society 5.0 plan

Japan has been writing five-year planning strategies for 20 years. The latest one is called Society 5.0 (Council for Science, Technology and Innovation Cabinet Office (2015)). It is not the purpose of this paper to present it in detail, but only to point to some of its specific characteristics. The plan contains unusually sharp warnings that Japan is dropping in competitiveness.

What is interesting is that the plan does not list research and development priorities on a detailed level, but rather the ambition of the government to identify important broad research areas as well as its aspiration for system innovation. One of the key principles is to "enhance preparedness

for an unforeseeable future". This issue is addressed with improved political coordination between and within departments and research councils, as well as a clearer focus on the basic components of the R&D system (people and excellence), together with more open innovation.

Thus the title "Society 5.0" points to a new type of strategic attitude, more globally oriented, which is summarized by the word "preparedness". It is also important that it stresses shared values such as sustainability, inclusiveness, efficiency, and power of intellect. Concepts like open science, networked science and citizen science indicate a more inclusive approach to managing the country's R&D system. But the plan also proposes specific goals for the coming five years and points to priorities in several key technology areas (for example Internet of things and Artificial intelligence), as well as numerical goals (for example, increase of the proportion of female researchers, increase in the proportion of faculty members less than 40 years old, or increase in the number of licence agreements on university patents). Innovation and knowledge transfer to the economy are a major goal, addressed through concrete actions such as public procurement, or aggressive intellectual property management.

The European research strategy and quest for "impact"

Research Councils UK (RCUK) defines research impact as "the demonstrable contribution that excellent research makes to society and the economy. This can involve academic impact, economic and societal impact". (Economic and social research council, n.d.).

A good policy should ensure that it pursues the three types of impacts in a balanced manner. But, let's face it, the tendency is nowadays to place, officially or not, the economic impact in the front row.

The interim evaluation of horizon 2020 points out very clearly that: "Research and innovation programs are notoriously difficult to evaluate. The causal relation between research and innovation investment on the one hand and impact on the other hand is often indirect, and difficult to identify, measure, demonstrate and attribute" (European Commission, 2017). Nevertheless, the actual vocabulary of the European Commission when addressing the elaboration of the future framework program (FP9) is to emphasize the importance of research impact, or mission-driven research. The so-called "Lamy report" is the answer of a high- level working group to the question of maximizing the impact of future European Union research and innovation programs. There is a continuing debate on this subject, including on one of the recommendations of the working group to adopt a mission-oriented, impact-focused approach to address global challenges (European Commission, 2017b).

The nature of the impact proxies chosen plays a major role. Very often, governments now attribute national ambitions to a position in the rankings,

while we know that rankings, when used as the main indicator of impact of national policies, can have deleterious effects (Hazelkorn, 2007). Hazelkorn insists that the priority should not be on rankings but on "a skilled labour force, equity, regional growth, better citizens, future Einsteins and global competitiveness", and it is these priorities that should be translated into policy." (Hazelkorn, 2013)

The individualist approach

Most often a strategy is designed around some specific and global goals, should it be a technology (artificial intelligence, Hindi & Janin 2017), a disease (war against cancer, Ledford & Tollefson, 2016) or a societal goal (radicalization, Fuchs, 2016). But another type of strategy is to target people, not subjects. One could, of course, say that this is a very selfish attitude, and that it does not allow to target global issues. The two following examples show that this is not the case.

A first example comes from the Weizmann Institute of Science, which was ranked sixth worldwide in the Nature Index 2017 Innovation ranking. This index is a measure of how effectively basic research translates into commercial applications (Nature Index 2017 Innovation, 2017). One could therefore assume that this is the result of a strong "market-pull" strategy, where research is targeted top-down to satisfy industrial needs. But this is not the case, the strategy of the Institute being "people-driven, not subject-driven". According to Weizmann's President Daniel Zajfman: "Research at the Institute is driven by the curiosity of our scientists, and (..) the Institute doesn't work on the basis of a well-defined marketing, outcome-oriented or translational strategy." He adds that the philosophy of the Weizmann Institute has always been to attract the best and the brightest scientists, and provide them with the necessary infrastructure to perform their cutting-edge, curiosity-driven research. "The best strategy is, in fact, to bet on excellent people, and not on a specific target." (Weizmann Institute, 2017).

Another strategy targeted on supporting talented individuals, whatever their field of research, is the European Research Council. The ERC funds investigator-driven, bottom-up research. This approach allows researchers to identify new opportunities and directions in any field of research, rather than being led by priorities set by politicians. Excellence is the only condition, and this strategy has a great impact: ERC grantees have won many prestigious prizes, including 6 Nobel Prizes, 4 Fields Medals, 5 Wolf Prizes and more. A bibliometric analysis shows that research funded by the ERC has a scientific impact far above average (European Research Council, 2016).

GENERAL PRINCIPLES AND PITFALLS

What priorities?

Indeed, no country can do without national priorities or strategic choices. Without some top-down incentives, major societal challenges such as energy transition, cybersecurity or antibioresistance would probably not be addressed in a proper way. However there is a constitutive ambiguity in fixing priorities, in the sense that it could mean excluding from the national efforts any subject which is not deeply rooted in theses priorities. Also, care should be taken to avoid "patchwork strategies" looking more like emergency measures to cope with a few rapidly-growing demands, but without an underlying ambition and no global sustainability (for a general discussion see Henningsen *et al.*, (2013)).

Who fuels the strategy?

A strategy should translate a policy. An example often cited is the "War on cancer" that was initiated by Richard Nixon in 1971, massively funding research on cancer and making it a national priority (Brennan *et al.*, 2010). Similarly, Barack Obama launched the "cancer moonshot" in 2016, with the goal to double the rate of progress against cancer, achieving in five years what otherwise would have taken ten (Ledford & Tollefson, 2016). Another interesting example is the recent initiative by President Emmanuel Macron to "Make our planet great again" (Butler, 2017). Of course, these major political impulses do not guarantee that the scientific outcomes will meet expectations, but they provide a major push that cannot come from the scientific community alone, and also act as a kind of "branding tool" for a country or a region.

Who elaborates the strategy?

The few examples mentioned in this paper show that the paths leading to a strategy could be highly variable. A strategy can stem from compiling many institutional contributions (which was the main method for the French national research strategy), be the result of an initial project designed a small group (the method leading to the Japanese Society 5.0 plan), or come from wide consultation of the public (for the Dutch National Research Agenda). It is far beyond the purpose of this paper to evaluate or rank these various pathways, it is my impression that they might matter less than the final result and the use which is made thereof.

A strategy needs a budget

There is a big difference between a strategy that is set up to funnel an additional, voluntary budget, and another which would be there to concentrate limited funds only on some targeted areas of research.

A parliamentary committee has recommended that, for implementation of the French strategy described above, a five-year budgetary effort of 1.2 to 1.5 billion €/year over 5 years was necessary (Le Déaut & Sido, 2017). Unfortunately, the present budget will not reach this figure, but this type of assessment is of the greatest importance, and stresses a neglected effect of these strategies, which is to provide sound arguments to lobby for the place of higher education and research in political and budgetary decisions. Global strategies can provide decision-makers and taxpayers alike with simple arguments to convince them that investing in higher education and research are global priorities they should support. In this sense, a good budget needs a supporting strategy.

A strategy should be evaluated

One of the ways to escape the abrupt debate about the validity and importance of a national strategy is to evaluate it. Milestones and outcomes should be designed in order to report on the efficiency of this strategy, but this not a straightforward issue.

To be significant, the evaluation of a national strategy should address as much as possible the following points: efficacy (have the targets been reached?), efficiency (relationship between the resources used and the changes generated), relevance (adequacy of the strategy to the problems), impact (effects of the strategy), relevance (between the means and the problem). These are the items that will be monitored for the evaluation of the Horizon 2020 program.

Some strategies include from the start robust evaluation schemes, but, at least in the French system, very often this is a weak spot. It is important to stress that the quality of indicators should not be discussed in the post-evaluation process, but included from the start in the design of the strategy. Nevertheless the link between governance or strategy and performance is very hard to make, and attributing good or bad performance to the various strategies and mechanisms summarized here is still highly unreliable.

CONCLUSION: AUTONOMY AND NATIONAL STRATEGY, THE IMPOSSIBLE SYNTHESIS?

This paper did not propose to deliver a scholarly analysis of governmental strategies for higher education and research, but only to summarize a few remarks derived from my own experience of the two sides of the mirror, university and government. There is scholarly literature on the subject, which I did not intend to review; but it remains partial, and research on that field should certainly be encouraged. For example, Ferlie *et al.* have connected the

study of higher education policies and strategies with wider concepts drawn from political science, organization theory and an emergent body of work in public management. They have suggested that "many of the organizational and managerial reforms apparent in higher education cannot be studied in isolation but have to be considered as part of a broader pattern of public sector reforming; the State seeks to steer higher education subsystems as it does other publicly funded service delivery subsystems" (Ferlie *et al.*, 2008).

Needless to say, governmental strategies applying to the academic world should be also deeply concerned with one specific characteristic: academic freedom. Academic freedom requires a sufficient degree of independence from government control and from the state in general; this does not mean that academics should never support national strategies, but it also requires that these strategies respect fundamental academic rights. Universities should not oppose their autonomy to the need for accountability, as rights and freedoms carry with them "duties and responsibilities", as stated by article 10 of the European Convention on Human Rights (Vrielink *et al.*, 2010). One of the best arguments for a policy-maker to respect academic freedom is precisely the example of the ERC, an institution where freedom and an unbiased quest for excellence have really paid off! The real question is to find ways to bundle up the initiatives than sprout out from this academic freedom into a coherent and effective package. Jo Ritzen has mentioned that "Universities, as a rule, are just not able to find a consensus of what kind of changes are absolutely necessary (…) So what is needed is strategic thinking about how promising ideas about the university of the future can be put into practice in combination with political pressure to bring that about." (Henningsen *et al.*, 2013, p. 118).

Altogether, we have to beware of a fetishist attitude towards strategies. A fetish can be defined as the belief in something having the power to make our desires come true and protect us from harm. Rajani Naidoo (Naidoo, 2016) wrote recently that higher education can be seen to be trapped in a kind of magical thinking that makes a fetish out of competition. Unfortunately, strategies are very often also presented in the same fetishist way, becoming a goal by themselves, and forgetting that they only serve more fundamental goals. This fetishist attitude can also trigger an "iconoclastic" reaction i.e., that the universities, or the individual scientist, will pretend they know better, and that the strategies are just hampering their creativity. As usual, the truth lies somewhere in the middle. A strategy is only a means, not an end.

In fact I would much prefer to present national strategies the way Chinese generals have been taught to fight a war. I can only cite François Jullien, philosopher and specialist of Chinese culture: "The strategist, like water, bypasses the obstacles and insinuates himself where the path is free before him; like water, he never ceases to marry the line of least resistance and find, at any

time, where it is easier to progress" (Jullien, 2016). In other words, a good strategy should remain invisible.

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