Interview with Yves Gassot

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For more than twenty years, Yves Gassot served as general manager of IDATE DigiWorld, where he worked on several projects on the evolving market in telecommunications and, more broadly, digital technology. He has authored several articles, and was publishing director of *Communications & Stratégies* and *DigiWorld Yearbook*. He served as advisor to Viviane Reding, EU Commissioner, during the review of the regulatory framework on electronic communications; and sat on the board of Orange. Yves Gassot is an associate member of the Conseil Général de l'Économie and of Iris Capital's committee on strategy. His educational background is architecture (DPLG-Paris) with a master's degree in urbanism and a graduate degree from EP Paris.[1]

— **Digital Issues [DI]**: What does "big data" mean?

— **Yves Gassot [YG]**: The phrase was coined at the end of the 1990s. It is relatively recent, and refers to several trends.

First of all, the exploding production of data, combined with the continuous growth in the number of cybernauts, amplified during the past ten years by the generalized use of mobile devices for connection to the Internet, the switch to digital technology in the realm of music and videos, the intensification of exchanges via the social media…. Of course, firms are full-fledged producers of data owing to their internal operations and relations with suppliers and customers. Finally, it is necessary to underscore the Internet of things (IoT), which is pushing to infinity the limits of Internet connections and streaming. To gauge the world production of data, we can, for example, no longer use gigabytes (8 billion bits), or even terabytes (1000 gigabytes) but dozens of zettabytes (1000 billion gigabytes).[2]

Underlying this accelerated production of data are several major advances related to the capacities for transmission (optical fiber, 4G, 5G and WiFi), storage, computation and processing (better components, the infrastructure of data centers linked in a cloud architecture, and the new algorithms). According to the British firm ARM, a leader in the design of smartphone components, the performance of computers was multiplied by 80 between 2009 and 2015, of graphic cards by 158, and of display resolution by 24.

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[1] This article has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor's approval, completed a few bibliographical references.

[2] It is said that 90% of the data now available in the world has been produced during the past two years.

—**DI**: Is it possible to say "data-driven"?

—**YG**: We also say the "data economy", which will take the place of the energy economy associated with the industrial revolution — just as we saw, during the 1990s, the "information society" replace "consumer society". In fact, the data economy is now dominant, having toppled the oil majors, since it accounts for the top ten biggest firms in stock markets worldwide (Apple, Amazon, Alphabet/Google, Microsoft, Facebook and, too, Tencent, Alibaba).

The reason that, for several decades now, information systems have been considered to be the nervous system of firms and organizations is that the processing of masses of data has come to be seen as a key factor related to all aspects of change in a firm. For example, a telecommunications firm looks in the data for evidence that customers might want to terminate subscriptions and, too, for automated solutions to optimize in real time its network or to detect possible cyberattacks. Data are intrinsically linked to the business model in some firms. This is naturally so for the big Internet platforms, with Google drawing most of its income from its search engine's power and dominant position, while Facebook has made record profits by selling its data on the new market for targeted advertising (with the consequent risks, as we have recently seen: fake news and the data breach by Cambridge Analytic).

Let us not forget, however, that data also have a place outside the purely market economy: the success of websites for exchanges (not necessarily commercial), the management of urban complexity (the opening of urban data in order to optimize transportation or zoning), and the progress made in meteorology, medicine and, more broadly, the sciences.

At the same time, I believe it is right to say that the phrase "big data" refers, above all, to practices yet to come. In relation to big data, many firms, even important ones, are still in a learning phase. They do not master the phenomenon well enough to factor it into their core activities. The migration toward the cloud is far from over, the IoT is just starting…. The abundance of data can be likened to a sort of chaos if we lack know-how and skills (which the leaders of the Internet often grab up) and a strategy for setting priorities in the fields of data and data analytics. In these conditions, it is necessary to be able to count on a corporate leadership that is committed, ready to back the goals and, too, provide backing for the chances that will arise during this digital transition.

— **DI**: How to describe the disruption caused by big data?

— **YG**: Three characteristics have been associated with big data by using the three *v*'s. First of all, evidently, there is the VOLUME. Then too, VARIETY — to simplify, a firm is not going to have the most important and powerful analytics by sticking to its own data or to data specific to its business. For this reason, firms have formed that not only put to use their skills for processing data but also intervene as data brokers. Finally, VELOCITY: the processing of data will usually prove to be the most relevant when done in real time.

But before talking about disruption, it is necessary to mention another notion that, directly associated with big data, is even, ever more, being used in the comments made about the digital transition: artificial intelligence and its latest developments in the form of machine learning. Nowadays, the fantastic progress made in artificial intelligence can impart new ambitions and prospects to the processing and value of data.

Artificial intelligence is a rather old phrase coined in the 1950s in laboratories at Stanford. It was then more or less forgotten despite the development of expert systems in the 1970s. At the time, the intent was to dissect subjects (not too complex) by applying to them the rules of causality established by using a limited set of structured data. In the case of big data, we have, to make things simple, switched from this causal approach to a search for correlations by using a very large number of data (often unstructured).

Developments have focused on the algorithms based on machine learning, whereby a machine can gradually master the many combinations used in the game of Go, or tell an image of a cat apart from a dog's…. In spite of the spectacular results obtained and their importance in fields related to perception (voice and shape recognition), experts in these fields insist that this always involves supervised intelligence. Thousands of graphics had to be encoded as being images of dogs for the machine to learn to tell the difference with images of cats. The machine DeepMind (Alphabet/Google) beat the world champion at Go in 2016, but it would not venture, without supervised learning, into a game of chess….

We still seem quite far from an artificial intelligence that would have the human intelligence of perception and reasoning, not to mention consciousness.

— **THEN**: What are the new regulatory issues?

— **YG**: Alongside the expected progress, there is a slue of very complicated regulatory problems. To mention a few:

● a risk related to the conservation of personal data. Data collection, while helping to finance innovation and the applications offered to cybernauts, also carries the risks of cybercriminality and arouses fears about the control over personal data.[3]

● a problem of competition. The domination of the big Internet platforms is sustained by the ongoing accumulation of data owing to their model and financial clout — which enables them to buy the most promising talents and start-ups in artificial intelligence.

As often, the concentration of technology in the hands of a small number of players is a complex phenomenon to be regulated since it carries, on the one side, advantages for consumers and, too, for businesses that thus have the opportunity to become part of high-performance ecosystems, but, on the other side, risks related to the control over personal data and to market distortion owing to new entry barriers.

Take the example of the vocal interfaces that, based on recent advances in artificial intelligence, are installed in smartphones or domestic robots by Apple, Google, Amazon, Samsung and Microsoft. Consumers might see this as progress without also seeing that it can limit the choices of the music to be streamed, since access is offered via a specific catalog. We can also suspect that the latest innovations involving artificial intelligence give advantages to the applications of the big platforms even as they make it harder for consumers to switch platforms.

To be effective, regulatory provisions at the level of a country or group of countries (the EU) have to be negotiated internationally, even though the stakes are often different for different players. We might mention the repeated negotiations between Europe and the United States (Safe Harbor and then Privacy Shield) and, too, the discussions among members of the European Union who do not all share the same sensitivity to this topic.

It is also important to point to other debates. For example, the debate about the symmetry of rules in the value chain. Telecommunications firms emphasize that providers of over-the-top content (OTT) are much less regulated with regard to their management of personal data than are Internet access-providers. Another example: the debate that usually sets the giants of the Internet at odds with public authorities. We have seen: Microsoft opposing US authorities who wanted to examine the data in one of its centers in Ireland; Apple refusing to "open" the OS of its iPhone in a criminal affair in the United States, and Whatsapp being momentarily closed in Brazil at the demand of a judge who wanted access to the contents of its encrypted messaging service.

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[3] *Cf*. the EU's GDPR that took effect in May 2018.

Let me also emphasize the impact that a "regulation by the data" could have, in particular via an appeal to consumers in the spirit of the thoughts on this subject by Nicolas Colin and Henri Verdier.[4] French telecommunications regulators[5] have adopted this approach by making available to users maps where they can grade the quality of mobile services by geographical area.

— **EN**: Is it necessary to regulate platforms and algorithms?

— **YG**: I think it is rather hard and might even be dangerous to prescribe general *ex ante* regulations specific to Internet platforms. Perhaps, we should first make sure that the various bodies of law (on contracts, intellectual property, taxes, competition, consumers…) are applied. When need be, we should create a balance of power for imposing remedies. Advances are possible, and a start has been made. We have seen public authorities forcing a major platform for hotel reservations to abandon the principle of exclusivity in its contracts with hotels. We have also seen Google having to make changes in the operation of its search engine. We can imagine controlling the algorithms used by the platforms that dominate the market by running checks from time to time to see whether the platform's recommendations are grounded, for example, the recommendations based on what your friends "like".

For all that, I am quite concerned when I see that the initial reflex to cope with a disruptive innovation is limited to regulations. It is, of course, also necessary to count on the dynamics of innovation and competition and, for this, to favor investments in knowledge and creations. After all, we have seen new platforms (Uber, AirBnB, Spotify, Netflix…) emerge in certain sectors; and the GAFAM[6] often have trouble making their "horizontal diversification" a success.

— **EN**: What remarks to make about the positioning of Europe in relation to the dynamism of the United States and the catchup by China?

— **YG**: Europe is missing among the top ten firms in the stock market where, as I said, the giants are GAFAM and their Chinese counterparts (Tencent, Alibaba, Baidu). So, the situation is not brilliant, but keep in mind that we are only at the start of the digital transition. We still have assets in the IoT, artificial intelligence (world renown researchers), telecommunications, and the culture and entertainment industry (especially video games). Although European investments in venture capital are still lagging, the difference with the United States is narrowing; and the ecosystems of startups in London, Paris and Berlin are, for sure, going to generate more and more "unicorns". A last point: the digital transition, as it affects manufacturing, where Europe has powerful firms (aviation, automobiles, energy, etc.), is making new challenges to industry (Industry 4.0) and opening new fields where new European leaders can emerge in digital technology.

— **EN**: What recommendations would you make for policies at the European level?

— **YG**:
● *1)* Education — the quality and depth of basic and higher (and life-long) education — is a recognized priority but one that is not yet sufficiently taken into account. Scientific education has to be reinforced without opening the ill-founded quarrel with the "soft" sciences. This is the condition for not just putting up with the digital transition and, too, for keeping Europe from just being subject to the polarization of jobs.
● *2)* The progress observed in startups and the "entrepreneurial culture" must be pursued. Tax policies must be adopted for better orienting savings so as to revitalize the economy and upgrade production. We will avoid the well-known "age of stagnation" by reducing the

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[4] COLIN N. & VERDIER H. (2015) *L âge de la multitude: Entreprendre et gouverner après la révolution numérique* (Paris: Armand Colin).
[5] ARCEP: Autorité de Régulation des Communications Électroniques et des Postes.
[6] GAFAM: Google, Apple, Facebook, Amazon and Microsoft.

productivity gap between the 10% of firms that are the most advanced in the digital transition and the others that are still holding back.

● *3)* Despite fluctuations in plans for the EU, member states must continue their efforts to harmonize the regulatory framework so as to benefit from a big domestic market and stimulate the growth of European firms that will become leaders. In addition, "digital Europe" must be touted as a mobilizing project, an alternative to the trends that destroy confidence. These are the stakes in discussions about the fiscal status of platforms, the abuse of dominant position, the control of personal data, and the fight against cybercriminality.

● *4)* More recognition must be given to the eminent place of digital technology for saving energy (Alternative sources of energy will not be systematically used without "smart grids") and the reduction of pollution ("smart cities"). This must become a source of confidence in innovation and of adherence to a strategic axis joining the digital and energy transitions.

— **EN**: A final question: what evolution do you see for big data in the coming years?

— **YG**: When observing the various categories of startups and the techniques used, we notice that big data, combined with the advances in artificial intelligence, are a source of innovation in all sectors of the digital technology. The IoT is going to circulate data and radically transform the maintenance of big complex systems (predictive maintenance). Cybersecurity, by integrating ever more artificial intelligence, is going to be able to detect "weak signals", the precursors of attacks. Treating cancer is no longer conceivable without the help of systems capable of exploiting gigantic databases in order to hone a diagnosis and evaluate the best treatment. I could continue with driverless cars, the virtualization of telecommunications networks, FinTech, InsurTech, "programmed marketing", etc.

As we see, the prospects are impressive; but we are, I repeat, at the very start; and concrete uses in firms are still sometimes rudimentary. The cloud and IoT are still being rolled out. Regulatory options are still uncertain. The place that cybercriminality will occupy is hard to gauge… In the current context, the rhythm at which the big data trend is being generalized and, above all, the industrial and geopolitical scenarios accompanying it are not yet very clear.