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Economic Regulation: Which Sectors to Regulate and How?

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Since the 1980s, the opening up to competition of public monopoly sectors (transport, energy, and telecommunications) and the State's withdrawal from direct production have led to the creation of sector economic regulators. By organising markets in which the incumbent operator remains dominant, or where heavy fixed costs limit competition, the regulator ensures that the consumer's interests are preserved while setting up conditions for growth and innovation in the sector under its responsibility.

This *Note* starts by stating that sector regulation, defined as the control of market power, must not be used to pursue ends other than economic efficiency. Although the environment or urban planning are legitimate preoccupations, other public policy instruments must be used.

We then question the right level of specialisation of the economic regulators. Wide-ranging competence limits the risk of capure by the regulated industries, reduces costs and enables the cross effects of connected markets to be taken into account. However, it comes at the cost of reduced sector-specific understanding, and the risk of arbitration responsibility for the regulator upon matters beyond its ambit. Finally, we recommend deciding on a case by case basis, while favouring cross-sectoral cooperation between regulators.

The regulator's independence has to be guaranteed with regard to both the regulated industries and the political power. From this point of view, France is evolving in the right direction, but much remains to be done to ensure not only *de jure* but also *de facto* independence. We highlight in particular the issue of competencies: remuneration and mobility must be set so as to achieve the optimal arbitration between ethical requirements and access to a pool of qualified skills.

We stress the evolutive nature of sector regulation: depending on the markets' degree of competition and maturity, the activity of sector regulators may decrease in favour either of the Competition Authority, or of the European level. Once again, we warn against the application of a single schema.

Finally, current sector regulation has to face up to the digital revolution, which profoundly modifies market structures, especially *via* the platform economy. We consider that an economic regulation of platforms is not justified, although other aspects must be regulated (taxation, loyalty, transparency of the algorithms). However, digital technology calls for a reinforced competence of regulators in the field of bulk data and algorithms.

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What is sector regulation?

The irruption of new technologies (including digital technologies) and the growing internationalisation of numerous activities raise questions about the suitability of France's current sector regulatory framework: should some current distinct regulators be merged into one? Should we extend regulation to a wider level, Europe in particular? Further, the way the market is developing suggests that a particular form of regulation can be justified during a period of transition (for example, a period of opening up to competition), before the classic *ex post* regulations takes over. In matters of regulation, the disappearance or even the transformation of an authority is a sign of its success. Conversely, the arrival of digital technologies gives rise to new debates about the opportunity of whether to regulate the activities they generate. This *Note* raises the question of the efficiency of both the boundaries and the modalities of sector regulation in France.

Economic theory identifies in a fairly restrictive manner the cases of "market failure" where the market alone fails to attain an optimal situation and where public intervention is justified: the existence of entry-barriers in case of a natural monopoly, spillover effects, public assets, merit goods, or even asymmetrical information.[1] In France, public intervention has traditionally been direct production of public goods by the administration, then by State-held businesses, including network sectors (post, telecommunications, rail transport, electricity). However, the State can also bear failures (especially due to asymmetrical information), bureaucratic sluggishness or be captured by pressure groups. Since the 1980s, public action has gradually shifted from direct production to sector regulation; in parallel, sectors that were previously characterised by public monopolies have been opened to competition. Although with a reduced role, the shareholder State has handed over regulation to authorities with varying levels of independence as a means to avoid conflicts of interest: the Regulatory Authority for telecommunications (ART, *Autorité de régulation des télécommunications*), created in 1997, which became the Regulatory Authority for Electronic Communications and Postal Services (ARCEP, *Autorité de régulation des communications électroniques et des postes*) in 2005, when the postal sector opened up; the Regulatory Authority for Railway Activities created in 2009, which became the Regulatory Authority for Railway and Road Activities (ARAFER, *Autorité de régulation des activités ferroviaires et routières*) in 2015, following the opening up of road passenger transport to competition; the Regulatory Commission for Energy (CRE, *Commission de régulation de l'énergie*), created in 2010 when the energy market opened up; Regulatory Authority for Online Gaming (ARJEL, *Autorité de régulation des jeux en ligne*), created in 2010 to support the liberalisation of online gaming. The State is also involved in regulating certain markets of goods and services such as those served by regulated professions (regulation of prices, of market entry, etc.).

The term "regulation" is often used to describe a wide variety of public interventions with sectorial nature, from strictly economic actions (price, quantities) to rules of conduct that apply to a profession or to the protection of privacy. All of these interventions, whether or not economic in nature, can affect how markets function. Nevertheless, in this *Note*, we will limit ourselves to regulation of a competitive nature, in other words to that having a direct impact on the economic conditions in which a sector's activity is exercised, and driven by the control of market power.[2]

In France, the history of regulation is full of measures with evolving justification, sometimes largely remote from economic efficiency. Thus, the regulation of retail prices, wholesale prices and margins in the sector of fuel distribution in overseas territories has led to service-stations not often used being kept open, irrespective of any considerations of profitability.[3] While it is legitimate that the State takes an interest in maintaining a satisfactory territorial coverage, there is often a way of guaranteeing a decent income for stakeholders without necessarily distorting the prices and conditions of competition in a given sector, for example, using direct fixed-price transfers. Likewise, regulating the location of superstores can be justified by environmental and urban planning. However it is important not to misuse economic regulation of entry onto the market, as was the case in France until the Law on Economic Modernisation which partially solved the problem.[4] These examples are symptomatic of a particularly strong temptation in France to use economic regulation to ends remote from what was originally intended. When it comes to regulation, as in all domains of economic policy, multiplying objectives is the surest way to reach none of them, according to the old principle from the Nobel economics laureate, Jan Tinbergen.[5]

Regulating sector competition aims at enabling consumers' needs to be satisfied by favouring the arrival of new entities onto the market and access to an essential infrastructure on

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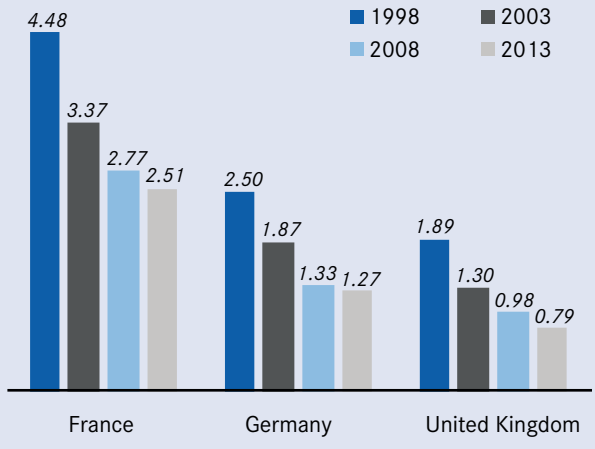
[1] Barriers to market entry are established by existing actors and/or by regulations. New businesses are prohibited from entering the market or are simply discouraged by high fixed costs (for example, the regulations that apply to driving schools). The natural monopoly is a market structure in which economies of scale are such that only businesses with a monopoly have the potential for efficient production (for example, the rail network). External effects (or externalities) cover the repercussions of the activities of economic agents that do not give rise to monetary compensation. Public assets are those to which consumers' access cannot be prevented and the consumption of which by one agent does not affect the quantity available for the others (for example, pure air). Merit goods are, however, assets whose consumption is willingly encouraged or discouraged by the State (for example, addictive goods). Finally, asymmetrical information corresponds to situations of exchange in which some of the participants have relevant information that others do not (for example, the granting of a bank loan).

[2] Thus, we exclude from this field regulations which are, for example, related to the environment or labour law, even if all of these regulations are likely to have an impact on competition. The regulated professions, for which no market failure could justify State intervention nor the creation of barriers to entry, are also excluded. We finally exclude financial regulation which could be the subject of a specific *Note*.

[3] See the Opinion 09-A-21 of 24 June 2009 of the Competition Authority regarding the competition situation on fuel markets in overseas départements.

the upstream market to stakeholders from the downstream market (such as, for example, access to the railway network for transport operators, or access to the landline telephone network comprising the incumbent operator's "copper pair"). In the longer term, the aim is to favor innovation and growth. According to the OECD, with regard to opening network activities, France lags a long way behind its partners. With the exception of the aviation network, all of the network industries are more heavily regulated in France than on average elsewhere in the EU-15 countries: even if the ETCR (Regulation in Energy, Transport and Communications) index went down by 45% between 1998 and 2013, it remains much higher than the levels observed in Germany and the United Kingdom where it has also decreased (see Graph 1).[6]

1. Evolution of the ETCR score (Regulation in Energy, Transport and Communications), 1998-2013



Source: OECD (2016).

Recommendation 1. Limit economic regulation to failing markets (natural monopoly, external effects, etc.); do not use sector regulation to reach objectives other than economic efficiency.

Portrait of the sector regulator

Regulatory stakeholders

Many entities with varying areas of competence are involved in the field of regulation.[7] The entire legislative system, national and European, sets the rules of the game (laws and standards) that regulate economic sectors. In addition to the legislator, there are two types of player: administrations and independent authorities.

In France, sector regulators can be either an Independent Administrative Authority (AAI, *Autorité administrative indépendante*) or Independent Public Authority (API, *Autorité publique indépendante*) (see Box 1). Several AAI have been created and were transformed as various sectors have opened up to competition. Their relationship with the administration is not altogether trouble-free, as the regulatory power of an authority can, for example, conflict or compete with government decisions.

Relations between independent authorities and the administration vary according to the sector. In the case of telecommunications, the ARCEP and the Ministry of the Economy seem to have clearly identified roles. For example, in the case of optical fibre, the government has defined the objective, whereas the ARCEP has set out the technical conditions across the country. Conversely, in the transport sector, the independence of ARAFER vis-à-vis the executive seems less certain. For example, ARAFER has a supplementary regulatory power enabling it to set the rules and conditions of access to the railway network only after approval by the Minister for Transport.[8] This difficulty in the rail sector is linked to the role of the State as majority shareholder in the French railway company (SNCF) and the sole shareholder of the network. This example shows the importance of handing sector regulation over to an authority that is truly independent (see *infra*).

Apart from the distinction between administrations and independent authorities, a second distinction must be made between *ex ante* regulation and *ex post* control. *Ex ante* regulation is needed in sectors where market conditions raise barriers to entry that an *ex post* intervention would not be able to lift. A typical case would be the opening up to competition of sectors in which there is a *de jure* or a *de facto* monopoly: railway transport, energy, telecommunications. Sector regulation is often (but not always) placed in the hands of an authority that is independent from both public authorities and economic players, whose mission is to ensure that the competition is exercised in a way that is effective, loyal and sustainable. *Ex*

[4] The Law on Economic Modernisation in 2008 raises from 300 m² to 1,000 m² the threshold above which a trading business must apply for administrative authorisation for establishment. See the report of Allain M-L., C. Chambolle and S. Turolla (2016): *Évaluation des effets de la loi de modernisation économique et des stratégies d'alliances à l'achat des distributeurs*, Report to the Ministry of Economy, Industry and Digital, December, which recommends not using the competition rules to reach environmental or urban planning objectives.

[5] Tinbergen J. (1952): *On the Theory of Economic Policy*, North-Holland.

[6] The ETCR index is calculated every five years, on the basis of 200 questions relating to the presence and the intensity of certain regulations and on the characteristics of market structures. According to the market concerned, the index can take into account the regulations upon entry, State ownership, vertical integration, market structure and pricing controls, see DG Trésor (2017): "Les réglementations sectorielles en France", *Trésor-Éco*, no 203, August.

[7] For a full description, see Brousseau E. (2016): "La régulation et ses modèles", *Économie et Management*, no 159, April.

[8] In addition, after lengthy negotiations, ARAFER had to fight against having its assent provided for under the pricing law of 2009 transformed into an advisory opinion during the parliamentary debate of 2014.

post control of competition is also assumed by an independent authority –the Competition Authority or, on a European level, the Directorate General for Competition of the European Commission.[9] However, contrary to sector regulators, these *ex post* regulatory authorities have a transversal competence.

What scope for sector regulation?

What is the optimal perimeter for a regulatory authority and, consequently, its degree of specialisation? In 2014, the report of the senator Patrice Gélard noted that, in spite of consolidation efforts accomplished, the authorities remained numerous and heterogenous.[10] Although a law of 2017 clarifies the legal status of the AAI (see box 1), it does not settle the matter of where the right level of transversality lies, which is closely linked to the regulator's independence with regard to the regulated stakeholders. A transversal authority that regulates many sectors is less at risk of being captured by private interests.[11] In addition, regulation in a particular sector can affect prices or conditions of competition on another market: a rather wide scope allows these externalities to be better taken into account. Economic and technical convergence between sectors, especially from the digital revolution, means that overly limited sector regulation is increasingly obsolete. Lastly, the multiplication of regulatory agencies intervening in the same sector generates coordination costs and can end up producing conflicting decisions.

However, a relatively narrow sectorial specialisation enables the regulator to become quite familiar with the sector it regulates. California's electrical sector is an edifying example, regulated by a Public Utilities Commission whose ambit also extends to telecommunications, gas, water and transport. In 2001, California was confronted with a general electricity blackout; this crisis was due to under-investment by the sector's businesses and an error by the regulator, who had limited the signature of long-term supply contracts. The development of transactions on cash markets exposed the sector to a sudden increase in wholesale prices. Electricity prices tripled during the winter of 2000-2001 leading to numerous bankruptcies among the distributors. This example shows the disastrous consequences of bad regulation and how necessary it is for the regulator to have detailed knowledge of the sector, which pleads in favour of specialised sector regulators.

The multiplicity of specialised regulators increases the number of regulators with authority in the same sector, and although it gives rise to coordination costs, it does have the advantage of limiting the risk of capture.[12] If several regulatory authorities

1. What is an independent authority?

Independent administrative authorities (*autorités administratives indépendantes*, AAI) and independent public authorities (*autorités publiques indépendantes,* API) both act in the name of the State without being subordinated to the government and benefit from full-independence guarantees (without their action being directed or censored, except by the Courts) in the exercise of their mission. Their powers vary in scope and, in certain cases, combine powers of regulation, individual authorisation, control, injunction, sanction and even appointment, and are limited in other cases to a simple power of influence.[a]

AAI appeared in France in 1978 with the creation of the Data Protection Authority (*Commission nationale de l'informatique et des libertés*, CNIL), then the High Authority for Audiovisual Communication (*Haute Autorité de la communication audiovisuelle*, HACA) in 1982, the first AAI qualified as such by the Constitutional Council (*Conseil constitutionnel*) in 1984. AAI generally intervene in two broad domains:

- Protection of citizens: for example, the CNIL, the Defender of Rights (*Défenseur des droits*), the High Authority for Transparency in Public Life (*Haute Autorité pour la transparence de la vie publique*, HATVP) and the High Authority for the Fight against Discrimination and for Equality (*Haute Autorité de lutte contre les discriminations et pour l'égalité*, HALDE);
- Regulation of an economic activity: for example, the Competition Authority (*Autorité de la concurrence*), the Financial Markets Authority (*Autorité des marchés financiers*, AMF), the Electronic Communications and Postal Services Regulatory Authority (*Autorité de régulation des communications électroniques et de postes*, ARCEP), the Commission for the Regulation of Energy (*Commission de régulation de l'énergie*, CRE) and the Nuclear Safety Authority (*Autorité de sûreté nucléaire*, ASN).

AAI are an exception to the strict separation of powers in the sense that they belong to the executive power, have a regulatory power and a power of sanction, and are therefore judicial in nature. The independence of AAI vis-a-vis the hierarchy of executive power is a specificity with regard to other administrations and to article 20 of the Constitution (which appoints the government as having authority over the administrations). The Constitutional Council in France has limited the regulatory power of each AAI by restricting each one to a specific domain.

The Law of 20th January 2017 provides a legal framework and defines a general status for twenty-six different AAI. It sets out the appointment modalities for the chairmen, the members of their college, their mandate, the rules of conduct, their independence and their functionning.

[a] Contrary to an AAI, an API has a corporate identity and budgetary independence. To this extent, there is a stronger guarantee of its independence from the executive.

[9] The sharing of roles between the European Commission and national authorities is set out in the texts with regard to both anti-competition practices and control of concentrations, but all of these cases can be referred back and forth between the authorities once they have reached an agreement.

[10] See Gélard P. (rep.) (2014): "Autorités administratives indépendantes 2006-2014 : un bilan", *Rapport d'information fait au nom de la Commission des lois*, no 616 (2013-2014), 11 June. In 2010, the MPs Dosière and Vanneste were already criticising the excessive number of regulatory authorities and their cost, recommending closer ties between certain organisations, *cf.* Dosière R. and C. Vanneste (2011): "Sur la mise en œuvre des conclusions du rapport d'information (n° 2925) du 28 octobre 2010 sur les autorités administratives indépendantes" *Rapport d'information du comité d'évaluation et de contrôle des politiques publiques*, no 4020, 1st December.

[11] A very specialised regulator has access to privileged information that he may be tempted to use to his advantage, which can lead to collusion between the regulated entity and the regulator, see Stigler G. (1971): "The Theory of Economic Regulation", *The Bell Journal of Economics and Management Science*, vol. 2, no 1, pp. 3-21 and Laffont J-J. and J. Tirole (1993): *A Theory of Incentives in Procurement and Regulation*, MIT Press, Chapter 11.

[12] Laffont J-J. and D. Martimort (1999): "Separation of Regulators against Collusive Behavior", *RAND Journal of Economics*, vol. 30, no 2, pp. 232-262.

intervene in the same sector, they all have the same information on the businesses, which reduces the risk of informational rent-capture by the regulator (and thus of collusion with the regulated entity). In addition, the existence of an *ex post* control of behaviour by the Competition Authority or by judicial authorities also limits the risk of capture. In the United States, in the 1980s, the incumbent telecommunications operator, AT&T (American Telephone & Telegraph), had managed to convince the regulator, the Federal Communications Commission, that opening up its network to local competitors would be harmful. The competitors, including MCI (Microwave Communications, Inc.), led a legal battle and, in 1984, the court considered that the regulators were captured and ruled in favour of MCI under the anti-trust law.

Transversal regulation implies the reconciliation of several objectives which may end up entering into contradiction. In this "multi-function" framework, the regulator may be led to favour the most accessible outcome from an objective point of view, to the detriment of other activities that are more complex to evaluate. This argument, for example, justifies maintaining the separation between the telecommunications regulator and the audio-visual content regulator (Box 2). A merger of these two regulators would present a risk that the less easily measured objectives be undervalued –here cultural diversity or the defence of the French language– in favour of country-coverage or prices.[13] Therefore, there is no unequivocal answer to the question of where the right level of transversality lies (Table 1). It requires arbitrating, on the one hand, between technical expertise and the risk of capture, and between sectorial convergence and respecting diverse corporate objectives on the other. The structure decision must therefore be made on a case by case basis, depending on the respective weight of the different arguments.

International comparison does not enable France to stand out from its neighbours on the matter of transversality, even if France seems to lean slightly in favour of sectorial regulation over transversal regulation. Of the seven activities listed in Table 2, France has five different regulatory authorities, against four in Germany and the United Kingdom. These agencies are attached to the administration more often in Germany (3 out of 4) than they are in the United Kingdom (0 out of 4) and in France (1 out of 5). Finally, in so far as the cost of sector regulation is lower in France than in Germany or the United Kingdom,[14] any regulatory reorganisation must be supported by potential gains in efficiency and not by attempts to make budgetary savings. The debate on the

2. ARCEP and CSA[a]

The economic convergence between the telecommunications, audio-visual and internet sectors raises the question of the opportunity for joint regulation. Telecommunications operators, television companies and Internet stakeholders broadcast similar content on the same networks and on similar media. All of these entities have to share access to the same resource: the frequencies that belong to the State and which are managed by the National Frequencies Agency (*Agence nationale des fréquences*, ANFR). However, regulation differs greatly from one stakeholder to another; audio-visual entities have free access to the frequencies in exchange for an investment in artistic creation, telecommunications operators finance access to the frequencies, and Internet players have free of charge access without giving anything in exchange. Moreover, it would be useful to have a single representative to foreign partners.

The failure of the attempted merger in 2012 nevertheless highlighted the risk of having a single regulator to resolve disputes that are not within its remit, for example, between efficiency and supporting creation, or between neutrality and cultural policy. Today, the debate seems to have been replaced by a reflexion on how both authorities can work together well, and on understanding the disruption brought by digital technology.

[a] ARCEP: *Autorité de régulation des communications électroniques et des postes* (Authority for Electronic Communications and Postal Services); CSA: *Conseil supérieur de l'audiovisuel* (Superior Council of Audio-Visual).

1. Advantages and disadvantages of specialisation

Specialised regulation	Transversal regulation
Advantages – Skills – No arbitration between multiple objectives	Advantages – Lower risk of capture than a sectorial regulator – Synergies (sectorial convergence) – Reductions of coordination costs
Disadvantages – Greater risk of capture by the regulated sector (except where plurality of regulators for the same sector) – Difficulties of coordination	Disadvantages – Less understanding of sector-specificities – Risk of disputes by the regulator that are not within its remit

Source: Authors.

[13] Cazenave Th., D. Martimort and J. Pouyet (2005): "Crise de regulation" in *Les risques de régulation*, Frison-Roche (dir.), Presses de Sciences Po, Coll. Droit et Économie de la Régulation, vol. 3.

[14] In 2014, the budget of Germany's BNetzA was 183 million euros, against a total of 71.1 million euros for France's regulators of energy, telecommunications, postal services and railways. This difference can be explained for the most part by the number of employees: for an identical perimeter of intervention, Germany has 2,600 employees, against 664 in France (130 jobs for the CRE, 171 for ARCEP, 304 for ANFR and 59 for ARAFER). On the postal services, telecommunications and audio-visual perimeter, the French authorities spent 96 million euros in 2014, against expenditure of 150 million euros by Britain's Office of Communication (OFCOM). In terms of employees, the OFCOM had 767 employees in 2012 against a total of 845 in France, see Arlandis A., C. Bonnery, E. Brousseau, C. Caccinelli, P-F. Edwige, C. Galano, O. Herz, C. Le Bihan-Graf, J-Y. Ollier, P. Perennes, A-B. Schlumberger, A. Souriadakis and J. Toledano (2016): *L'organisation institutionnelle de la régulation en France : quel positionnement et quelles règles pour les autorités en charge de la régulation économique*, Note de la Chaire Gouvernance et Régulation, University Paris-Dauphine.

2. French, German and British regulatory authorities

<table>
<tr><th></th><th>France</th><th>Germany</th><th>United Kingdom</th></tr>
<tr><td>Energy (electricity and gas)</td><td>Commission de régulation de l'énergie (CRE)</td><td>Bundesnetzagentur (BNetzA)</td><td>Office of Gas Electricity Markets (OFGEM)</td></tr>
<tr><td>Aviation transport</td><td>Direction générale de l'aviation civile (DGAC)</td><td>Luftfahrt-Bundesamt</td><td>Civil Aviation Authority (CAA)</td></tr>
<tr><td>Road transport</td><td rowspan="2">Autorités de régulation des activités ferroviaires et routières (ARAFER)</td><td>Kraftfahrt-Bundesamt</td><td rowspan="2">Office of Rail and Road (ORR)</td></tr>
<tr><td>Rail transport</td><td rowspan="3">Bundesnetzagentur (BNetzA)</td></tr>
<tr><td>Postal services</td><td rowspan="2">Autorité de régulation des communications électroniques et des postes (ARCEP)</td><td rowspan="3">Office of Communications (OFCOM)</td></tr>
<tr><td>Telecommunications</td></tr>
<tr><td>Audio-visual</td><td>Conseil supérieur de l'audiovisuel (CSA)</td><td>Direktorenkonferenz der Landesmedienanstalten</td></tr>
</table>

Key: In black, independent authorities; in blue: authorities attached to the administration.

Source: Arlandis A., C. Bonnery, E. Brousseau, C. Caccinelli, P-F. Edwige, C. Galano, O. Herz, C. Le Bihan-Graf, J-Y. Ollier, P. Perennes, A-B. Schlumberger, A. Souriadakis and J. Toledano (2016): *L'organisation institutionnelle de la régulation en France : quel positionnement et quelles règles pour les autorités en charge de la régulation économique*, Note de la Chaire Gouvernance et Régulation, Paris Dauphine University.

subject must not be dichotomic (merger or not) as there are numerous means by which sectorial regulators can exchange information or good practices.[15]

Recommendation 2. Set the scope of sector regulation on a case by case basis, according to sector characteristics. Favour flexible ties between the existing authorities (mutualisation, inter-regulation, operational and team mobility agreements).

Regulator's independence

The independence of the regulatory authority, be it sectorial or transversal, with regard to regulated stakeholders and the State (still often a shareholder), is fundamental. Many rules have been tested and applied to limit the risks of capture: status of members, remuneration, rules of conduct, etc. (see box 3). Moreover, the members of an AAI's college can neither hold electoral mandates, nor finance an electoral campaign. In most countries, including France, rules of conduct prohibit members from receiving aid or gratification from the regulated businesses and AAI employees cannot take up employment within the regulated businesses immediately after leaving their job with the regulator.

How should the regulator's independence be measured? Thatcher (2002) measured the ease with which a member of one AAI college goes back and forth between regulated business and regulator (a phenomenon known as the "revolving door"). During the period 1990-2001, it was noted that except in the United Kingdom, regulators recruit few of their members from the private sector but that they do supply many of their former employees to the private sector. France is an exception with very little back and forth mobility (Graph 2).[16]

However, independence also depends on the existence of a pluriannual independent budget, transparent appointment of the chairmen of regulatory authorities, and the existence of a clear mission statement.[17] According to these criteria, France still has room for improvement, when it comes to matters of professionnal conduct, budgetary independence of the authorities, as well as the appointment of their members. In particular, *de facto* independence is just as important as *de jure* independence: in practical terms, independence is assessed with reference to the relations between the authority and the government on the one hand, and between the authority and the businesses on the other.

Recommendation 3. Reinforce and guarantee de *jure* and *de facto* independence of sector regulators with regard to both the regulated sector and political power.

Implementing this recommendation would mean putting an end to budgetary supervision of the regulatory authorities (without removing the two-fold supervision of their operational spending by Parliament and the Court of Auditors) and rethinking the procedures for the appointment of the regulators' chairmen and the members of the colleges. To this end, the more transparent procedure adopted in 2017 for the appointment of the

[15] For a full typology of forms of ties between regulatory authorities, see Arlandis *et al.* (2016), *op. cit.*

[16] Thatcher M. (2002): "Regulation After Delegation: Independent Regulatory Agencies in Europe", *Journal of European Public Policy*, vol. 9, no 6, pp. 954-972. In addition, Thatcher also notes that in France, there is a relatively small number of appeals following an AAI decision.

[17] OCDE (2016): *Being an Independent Regulator*, Coll. The Governance of Regulators, 19 July.

3. Independence of the regulators

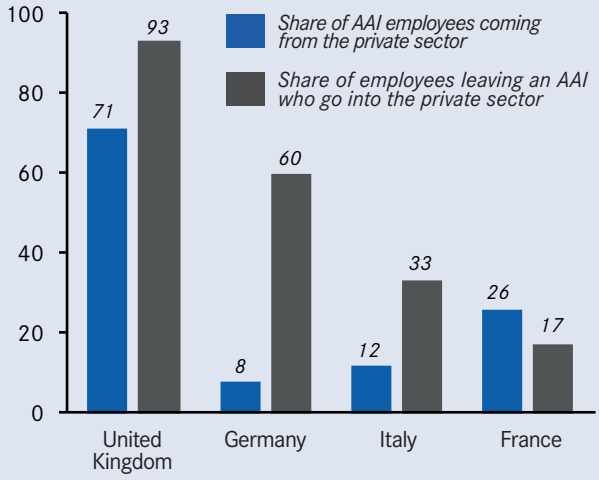
The independence of regulatory authorities is defined in reference to both the political power and the regulated operators:

- Independence with regard to the political power, in order to avoid interference between the objectives of general policy and those of sectorial regulation, and the distortions linked to private interests and the shareholder State;
- Independence with regard to the regulated operator, to avoid the risk of capture. As the regulator is close to the businesses it regulates or because of asymmetrical information, it may turn away from the objectives that have been set for it and pursue private interests. It is therefore necessary to shield regulatory authorities from the influence of pressure groups (historical operators and new entrants).

Independence relies upon the composition of the regulatory authorities (the presence of college structures, for example, enables the influence of pressure groups to be reduced), exercising the power of appointment and dismissal of leaders, the status of their members, the human and financial means which they have at their disposal in order to fulfil their missions and the nature of the employment that is accessible upon leaving the authority. The guarantees take the form of statements of interest and declarations of one's estate, regimes of incompatibility, offset obligations, and also challenge procedures. The provisions do not dispense the authorities from having to account to the political power. They vary from one country to another and/or from one sector to another.

Article 9 of the Law of 20th January 2017 has established a general rule that the members of AAI and API "shall accept no individual public position that is prejudicial to the proper functioning of the authority to which they belong" (duty of impartiality) and "shall neither receive nor solicit instruction from any authority" (independence). Likewise, the conditions of recruitment, the exercise of the functions of college members and of personnel in AAI departments are governed by rules that aim to guard against any conflict of interest.

2. Source and destination of regulatory agencies' employees, 1990-2001, in %



Source: Authors from Tchatcher (2002).

new chairman of the Financial Markets Authority (*Autorité des marchés financiers*, AMF) (and, for the first time, *via* a call for applications, as is done in the United Kingdom) is a step in the right direction. The appointment of qualified individuals within the colleges could also be more directly linked to skills. However, the independence requirement does not exonerate the independent authority from its responsibility towards the political power. As provided under the law of 2017, the requirement that regulators file annual reports (that are made public) to the Parliament as well as the existence of parliamentary hearings,[18] enable the regulators to not only to be accountable to the exercise of their missions, but also to raise alerts and/or to make recommendations.

It is important to note, however, that over time, the risks of capture and collusion increase: those involved get to know each other more, the regulator accumulates privileged information, and pressure groups become more efficient. To avoid capture, institutional rules are multiplied and bureaucratisation progresses, making regulation more costly, less discretionary, and finally less efficient.[19] Both risks linked to the ageing of the authority –capture and bureaucratisation– incite periodical reassessment of the boundaries and/or renewal of those in charge.

Lastly, the matter of the regulator's independence is closely linked to that of competence. As far as regulated stakeholders are concerned, the regulator must offset its advantage in terms of information and employees by mastering a wide range of skills. Sector-specific skills (sectorial economy, specific areas of the law, technology, etc.), but also trans-sectorial skills justify stronger academic background or to experience from other sectors.

However, several factors make it difficult to recruit the needed profiles both within the colleges and within the various departments (when recruiting for positions with high levels of responsibility). For a high level of seniority, the remunerations are generally not that attractive compared to those offered by regulated operators. In addition, the strong restrictions imposed on the individuals when they leave their job reduce the appeal of the position for management-level employees from these sectors, except in the twilight years of their career. The search for sector experts is thus under tension with the guarantee of independence: there must be arbitration between strict rules of conduct and access to a quality recruiting pool.

[18] See the Rapport d'information du Sénat sur les AAI, Gélard (2014), *op. cit*.

[19] Martimort D. (1999): "The Life Cycle of Regulatory Agencies: Dynamic Capture and Transaction Costs", *The Review of Economic Studies*, vol. 66, no 4, pp. 929-947.

Recommendation 4. Attract the necessary sets of skills by competitive salaries and enhanced mobility in the non-regulated public or private sphere.

Ex ante or ex *post* regulation: France or Europe ?

Sector regulation and competition policy

The division of roles between economic regulation and competition policy varies over time and according to the country. In the United Kingdom, some sectors (energy, telecommunications, railways, water, etc.) have a sector regulator which oversees both *ex ante* regulation and *ex post* implementation of competition policy. In other countries, as in France, a strict separation of roles is applied by institutional organisation: in sectors where a sector regulator exists, its remit is quite separate from that of the Competition Authority, bearing a transversal role.[20] Beyond this institutional set up, some sectors are regulated in some countries but not in others. In 1980, the United Kingdom opened up coach transport to competition, yet without submitting the sector to sectorial regulation (with the exception of London), whereas the Macron law of 2015,[21] which opens up this sector to competition in France, placed its regulation in the hands of ARAFER.

Although the field of sector regulation looks like an evolutive mosaic, the theoretical principles that allow defining what ought to be the exclusive competency of competition policy, are, however, fairly clear.[22] The role of sector regulation is to organise the market *ex ante*, whereas that of competition policy is to detect and to sanction *ex post* anti-competition behaviour by operators on the markets. Thus, determining the number of licences issued (cell phone operators), how they are awarded (auction, "beauty contests"), conditions of access to an essential infrastructure (copper pair in telecommunications, railways, nuclear capacity), certain prices apart from access prices (such as the public prices of gas and electricity), as well as other possible conditions (authorised technologies, location of activities, obligations of universal service, etc.), all belong to the field of sector regulation.

Intervening upstream, sector regulators always operate in situations where the operational market conditions are uncertain and where information with regard to operators is asymmetrical. The latter aspect, which has been widely developed in the literature,[23] gives rise to many difficulties: the regulator often has to make decisions, including in the pricing domain, although he lacks knowledge of the operators' costs or has biased information, and thus operators seek to obtain more favourable conditions from the regulator. Regulation theory emphasises the need for arbitration between the unearned income that is surrendered to regulated businesses and the obtention of relevant information. The information asymmetry the regulator has to tolerate also raises a problem when determining the optimal number of licences to issue onto the market: if the regulator is unfamiliar with the technology, he is unable to appreciate the sharing of fixed and variable costs, a decisive factor in determining the optimal number of licences. Sectorial regulation, in charge of market design (number of operators and perimeter of their activity, conditions of access to infrastructures, integration or vertical disintegration) therefore has to make structural decisions in a context of information asymmetry. It is therefore necessary to design contracts that force operators to reveal the information they hold.

Conversely, in theory, a competition authority does not ask itself any of these questions. As it deals with behaviour, or in other words, the strategies of businesses having observable consequences on the markets, it ought to be able to identify those which have negative consequences on competition.

However, in practice, the boundaries may be less clear. Firstly, over the years, competition authorities have seen an increase in their powers, with the aim of being efficient and particularly of keeping pace of their interventions with the business world. The Competition Authority's ability to issue injunctions that constrain the future behaviour of stakeholders is therefore often seen as an incursion, or even an intrusion, into the field of regulation.[24] Further, competition authorities can obtain sectorial analyses to raise alerts, beyond the realm of any dispute, on restrictions on competition that exist in a given sector. This is a form of *ex ante* intervention that is sometimes contested for that very reason. Symmetrically, sectorial regulators have acquired the ability to intervene *ex post* through their role in matters of dispute resolution.

[20] Nevertheless, the organisation of competition regulation has also evolved: all matters relating to competition regulation have only been in the hands of the Competition Authority since 2008 when the Law on Economic Modernisation came into force. Previously, competition regulation was shared with the Directorate General for Competition, Consumption and the Repression of Fraud (*Direction générale de la concurrence, de la consommation et de la répression des fraudes*, DGCCRF) which was in charge of monitoring concentration. Regulation and monitoring sometimes coexist in the field of finance.

[21] "Loi pour la croissance, l'activité et l'égalité des chances économiques" , passed on 7 August 2015.

[22] See, Perrot A. (2002): "Les frontières entre régulation sectorielle et politique de la concurrence", *Revue Française d'Économie*, vol. 16, no 4, pp. 81-112, January.

[23] See Laffont and Tirole (1993), *op. cit.*

[24] Including *via* protective measures as far as the French Competition Authority is concerned, contrary to the European Commission which does not have this power. In addition, there are several examples of direct pricing regulation by a competition authority, facing "abusive use" whose origin does not lie in the setting up of barriers to entry. In the United Kingdom, before the Office of Fair Trading became the Competition and Markets Authority, it set the prices of drugs it considered to be too high. France's Competition Authority has asked banks to lower rates of commission on credit card payments with retailers.

Thus, the sharing of tasks between sectorial and competition authorities has tended to fade in the last few years.

Consequently, how can it be decided that a market falls within a specific sector regulation that is applied *ex ante* or within the *ex post* surveillance of competition authorities? As we have seen, the existence of a natural monopoly requires *ex ante* regulation. When in addition, the upstream monopoly (for example, the railway network) has a downstream activity (the carriage of passengers), the risk that it implements pricing that excludes competitors ("pricing scissors") requires *ex ante* intervention by the regulator. In the telecommunications sector, the European Commission considers that sector regulation should be set up when three conditions are present: the existence of high and sustainable barriers upon entry, the absence of evolution towards a genuine situation of competition over a period of three years, and where competition law alone is insufficient to alleviate the problems identified. This is the basis upon which the Competition Authority and ARCEP have organised their share of interventions in France. However, the telecommunications sector is currently reaching the end of a cycle in terms of regulation: the frequencies have been allocated, the prices and number of stakeholders have been stabilised, and access to the infrastructures of the historical operator have been guaranteed. In this respect, *ex post* regulation alone by the competition authority might suffice. This gradual "extinction" of regulation following the opening up to competition is already a reality in the field of retail market pricing regulation.[25] ARCEP now confines itself to regulating the wholesale market to ensure that the historical operators make the means of their activity available to competitors. Going further and intervening in the retail markets could introduce a bias in the conditions of competition.

Generally speaking, sectorial regulation is expected to evolve over time, depending on the state of achievement of the opening up to competition process and on the market's maturity. Obligations with regard to universal service nevertheless remain and are compatible with opening up to competition. They justify neither the creation of a specific regulatory authority, nor maintaining regulators in their positions and initial perimeter of action.

Recommendation 5. When a sector fully opened up to competition, *ex ante* regulation is no longer justified; only downstream control by the Competition Authority remains necessary.

National and European regulations

The matter of regulatory tasks distribution between the national and European levels is raised in network activities once markets affected by the regulation's scope exceed the national framework and operate within the European economic area. This is the case of air transport: the European Aviation Safety Agency (EASA) issues certifications and sets the regulations with the aim of ensuring not only the safety of passengers and personnel, but also of developing fair competition between operators. However, the "right" level of regulation –national or European– is not necessarily identical in all sectors as the existence of common policies, or fragmentation of the national market as well as the level of technicity have to be taken into account.

In the fields of telecommunications or railways, a large part of regulation consists of introducing competition or, alternatively, in regulating a monopolistic situation. The common policy is clear: it corresponds to objectives of the single market. In the case of the railways, an environmental objective could also be added (development of freight). The level of regulation –national or European– and the type of regulation required (even the need for *ex ante* regulation) must essentially respond to an efficiency concern depending on the results obtained, and evolve over time. With the development in interoperability one might imagine, for example, a grouping of aviation and railway regulators (the latter also having competence on road transport in France).

Conversely, European regulation in the field of energy operates without a common energy policy (mixed energy sources, procurement strategy, etc.) and with infranational fragmentation of the market. We might also add the extreme technicity of network management and the limited capacity of the interconnections. In this context, future efficiency gains will come mainly from infrastructures and from the deployment of smart grids, or even from blockchain technology, the challenge being mainly about overcoming peak power consumption, which is extremely costly for network managers. This seems to be the direction in which the European Commission wishes to go with its fourth energy package (November 2016), which widens the ambit of the European Agency for the Cooperation of Energy Regulators (ACER) (increased responsibility with regard to network codes, for example) and has instructed it to carry out new missions (such as the coordination of certain functions linked to future regional operations centres, for example, or the surveillance of nominated electricity market operators (NEMOs). Although the proposals

[25] In 2005, ARCEP had imposed pricing on retail markets at France Télécom. Then, in favour of developing competition and a cross-section of opinion between the Competition Authority and ARCEP, the retail market's exit from regulation began in September 2006 with pricing controls on residential communication offers, for example, being removed in 2007.

have generated numerous reserves from national regulators, parliamentarians and the European Network of Transmission System Operators (ENTSO), raising issues of loss of efficiency and of the principle of subsidiarity, they are part of a flexible framework in which the level of regulation depends not only on the sector, but also on the activity concerned.

Recommendation 6. Reinforce cooperation efforts in regulatory fields where cross-border externalities are important, without necessarily adopting a single scheme for all sectors, nor for all activities of a given sector.

Should digital platforms be regulated?

The "digital economy" includes a whole series of subjects which are not equally relevant in terms of regulation. Some of them clearly fall within the field of competition policy. Other aspects of the digital economy, such as the nationwide deployment of 4G, fall within the sector regulation of telecommunications. However, the subject of these digital platforms raises new questions. We stated above that sector regulation must be able to adapt to market developments. The irruption of the platform economy is an excellent textbook case.

The ability of digital platforms to avoid paying taxes, circumvent labour law constraints, use data they collect in ways that are not entirely transparent, as well as their reputation of "manipulating" research results by opaque algorithms and of maximising their income by favouring results that show them in a most favourable light, means that specific sectorial regulation of these stakeholders is constantly being brought back to the table. Not all of the subjects raised by the digital economy belong to the same field of intervention, since issues relate to the economy of labour, taxation, and competition regulation. In this instance, we will consider aspects that are strictly linked to the control of market power.

Three arguments put forward in favour of economic regulation of platforms appear debatable.[26]

The first argument is the size of the platforms, which results from the effects of the networks involved in digital technology. Without having to deploy exclusionary anti-competition strategies, large platforms are the ones that succeed on the market, their size being consubstantial to their efficiency.[27] Apart from the pertinence of the service rendered and the quality of the algorithm, the number and variety of transactions determine the attractiveness of a platform for consumers and professionals alike. Many platforms are much bigger than the economic agents they deal with: think of hotels compared to the size of booking platforms like Booking or Expedia, of taxi-drivers compared to Uber, or of price comparators in face of Google. Nevertheless, being a large operator, particularly when it leads to holding a dominant position, is not sufficient to justify public intervention. In competition law, only dominant position abuse is sanctioned; in the field of sectorial regulation, there is no justification for regulating a stakeholder simply because he appears to occupy a monopoly.

The second argument in favour of regulation is the difficulty of being able to bring the usual market mechanisms into play. On traditional markets, a business that has high prices is threatened by the arrival of competitors who are able to offer competing products and services at a lower price, of higher quality, or with characteristics that respond better to buyers' needs or preferences. This ability also exists in the digital world, including multi-homing configurations in which stakeholders use the services of competitor platforms. However, a new entity offering a lower-priced service will come up against the size of the network already being operated by the existing platforms or "installed base". For example, an online hotel booking platform may enter into competition with a dominant platform by offering lower prices, but it will have to convince hotel owners and consumers to use its services although the other side of the market is not yet present. This mechanism pushes the agents on one side of the market (hotels and consumers in the case of hotel booking platforms) to use the services of a single platform (the one where the greatest number of agents from the other side are present): this single-homing behaviour makes the usual competition mechanisms less efficient than on classic markets where network effects do not come into play. When there is large mobility between platforms or when multi-homing is the rule, the market has at its disposal all the necessary competitive fluidity: this is the case of VTC, music and video platforms. However, there are cases where attachment to a platform involves important costs that cannot be recovered if you change operator: in this case, the market mechanisms play an imperfect role. Network effects can therefore underpin important barriers to entry and restrict competitive price mechanisms. But in many cases, the ability to put the stakeholders into competition exists (multi-homing) and consumers do indeed make use of this possibility. In particular, unearned income linked to single-homing can attract the entry of new stakeholders whose aim is to facilitate mobility (by the transfer of data) or the aggregation of different offers.

The third argument, the accumulation of data by certain platforms that were first to enter their markets, might, in some cases, constitute a barrier to entry, this data being impossible for new entrants to produce. This argument should nevertheless be considered with caution: none of the platforms

[26] Toledano J. (2017): "Réguler le "numérique" ? Les plateformes numériques ? Ou plutôt Adapter les régulations au XXIe siècle", *GovReg Working Paper Series*, no 2017/03.

[27] See Colin N., A. Landier, P. Mohnen and A. Perrot (2015): "The Digital Economy", *Note du CAE*, no 26, October.

having entered their respective markets sequentially has been hindered by a problem of access to data held by existing competitors. By way of illustration, with regard to services relying upon geolocation data, all platforms listing local services (hotels, restaurants, shops), like those offering transport services, have been able to deploy their offer without having recourse to data held by the first entrants. The multitude of users means that the platforms are able to generate the data necessary for their activity without being held back by the fact that rivals hold the same data: none of the cases brought before the French or European competition authorities concerns any such barrier to entry. A platform that provides a better service as it has better algorithms in its possession rapidly attracts users who bring their data with them. This observation is shared by the German (*Bundeskartellamt*) and French (*Autorité de la concurrence*) competition authorities who published a common report in 2016 about this issue,[28] concluding that as things stand, holding data does not appear to be a barrier to entry worth worrying about.

There are much more solid arguments to justify the application of ordinary competition law to digital activities. Firstly, even when digital platforms are concerned, cases of abusive use (excessive prices, for example) are not that frequent. Cases dealt with today by the DG Competition at the European Commission, like the one that gave rise to a statement of claim to Google on 15th April 2015, concern abusive exclusionary behaviour, of a nature that the competition authorities are used to handle. There is no need for more interventionist tools. One objection can be raised about the excessive amount of time it takes for cases to be dealt with compared to the irreversible nature of damage to competitiveness that can be caused. It is true that the Commission lacks instruments to act quickly, but that is not the case in France where the Competition Authority can take protective measures in a short space of time, and then suspend them, enabling it to deal with behaviour that is prejudicial to market development.[29] Next, the platforms' strategies are deployed for the most part on competitive markets, such as advertising. Consequently, it is possible to stop the platforms' behaviour on these markets using the usual competition law tools. Lastly, "digital technology" is not a sector. Digital technologies irrigate the economy as a whole and many services –be they classic and disrupted by digital technologies (as taxis have been by the other actors), or completely new (like those that provide real time guidance to drivers in heavy traffic)– rely upon platform technology where network effects are played to the full.

Moreover, we cannot see what these more relevant additional instruments available to a sectorial regulator would be. Any new entrant can break into a market segment by proposing a new technology, a new service or an innovative business model. To regulate prices or commission rates applied by the platforms, the sectorial regulator should engage in the same type of benchmarking exercise as that led by the competition authorities having to rule on an excessive pricing claim. Thus, if we were to apply to the markets served by platforms the three criteria that apply in the telecommunications market mentioned above, the criterion of competition law's insufficiency would be lacking.

However, the platforms call for regulation other than that of markets. We have not developed these elements here as they are beyond the scope of this *Note*. The challenge represented by the protection of personal data, for example, that linked to the neutrality of the network, questions relating to the diversity of information and the transparency of algorithms, the loyalty of the platforms, or the need to define European tools that limit fiscal optimisation, should certainly be the subject of public intervention. Some of these issues have been dealt with by the law for a digital Republic.[30] Article 19 in particular establishes a reinforced duty for the platforms to provide information for the consumer. However, a duty of transparency towards professionals might be added to these provisions, particularly with regard to referencing procedures on these platforms.

Recommendation 7. Do not impose specific economic regulation (market entry, type of activity, pricing) on digital platforms. Limit the regulatory scope for digital technologies to other factors such as taxation, protection of personal data, loyalty and transparency of algorithms.

Nevertheless, the irruption of digital platforms into different sectors of the economy requires an increase in the competences of the various regulators with regard to the technologies and mechanisms of the digital economy. To adapt regulation, regulators need personnel who are trained in IT, data management and analysis, etc.[31] The job has evolved, as have the skills required to do it. Adapting regulation to digital innovation can also change how regulation is carried out, for example, by using "multitude" for real time feedback on the finer details of the state of the network. Making the information available may finally enable the market to self-regulate

[28] See Autorité de la Concurrence and Bundeskartellamt (2016): *Competition Law and Data*, 10 May. Available on www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf

[29] This was the case in June 2010, for example, on the subject of online advertising. After Navx, a company that markets radar databases on the internet, filed a claim to the Competition Authority, the latter decided to announce emergency measures before making its decision on the facts, considering that "the content policy of the AdWords service had been set up by Google in conditions that lacked objectivity and transparency and that led to a discriminatory handling of radar database suppliers". The Competition Authority thus requested Google to clarify for advertisers, "in objective, transparent and non-discriminatory conditions", the scope of the AdWords rules and its procedures enabling an account to be suspended, and to reinstate the AdWords account of the company Navx.

[30] *Law "pour une République numérique"*, no 2016-1321, 2016 October 7.

[31] See Colin, Landier, Mohnen and Perrot (2015) *op. cit*.

up to a certain degree. The website monreseaumobile.fr set up by ARCEP, provides a good example of this new form of regulation using data. Users access a map of the different operators' geographical cover, as well as their quality of service. Drawn up using information collected from operators and users, this data facilitates consumer mobility and can also be used by other stakeholders to develop new services.

Recommendation 8. Develop skills in digital tools and data science within the regulatory authorities.

Sharing responsibility in matters of regulation –upstream and downstream, on a national and a European level– has to evolve in relation to the maturity of competition or technological evolutions. The principles of these different forms of economic regulation are not fundamentally challenged by digital technologies. However, the irruption of digital technology leads to methods being reconsidered.

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