



Revue *Hybrid*, n° 3

« Digital Cultures: Alternatives »

Technological Sovereignty: What Chances for Alternative Practices to Emerge in Daily IT Use?

Natalia Calderón Beltrán

After a Master's degree in Modern History at La Sorbonne and in Political Studies at the EHESS, Natalia Calderón Beltrán joined the CEMTI as a doctoral student and teacher. She currently works on the production of open source software as common good in Cuba. She is also interested in the question of political violence and political socialization in Latin America. She was consultant for the research center on humanitarian action and knowledge of Doctors without borders. Her activities also led her to become a translator in those fields. She recently published in the *Anthologie en trois volumes* (1970-1986) of Armand Mattelart's works, from Spanish to French.

Abstract

This paper presents the tension between commercial monopolistic practices offered by Google, Amazon, Facebook, Apple and Microsoft (GAFAM) in terms of IT and the possible conditions of alternative practices. While the globalization of the IT industry is seen as a “democratization of knowledge,” we will attempt to show that, on the contrary, digital alphabetization left in the hands of the IT giants leads to practices that are shaped in their own interest. By getting into the users' daily life, it walks off with vocabulary and imagination, thus ensuring the preservation of its monopole and preventing the emancipation possibilities that IT seemed to promise. However, some of these advances are blocked by alternative practices (recovering vocabulary, creating free software and promoting alternative alphabetization). This paper takes an interest in this activist field and offers several leads for a reflexive approach for a free and truly emancipating IT pedagogy.

Keywords: alternative IT, *big data*, depriving software, digital alphabetization, free software, GAFAM, imperialism, internet, IT sovereignty, monopole, pedagogy, surveillance.

Published: 01 december 2016

Full text (PDF file)

Introduction

“Only one economic area seems to escape the accelerated denationalization process, which is the industry of information and information processing”¹, wrote Armand Mattelart in 1978. It should be noted that this exception was not confirmed afterwards. Today, the term Gafam refers to the giants of information and communication, US multinational companies, which have conditioned our daily IT uses. However, focusing on this side of imperialism only, without considering the emancipation chances, seems to be an incomplete approach, and as Armand Mattelart reminds us:

A first therapeutic measure consists in avoiding mistaking the survival logic of capitalism and the ineluctability of its victories. The increasingly sophisticated forms of social control, the ever-encompassing methods used, are necessary for the process of capital accumulation process to carry on, and under these conditions, it is the objective of the so-called “cultural imperialism” to contribute to the shaping of a citizen meeting the requirements and needs of capitalism. Far from being the sign of a healthy capitalism, the improvement of cultural domination tools must also be seen as an attempt to tackle a crisis situation in which profit-making is increasingly hampered by the rise of social struggles. The inexorable cycle of capital expansion and need to make profit must not be mistaken for that image of triumphal march that capitalism proclaims.²

While the computer is presented as a tool allowing for the emancipation and “democratization” of knowledge and practices—of which Gafam are the standard bearers—, how is it that the biggest companies in this sector restrain the users’ practices and devices so much?

In the wake of Armand Mattelart, I would like to tackle the issue of imperialism and social struggles in the field of computer science, and deal with the potential forms of emancipation. To do so, I will resort to the “grammar of sovereignty” adopted by numerous social and political movements in Latin America in this dialectic between imperialism and emancipation.³ While the comparison may not seem obvious at first sight, I will follow on from Mattelart and try to demonstrate that Gafam’s monopolistic position is nothing new, and on the contrary adopts formulas previously tested by other technologies circulated by US multinational companies.⁴ In this way, the sovereignty practices in the field of connected

1 Armand Mattelart, “Idéologie, information et État militaire,” *L’Homme et la société*, n° 47-50, 1978.

2 Armand Mattelart, with Fabien Granjon and Michel Sénécal (ed.), *Communication transnationale et industries de la culture*, translated by David Buxton, Natalia Calderón Beltrán and Jacques Guyot, Paris, Presses des mines, 2015, vol. 3/3. p. 97.

3 Michael Löwy, *Le Marxisme en Amérique latine, de 1909 à nos jours*, Paris, La Découverte, 1980.

4 Armand Mattelart, *La cultura como empresa multinacional*, Buenos Aires, Editorial Galerna, 1974, p. 11-39.

computing can be used with a view to expand a scope for action which aims to make the imperialist practices visible and propose concrete alternatives.

Mobilizing associative stakeholders in France, I will use the concept of “technological sovereignty” to shed light on their action. I will take my examples from four fields which play a role in the literacy of common IT uses: e-mails, social networks, search engine browsing, and office automation. They constitute so many areas where computing literacy or information literacy of our daily uses develops. Information literacy is defined by the OECD as “the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.”⁵ This literacy can also be regarded as the necessary condition for capitalist countries to continue their mutations. I will study the work carried out by activist (French-speaking) groups and use the observations that I have made in the framework of a research-action among informal collectives, which hold workshops to raise awareness on alternative IT uses.

1. The literacy of Gafam as a practice of cultural imperialism

Reflecting on daily IT uses demands that one examines the dominant economic players, which, along with others, I will call Gafam (Google, Amazon, Facebook, Apple, Microsoft). Numerous studies dedicated to the practices of connected computing pay too little attention to the socio-political context from which they arise. Netchaitailova⁶ proposes a relevant refocusing:

The studies which look at online social networks without the analysis of socio-political and economic contexts, in which these networks are based, can be called uncritical. [...] Thus, Henry Jenkins, for instance, argues that “the web has become a site of consumer participation” (Jenkins 2006, 137) and that blogging and taking part in different Internet forums expand our perspectives, give us chance to be heard and express our opinions and boost our creative potential. Alex Bruns (2007) talks about the rise of produsage which is the “hybrid user/producer role which inextricably interweaves both forms of participation, and that produsage reinforces our collective intelligence, allows everyone to participate in networked culture and can reconfigure democracy as we know it” (Bruns 2007, 27). Clay Skirky (2008) argues that such sites as Flickr, YouTube, MySpace and Facebook create opportunities for public participation, Don Tapscott and Anthony Williams (2006) say that the proliferation of the Internet leads to a new economic democracy, in which everyone has a role and can have their say, while David Gauntlett elaborated on the capacity of social media for “doing culture” (Gauntlett 2011, 11).

5 [Online] <https://fr.wikipedia.org/wiki/Litt%C3%A9rature> [accessed 20 October, 2015].

6 Ekaterina Netchitailova, “The Flâneur, the Badaud and Empathetic Worker,” *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, January 17, 2014, vol. 12, n° 1, p. 113. [Online] <http://www.triple-c.at/index.php/tripleC/article/view/500> [accessed 22 October, 2015].

However, their interpretations seem to be derived from an idyllic vision of computing inherited from its early history. Although the absence of socio-economic contextualization could already be considered as problematic when these studies were conducted, the extent recently reached by Gafam no longer allows one to skip this issue. Being ignorant of such contextualization would prevent one from understanding their *raison d'être*.

It is yet hard to get information on the turnover of Gafam, since their systems are based on “tax optimization” (a euphemism to describe a process of tax evasion).⁷ The *Fédération française des télécoms* has commissioned a report on *Over the top* operators, in other words on Gafam, which look down on all communications in France. Let us note that this study focuses on the case of France, where the tax rate on Gafam is the highest in Europe, though much lower than in the United States, where Gafam come from.

Tableau 1. Capitalizations, turnovers, profits and taxes of the main US businesses coming from the digital industry (Gafam) or other industries.

En 2011, les OTT ont payé 37,5M€ d'IS en France, soit 22 fois moins que ce qu'ils auraient payé si leurs activités de production étaient localisées et taxées en France.

	CA déclaré en France	CA estimé réalisé en France	IS payés par les OTT en France	IS qu'auraient dû payer les OTT en France	Taux de croissance annuel moyen CA monde
	138M€	1,4Md€	5,5M€	162M€	42%
	257M€	3,2Md€	6,7M€	317,5M€	38%
	ND	140M€	50k€	21,2M€	123%
	110M€	890M€	3,3M€	10,9M€	32%
	584M€	2,5Md€	22M€	317M€	8%
Total	1,09Md€	8,13Md€	37,5M€	x22 828,7M€	

Taken from the presentation of the Greenwich consulting report [Online] <http://www.fftelecoms.org/articles/fiscalite-du-numerique-un-rapport-economique-ouvre-des-pistes-pour-lutter-contre-l> [accessed 1 September, 2015].

This table (1) provides an overview of the economic weight of Gafam and shortfall for the French and US tax authorities.⁸ The next table (2) contextualizes the data of the previous table with regards to the global turnover of Gafam, but also of other US economic giants.

Tableau 2.

⁷ On this topic, see the report on the international comparative study on the taxation specifically applying to telecommunications and tax optimization patterns of *over-the-top* players, commissioned by the *Fédération française des télécoms*, April 2013. [Online] <http://www.fftelecoms.org/articles/etude-greenwich-surfiscalite-des-telecoms-en-france-et-optimisation-fiscale-des-geants-du> [accessed 1 September, 2015].

⁸ Their presence in Europe in the form of subsidiaries is part of their tax evasion strategy, since taxation is more important in their country of origin. See the previous report on this subject.

	Capitalisation boursière (février 2015)	CA (Monde)	Profit (Monde)	Impôt / CA (USA)	Impôt / CA (hors USA)	Impôt / profit (USA)	Impôt / profit (hors USA)
	Md\$	Md\$	Md\$	%	%	%	%
Google	370	59,8	14,5	5,7	2,2	26,4	8,6
Apple	748	170,9	50,2	19,1	1	61	3,7
Facebook	223	7,9	2,8	32,9	1,5	31,2	(pertes)
Amazon	175	74,5	0,5	0	0,5	1,6	(pertes)
Coca-Cola	183	46,9	11,5	5,8	6,3	47,2	18,8
Pfizer	216	51,6	15,7	10,5	7	(pertes)	12,5
GE Company	223	146,0	16,2	-2,8	3,4	-31,9	26,1
Procter & Gamble	203	84,2	14,8	7,7	2	28,1	16,9

From Greenwich Consulting Report [Online]
<http://www.fftelecoms.org/articles/fiscalite-du-numerique-un-rapport-economique-ouvre-des-pistes-pour-lutter-contre-l-rapport-de-la-commission-europeenne-du-groupe-d-experts-de-haut-niveau-sur-la-taxation-de-l-economie-numerique>, 28 May 2014 ; *Les Échos*, 22 February 2015 ; Yahoo Finance.

Looking at the turnovers and profits of Gafam allows one to comprehend their economic weight, yet is not sufficient to understand how imperialism operates in the field of culture. To do so, one has to focus on the introduction of Gafam in our daily lives⁹, through the literacy of our IT uses.

Let us take the example of six services, all seemingly free: Google provides e-mail services (Gmail), online platforms to store and work on documents (Googledocs), and a means to search terms on the semantic web (Google). Facebook provides a social network to share multimedia content. Amazon is the biggest online store and provides, among other things, free books for its Kindle device. For all of these three players, part of the provided services seems indeed to be free.

As for Apple and Microsoft, the situation is different, but in appearance only. Some of the transactions proposed by these companies seem to be free, yet are charged right away. For example, the iTunes software, designed to listen to, classify and buy multimedia contents, can be downloaded and installed for free. However, it imposes a format, thus restricting the use of acquired goods to individual accounts and preventing copying in all its forms, although the latter is authorized by copyright in many contexts, such as copying for private and family uses or for educational purposes.¹⁰ Besides, this software requires updates or else the already acquired contents become inaccessible. What is more, the format in which the acquired goods are coded makes it difficult to use them *via* another computer program. In fact one does not so much acquire a good as one acquires an access.

The Microsoft Office suite is another example of a seemingly free computer program, which yet confines its users without their knowing. While it is often provided with the purchase, and even if some people use it with pirated licences, the suite requires endless updates. Beyond the trouble

⁹ The logic highlighted in this article is not exclusive to Gafam: among others, banks, insurance companies and media use it, either *via ad hoc* mechanisms, or through tools commercialized by these companies.

¹⁰ Mélanie Dulong de Rosnay, *Les Golems du numérique. Droit d'auteur et Lex Electronica*, Paris, Presses des Mines, 2016, p. 30.

resulting from the reminders, one can wonder about the durability of the files produced with these formats. The example of the transition from the .doc to the .docx formats clearly shows that the aim of these technological developments is to incite users to buy a new licence. Confronted with this domination, free and interoperable formats (for example .odt, .rtf, .lyx), in other words formats that are not associated with only one computer program, allow users to choose their office suite, facilitate exchanges and prevent users from being dependent on a specific company, which could change formats or charge any file opening.¹¹

Other products from hegemonic companies are also charged, despite all appearances. For example, very few users know that the default operating systems and programs installed on our devices (Mac OS, IOS, Windows 7, 8, 9, 10 and Office Suite) are charged on purchase. It is indeed a forced sale made invisible, since this “detail” is not mentioned on the bill, which contributes to “naturalizing” their use. Using them also implies the validation of an end user licence agreement (EULA), which forces users to give all of the data resulting from their use of the computer program or operating system. All of this is included in these EULAs, the complexity of which makes it difficult for users to comprehend their scope.¹² All of these examples show how these companies impose their interest, even against existing laws, and despite their looking like they partake in the democratic gusto.

Virtually all the personal computers, tablets and cellphones available on the market are equipped with software and programs designed by Gafam.¹³ Google forces Android users to own a Gmail account. Apple equips its computers with the OS Mac operating system and also “offers” a Mac version of the Microsoft Office suite.¹⁴ Often without us knowing, these

11 Since October 2015, Microsoft Office 365 is no longer a computer program, but a service. It takes the form of an online yearly subscription to computer programs and file hosting on the company’s servers. From the user’s account, it is possible to remotely cancel the access to services and erase the files on other devices. The owner’s agreement is no longer required to perform these operations, albeit sensitive. The issue of the durability and confidentiality of files, at the end of, but also during the subscription, is raised, since remote deletion can be performed by anyone who can access these documents.

12 On this subject, see the following website providing legal information on the possibilities of action against forced sale, or in other words when the choice of a program to install on the purchased devices is not free and when the default operating system, be it Mac or Windows, not to forget the Windows Office suite, is charged: “Après l’achat: refuser le Contrat de Licence (CLUF ou EULA)” on the *Non aux racketiciels* website. [Online] <http://non.aux.racketiciels.info/guide/apres-achat-recuperer-cluf> [accessed 12 September, 2015].

13 “In 2015, the fall of the iPad was more significant. Windows has risen up to 8.5% with an expected 17.8% by 2019 thanks to detachable tablets. On these hybrids, the market share of Windows is expected to attain 53.3% in 2016 according to IDC. Worldwide, almost twice as many Android tablet units have been sold as iPad units (iOS), with respectively 120.9 versus 70.4 million units. As is the case with smartphones, Android is the best-selling platform on tablets, with a market share of 61.9% versus 36% for iOS,” according to the following analysis [Online] <http://www.zdnet.fr/actualites/chiffres-cles-le-marche-des-tablettes-par-os-39790133.ht> [accessed March 28, 2016].

14 It is possible to uninstall these operating systems and choose one from the available free software, or with the help of volunteers eager to spread these uses. As well, it is

companies determine the property of our productions and uses, by charging and imposing computer programs and formats. There is apparently nothing we can do about it. Unless the user is well-informed, the issue of the possible choices seems irrelevant and its ins and outs are vague, although we are here dealing with the ownership and exploitation of our data and production on these tools. Data and productions are technically locked in machines and programs which belong to us, although their operation remains inaccessible to us. Their use is legally bound by contracts that we are forced to accept as we turn on the computers for the first time after their purchase. Therefore, the issue of the relationships between the law and technique raises numerous questions.¹⁵

In the same way, the internet giants suggest that we use their e-mail services “for free,” be it Microsoft *via* Hotmail/Outlook, Google *via* Gmail, Apple *via* .me, or even Facebook which proposes a messaging service integrated into the *ad hoc* account. Since it is now mandatory to own an e-mail address for administrative, professional and social procedures, instead of using institutional or self-hosted addresses, most users use these addresses provided by Gafam. In this way, part of the control they have on their communication is left in the hands of private companies. One can easily understand that the dominant position of Gafam develops by making the administrative, professional or personal use of their products neutral and insipid.

The predominance of Gafam has many more consequences, including the colonization of our vocabulary and imaginary: “Word” thus seems to refer to the only word processing software, “Internet explorer” or “Chrome” now stand in for the generic term “browser,” the term “Power Point”¹⁶ is used for every slide presentation, and “Google” is the favored term for “search engine” and/or “web browsing” as a whole. Our daily IT uses are determined by proprietary software¹⁷ down to our vocabulary. However, this practice is not exclusive to Microsoft or Google. Apple has managed to impose terms such as “Cloud™” or “iPad.” Facebook and Amazon are the

possible to acquire computers equipped with these preconfigured operating systems in French language. Many of those are listed in the Ubuntu documentation. [Online] http://doc.ubuntu-fr.org/ordinateur_vendu_avec_ubuntu [accessed 1 September, 2015]. Also check the website Ministry of Freedom, where repairable computers running Linux are available. Trisquel GNU/Linux is the only operating system that has won the Respects your freedom award from the Free Software Foundation (FSF). [Online] <http://minifree.org/> [accessed 1 September, 2015].

15 Yarina Amoroso has been working on this issue in Cuba since the 1990s. Amoroso Fernández Yarina, “Algunas consideraciones acerca de la protección jurídica del software,” *Informática y derecho*, vol. 3, Santiago du Chili, 2012. [Online] http://www.egov.ufsc.br/portal/sites/default/files/25_3.pdf [accessed 16 May, 2016]. More recently in France, Mélanie Dulong de Rosnay, *Les Golems du numérique. Droit d’auteur et Lex Electronica*, Paris, Presses des Mines, 2016.

16 In Switzerland, there is even an Anti-PowerPoint party. [Online] https://en.wikipedia.org/wiki/Anti-PowerPoint_Party [accessed 1 September, 2015]. Its members calculate the losses resulting from its use, not only in terms of licence, but also in terms of the drop in productivity induced by “soporific” meetings.

17 Richard Stallman also explains the difference between free and proprietary software. [Online] <https://gnu.org/philosophy/proprietary.html> [accessed 15 March, 2015].

terms which are used to refer to social networks or online stores, beyond mere metonymies: these proper nouns have become common nouns.¹⁸

Many of these services seem to be free. Now let us wonder why all Gafam provide them, since they imply important storage infrastructures, hence considerable costs for the companies. Is there really no counterpart? The answer is to be found in profiling.

Let us take the example of Gmail. As of 28 May, 2015, the company declared to have gathered 900 million users¹⁹: as many potential targets for its advertisements. While the great storage capacity of Gmail (*versus* its competitors) is an element of its success, its main advantage lies in its ability to suppress pop-ups (untimely advertisements) and “free” us from spam through very efficient filters. An important and appealing claim, especially since according to the Email metrics report²⁰, over 80% of e-mail exchanges are unsolicited (identity fraud, fishing and undesirable advertisements). The internet giant channels most of the advertisers. In fact, the company has the power to mark certain e-mails as important or as spam.

In its “10 founding principles”²¹, the company states that “it is possible to earn money without selling one’s soul to the devil. The revenues generated by the company come from the research technology it provides other companies with, and from the sale of advertisements broadcast on Google and other websites.” The profound change initiated by Google consists in centralizing and filtering advertisements according to its own formatting. Rather than pop-ups, the company has chosen a banner displaying a text that changes depending on the general content of the e-mails received, or even on the one that is read at a given moment: this is called contextual advertising. Google explains that this form of advertising is proposed with a view to be “useful and relevant [...] by targeting the content of our e-mail exchanges and of the searches we perform.” The company continues “we think that advertising can be efficient without being invasive. Google does not accept advertisements in the form of pop-ups, which hamper the readability of the consulted pages. We have noticed that targeted banners allow for a higher rate of clicks than random banners.” Giving a technical ground allows Google to better avoid the ideological issue. Filtering untimely advertisements enables Gmail to focus its users’ attention on the content that is proposed next, since the latter is relevant *a priori*: it results

18 This linguistic issue, as well as the study of the mottos of Gafam: “Don’t be evil” for Google, “Work hard, have fun, make history” for Amazon, “is a social utility that connects you with the people around you” or the French version “Facebook vous permet de rester en contact avec les personnes qui comptent dans votre vie” for this social network, “Think different, get a Mac” for Apple or else “Be what’s next” for Le Monde or “Votre potentiel. Notre passion” for Microsoft France must be further studied and compared with financial and semantic reshuffle. For instance, the Google conglomerate is now called “Alphabet.”

19 [Online] https://en.wikipedia.org/wiki/Gmail#cite_note-2 [accessed 15 October, 2015].

20 [Online] http://www.maawg.org/about/MAAWG20072Q_Metrics_Report.pdf [accessed October 15, 2015].

21 “The ten things we know to be true” by Google. [Online] <https://www.google.fr/about/company/philosophy/> [accessed 5 October, 2015]. Upon further consultation in April 2016, I noticed a change in the layout and turn of certain phrases, although the meaning remained the same.

from a selection and what is displayed is wished for *a priori*. In this way, users are yet less likely to ignore the advertisements proposed by Google.

Having a significant number of individual and voluntary users at its disposal, Google has acquired the power to change the very nature of advertising. Although insidious, the kind of advertising implemented by Google can still be detected by attentive users. However, other subtler and invisible forms of profiling are added, through the capture of browsing data²² and cookies scattered throughout the browsing. Once again, Google justifies its use by emphasizing the benefits for users: “enhance the usefulness of the latter for you,” “without cookies, the use of the web could be much more frustrating.”

The company claims to be “transparent,” and concerned by the users’ private life. Additionally, it highlights the importance of censoring certain contents for children (“save your SafeSearch preferences”), while the main objective is that of individual identification for commercial purposes. Google is quite vague on this topic (“We use cookies for various purposes,” with a view to “improve the relevance of the advertisements sent to you”), imprecise (“you can check the list of the type of cookies” and not the cookies themselves), and goes as far as choosing misleading wordings (“protect your data”); since it is the usernames and passwords—not the cookies that saved them—which would allow to control access to an e-mail address, for example. Expressed in comforting terms, the displayed discourse is supposed to convey the image of a company concerned with the protection of internet users’ data, while waiving the responsibility of profiling, not to the centralized technology, but to its “partners.” In this way, Google implicitly refutes violating the secrecy of correspondence.²³

The approach sketched out here to Google’s strategy can be extended to the strategies of other Gafam. Several books are specifically devoted to the study of their economic model.²⁴ Faced with the abundance of technical information, the issue is not so much to understand the economic model of

22 On request or once the user has consulted the confidentiality pages, Google and Facebook can send the list mentioning the IP addresses, as well as the devices from which the account was accessed, outside their private use. The Gafam thus highlight the protection of personal information, yet do not inform users when they use their accounts themselves, which proves how easy it is to track users and geolocate them.

23 In France, the French Data Protection Authority (CNIL) has tried to regulate their presence *via* a mandatory banner, but the law is applied to the minimum, the continuation of browsing being considered as a tacit agreement for profiling, without any alternative being provided. What I find interesting here is how, through vague, equivocal, or even misleading descriptions by the “starving,” coupled with CNIL banners, information on cookies and profiling ends up naturalized in our web browsing practices. Cf. Dominic Rushe, “Google: don’t expect privacy when sending to Gmail,” *The Guardian*, 15/08/2013. [Online] <http://www.theguardian.com/technology/2013/aug/14/google-gmail-users-privacy-email-lawsuit> [accessed 21 October, 2015].

24 The works on Google abound, to the point that some do not hesitate to talk about *Google studies*. Among them, three works take a critical approach: Ippolita, *La Face cachée de Google*, Paris, Payot, 2008; Yann Moulier Boutang, *Le Capitalisme cognitif: la nouvelle grande transformation*, Paris, Éditions Amsterdam, 2007; Siva Vaidhyanathan, *The Googlization of Everything (and Why We Should Worry)*, Berkeley, University of California Press, 2011, as well as the proceedings of the colloquium *Les valeurs de Google*, held at the Université Libre de Bruxelles on 30 November 2015 (to be published).

Gafam as it is to implement strategies to break free from it. Fuchs²⁵, Morozov²⁶ and Scholz²⁷ introduce the notion of “digital labor,” which, though incomplete, suggest that we totally reconsider the idea according to which Gafam is providing us with services “for free.” To illustrate *digital labor*, Morozov uses in the introduction to his work a metaphor which enables us to understand that access to free services provided by Gafam does not correspond to a reduction of the gaps between social classes, but to a change in capitalism in the digital era:

When someone is hired as a personal assistant, the transaction is quite simple: the person is paid [...] and that is it. It is tempting to affirm that virtual assistants follow the same logic: one gives one’s data to Google [...] in exchange for free services. However, this argument does not make sense: our personal assistant is not supposed to leave with a copy of the entirety of our letters and files in order to get an income. On the contrary, it is the sole purpose of virtual assistants. [...] Data is an instrument of domination precisely because once it is given, it becomes able to determine our future. [...] The Google Now service can function only when the company which created it administers a significant part of our existence, communications, travels, readings. These activities then acquire an economic dimension: they are finally monetizable. [...] Between Google Now and the poor, the relationship is reversed: the latter are the “virtual assistants” of the former, because they help it collect data which the company will then be able to monetize.²⁸

The standardization of IT practices in our daily uses is operated with a view to maximize profit. Created in principle for commercial purposes, these practices are nonetheless related to the profiling of populations, for certain companies collaborate with the states on a regular basis. In the U.S.A., Edward Snowden has revealed the existence of the Prism program, through which Gafam have provided the N.S.A. with data for surveillance

25 Christian Fuchs and Marisol Sandoval, “Digital Workers of the World Unite! A Framework for Critically Theorising and Analysing Digital Labor,” *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, vol. 12, n° 2, 1 September, 2014, p. 486-563 [Online] <http://www.triple-c.at/index.php/tripleC/article/view/549>, [accessed 16 October, 2015]; Christian Fuchs and Sebastian Sevignani, “What Is Digital Labor? What Is Digital Work? What’s their Difference? And Why Do These Questions Matter for Understanding Social Media?,” *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, 6 June, 2013, vol. 11, n° 2, p. 237-293. [Online] <http://www.triple-c.at/index.php/tripleC/article/view/461> [accessed 16 October, 2015].

26 Evgeny Morozov, *Le Mirage numérique : pour une politique du Big Data*, Paris, Les Prairies Ordinaires, 2015.

27 Trebor Scholz, *Digital Labor. The Internet as Playground and Factory*, New York, Routledge, 2013.

28 Evgeny Morozov, *Le Mirage numérique : pour une politique des big data*, Paris, Les Prairies Ordinaires, 2015, p. 15-18.

purposes.²⁹ In France, the legislator has ratified several clauses, including the military planning law, which resulted in a flash mobilization.³⁰

The domination of Gafam thus manifests itself at several levels: economic, through advertising income and tax evasion; social, through the imposition of literacy or *ad hoc* social literacy; and political, through the involvement of these companies in the profiling of populations. In this situation, not even disconnection can guarantee that there will not be any profiling, as demonstrated by the case of Facebook’s ghost profiles.³¹

The debate dividing those who see democratic potentialities in technologies and those who see a tool of social control in them has but little focused on another division, which is that of the alternatives to the dominant computing practices. Whether they are called “free software” or “digital self-defense,” let us consider them from the grammar of technological sovereignty in order to understand their praxis.

2. Technological sovereignty as an emancipation practice

In French, the so-called “sovereignist” discourses historically refer to the royalist positions, thus alluding to monarchic sovereignty. Here, I will use this notion in at least two other senses. The first one is the one coined by members of collectives, whose educational and promotional work results from a desire to restore power to users with regards to their IT uses. I am especially thinking of one of Ritimo’s works entitled *La Souveraineté informatique*³², which presents this sovereignty as a form of independence. The term of “empowerment” would also be suitable. However, the notion of sovereignty falls within a reflexive approach, like the claims of the Third World.

The rhetoric of sovereignty was indeed first used by the Non-Aligned Movement, as one of the founding principles of the struggle against colonization and the domination of economic powers, as early as the 1950s. Updated, this rhetoric was picked up by Latin-American state players from countries such as Venezuela, Ecuador, Uruguay, and developed in numerous areas (food, energy, economics). In particular, countries such as Cuba, Brazil and Venezuela have developed so-called “technological sovereignty” policies and explicitly denounced the stranglehold of the United States.³³

29 Mattelart Armand and André Vitalis, *Le Profilage des populations*, Paris, La Découverte, 2014.

30 On this issue, see the mobilization of French association La Quadrature du Net. [Online] <https://www.laquadrature.net/fr/loi-de-programmation-militaire-lpm>. [accessed 5 April, 2016].

31 Facebook : la mémoire cachée. [Online] http://www.liberation.fr/futurs/2011/10/22/facebook-la-memoire-cachee_956055 [accessed 21 October, 2015].

32 Ritimo, *La souveraineté technologique*, Juin 2014. [Online] <http://plateforme-echange.org/IMG/pdf/dossier-st-fr-2014-07-05.pdf> [accessed 10 September, 2014].

33 On this topic, here is an anecdote: this article was presented at the 2015 colloquium, jointly held by the ICOM and ULEPICC in Havana. While I believe that it would have fit one of the numerous panels devoted to alternative practices, it was in fact part of a session dedicated to public policies.

Therefore, the use of this grammar of sovereignty allows us to get back to this materialist perspective with which Mattelart, Morozov, Fuchs and Sandoval align themselves. It also enables us to put the alternative IT practices in a context of explicit protest, reaching beyond empowerment (in which protest is but implicit). Although this article will not deal with the public policies of these Latin-American countries, thinking these activist alternatives in terms of *technological sovereignty* helps us to better understand this concept and fit it into this dual heritage.³⁴

Through the issue of technological sovereignty, we can understand why more and more mediactivists (or activists campaigning for other causes) took an interest in it, expanding the framework of their claims, and integrating this kind of concerns into the latter.

Although they do not use this name, the movement of *makers* and the rise of fablabs in Europe show a will to go against the technologies that have widened the gap between users and designers. Whether *via* objects subjected to planned obsolescence or software with closed or proprietary formats, it must be noted that today, technology hampers uses which seemed at least trivial yesterday. Therefore, the act of fixing one's printer or modifying the functionalities of a computer program can take a political turn.

Although adopting a deterministic approach to the emancipating or oppressive nature of technology is not very judicious, the most common use of this technology and above all, the awareness of what the user is no longer allowed to do can say a lot on the economic and social context in which this technology was developed. Let us take the example of the rise of the free software movement and that of the Free Software Foundation (FSF),³⁵ which states that for software to be free, it has to comply with four founding principles, namely: to use, read, examine and redistribute the source code. From a historical perspective, this definition does not refer to the creation of a new object—the so-called “free” software—but to the rise of economic practices throughout the seventies, including that of giants such as Xerox, or simple start-ups at that time, such as Micro-soft (now become Microsoft). Their crucial contribution consisted in imposing the principle according which a computer program corresponds to a paying licence, for a single use. To do so, the source code had to become inaccessible and its modification and redistribution impossible.

However, at the time when personal computing was emerging, common practices were very different: software was provided by the companies for free and could be used, read, copied, improved by the users who had the necessary skills. The rise of associations campaigning for free software is reminiscent of this technological shift when companies chose to make free

34 In France, Article 9 of the Law of 9 July 2013 on higher education teaching and research timidly states: “Free software is used in priority.” This article is yet to be implemented. [Online] <http://www.assemblee-nationale.fr/14/ta/ta0180.asp> [accessed 21 October, 2015].

35 In English, the term “free” is ambiguous, since it appeals to gratuitousness and freedom. Anglo-Saxon “free software” partisans clarify this term by choosing to keep the French term along with the English one (free/libre).

competition prevail and privatize formerly free and noncommercial uses.³⁶ The very label “free software” thus cannot be understood without its opposite, proprietary software, which cannot be used without purchasing a licence, at risk of being accused of piracy.

In addition to the economic appropriation of software as a product, there is now a new logic, that of the “Software as a service” (SaaS). This expression coined by Richard Stallman, founder of the FSF, allows for a more precise definition of what multinational companies in the field of data call *cloud computing* and highlights the risks to the users’ sovereignty:

SaaS consists in using a service provided by someone else instead of using your copy of a program. This is our expression, no article or advertisement will use it, just like they will not tell you if a service they provide is an SaaS. Instead, they will probably distract your attention with the vague term “cloud,” which is a mix between the SaaS and other practices, some of which are abusive while others are acceptable [...]. For instance, some proprietary programs are “spyware” programs: the program transmits data on the users’ IT activities. Microsoft Windows sends Microsoft data on users’ activities. Windows Media Player and RealPlayer provide information on what users listen to and watch. The Kindle device informs Amazon on which page is read by a given user and when. Angry Birds sends the user’s geolocation history to its publisher. [...] In utterly scandalous cases (which have now become common), proprietary programs are designed to spy on users, to restrict them, censor them and abuse them. The operating systems of Apple’s iThings do that, for instance, and so does Windows *via* mobile devices equipped with ARM chips. Both Windows—the microsoftware of mobile phones—and Google Chrome for Windows integrate a universal “back door” allowing a certain company to remotely modify the program without any authorization. Amazon’s Kindle³⁷ features a “back door” that can erase books.³⁸

Speaking in terms of “cloud” or “SaaS” is an ideological choice, the former being patented by Apple and used by multinational companies in the data industry, and the latter being an activist label which highlights many uses explored in this article. In my opinion, the main issue is that of the reflexive approach to the gap between what users claim to make with their software, and what this software really does once run. In other words, by proposing services (*via* software or applications), it is now possible to open the door to non explicit, if not unwanted, uses: geolocation, keystroke logging, sound or image capture, contact list, text messages and calls. Both proprietary software and SaaS aim to deprive one from one’s sovereignty.

36 For further study on this issue, see Richard S. Stallman, “Richard Stallman et la révolution du logiciel libre,” Paris, Eyrolles, 2010, and Sébastien Broca, “Utopie du logiciel libre: du bricolage informatique à la réinvention sociale,” Neuvy-en-Champagne, le Passager clandestin, 2013.

37 On this topic, see “Amazon Erases Orwell Books From Kindle,” *New York Times*, 17 July, 2009. [Online] http://www.nytimes.com/2009/07/18/technology/companies/18amazon.html?_r=0 [accessed 9 April, 2015].

38 Richard Stallman, “Le logiciel libre est encore plus essentiel maintenant,” in Ritimo (dir.), *Souveraineté technologique*, Paris, 2014, p 19.

The struggle of associations such as the FSF aims to re-appropriate language, and can be called a “semantic front.” The appropriation of the terms of the debate undoubtedly represents one of the levers to facilitate the denunciation of the practices of the data industry.

Since IT uses have been standardized by Gafam, which tools are to be developed to re-appropriate daily computing? To answer this question, it is almost enough to say that understanding is already taking action. Although the notion of *digital labor* allows us to better understand certain issues, it is not sufficient in itself to develop practices of technological sovereignty. This short answer requires further developments, which I will now provide based on observations that I made in the framework of a research-action conducted between 2014 and 2016. Examples of awareness-raising workshops and trainings will be used to illustrate a few attempts at the implementation of technological sovereignty.

CryptoParties, *chiffro-fêtes*, *chiffro-fiestas*, install parties or *café vie privée* are the names of the most widespread forms of events to raise awareness on these issues. They consist in events where experienced users introduce beginners to these issues through the oral transmission of their knowledge. They are all volunteers. The research-action that I have been conducting since 2014 has the same characteristics, yet strives to propose new approaches.

These workshops are indeed increasingly valued by non-expert audiences. This fast development yet explains one of their limits: as of today, these workshops seem to leave aside the people who do not possess the necessary technical knowledge to benefit from them. The main issue, that of the desire to implement a strategy of protection of personal data, does not appear as self-evident. Participants are often confronted with an abundance of technical, often unknown, terms.

In this way, within informal and ephemeral collectives, I have contributed to the creation of awareness-raising workshops on alternative IT uses for non-specialist audiences. While the composition and size of the collectives have changed, it is still possible to identify a few recurring features. First of all, the people’s areas of expertise were heterogeneous (software and hardware development, classical and adult education, sociology), which is rather unusual compared to the first types of collectives which would mostly gather IT experts willing to popularize their knowledge. While we undoubtedly strived to follow on from this first generation of workshops, we also wanted to overcome what we identified as two major pitfalls: the jargon and rationale for the approach.

We had indeed noticed that the use of technical terms would emphasize the participants’ interest or disinterest in workshops depending on their type, despite an equal level of proficiency. As a matter of fact, it seemed to us that the IT jargon was experienced, especially among women, as an impediment, although they were convinced of the legitimacy of our action. Therefore, we wanted to avoid increasing the existing split, as we developed this alternative IT literacy.

The second issue consisted in integrating a reflection on the relevance of implementing alternative practices into the various workshops. This

accounts for the name of one of the collectives, “*Qui n’a rien à cacher*” and its workshop “*Je n’ai rien à cacher*.”³⁹ It was a matter of overcoming the obstacles to the transmission of our belief in the importance of protecting personal data, by using this recurrent expression among participants.

It was indeed difficult to make every one of us understand that we all have information to “hide,” regardless of the political or otherwise sensitive nature of the practices. As we were working to raise awareness on the issues of privacy protection, we noticed a significant gap between the physical world and the digital one. This might be explained by the fact that this awareness campaign is hardly integrated into the curricula. The absence of frames of reference in this area is even striking: no educational tale with the symbolic value of Little Red Riding Hood can problematize the realities of connected computing.

While few people would accept to confide in a stranger, who, in the street, would ask them where they come from and where they are going, whom they are going to meet and what they are going to buy⁴⁰, it should be noted that Gafam have achieved literacy by “teaching” us to provide this personal information in the most natural way. Gafam even ask us what we think about—Facebook for example endlessly asks this question at the top of its interface—and end up getting copies of our identity cards, death certificates, or other aspects of our private lives, by persuading us to fill in forms, always on the pretext of “ensuring our safety.” Their present power allows them to shape economics, as we have noticed with Google and online advertising, or with Amazon, whose strategy consists in retaining its customers and crush its competitors, in order to dominate the markets it has created.⁴¹ This dynamic is part of a greater history, that of the globalization of surveillance, to quote the title of Armand Mattelart’s book.⁴² Confronted with these practices, and without going as far as to become an IT expert, one must manage to put one’s daily IT uses in the social world to which one belongs, that of digital labor. One of the alternatives tried out with the members of collective *Qui n’a rien à cacher*⁴³ consists in raising awareness *without* using computers. The main thrust was to make the unfolding of certain computer operations visible and tangible, for example the circulation

39 “Who’s got nothing to hide” and “I’ve got nothing to hide.” As the collective was working on one of the workshops, a journalist neighbor across the landing was the victim of a burglary. Her two computers and a tablet had been stolen. We therefore had the occasion to put our work to the test. When asked if her devices had a session password, she declared: “I’ve got nothing to hide, I’m not the President of the World.” As she further detailed her IT practices with us, she realized her vulnerability, since all of her passwords and credit card information were saved on her browsers (iTunes, Amazon, professional image databases, etc.).

40 By default, tracking is operated through geolocation and other data or metadata used by the vast majority of smart phone applications.

41 See tables above.

42 Armand Mattelart, *La globalisation de la surveillance*, Paris, La Découverte, 2008.

43 The informal collectives which I was a member of have taken part ThatCamp in Paris in 2015 at the INHA

[Online] <http://tcp.hypotheses.org/872> [accessed 21 October, 2015] and in the CoFestival in the Mozilla premises in September 2015, in the Ordilibre in Rambouillet in March 2016, as well as in another dozen workshops in a private context.

of an e-mail. Each participant would embody a different instance (DNS, proxy server, recipient's server, etc.) and physical objects would represent the messages (postcards with or without an envelope) and the various ways to send them. In this way, we wanted to break the impression of intimacy that the user could feel alone in front of her⁴⁴ computer. The operation of sending an e-mail would then be placed back into the social and physical world where it occurs in reality.

While this notion has its limits, justly highlighted by Dominique Cardon in his discussion with Antonio Cassili⁴⁵, the reflections on *digital labor* have undoubtedly influenced the organization of these workshops. However, we have noticed that the thirst for knowledge and appropriation would hardly ever take the place of usefulness and desire to make the most of the services provided by Gafam. Throughout the workshops, this issue was regularly discussed, because the services provided by Gafam are first perceived as efficient and relevant. Our collective answer was that choosing free software or alternative practices also implied a reflection on our uses. Moreover, collectives like Framasoft, Ritimo or Boum make unprecedented efforts to facilitate their implementation. Let us take the example of the *Degooglisons Internet!* campaign, which proposes free software as a substitute for the most popular services of Gafam in the same ecosystem and for free.⁴⁶

This first step was followed by an explication of the economic model of Gafam, then of an application of alternatives *via* self-training. We could rely on the documentation elaborated by associations for free software on these issues: Framasoft with their *Annuaire de logiciels libres* and *Degooglisons internet!* campaign, April with its *Livre blanc sur les logiciels libres* for associative uses, the manual on *La Souveraineté technologique* published by Ritimo⁴⁷ and the *Guide d'autodéfense numérique* published by Boum⁴⁸. As precious as free tools are, it is still necessary to introduce them to users and raise the latter's awareness for those tools to be really useful. No specific system was designed to measure the change in the users' IT practices in the framework of these workshops, since we were aware that such a change takes time and requires a certain investment. However, after these interventions, some participants asked us to organize this workshop again. Depending on availabilities, we have organized it again and further developed it, increasingly focusing on the implementation of technical solutions over the course of the workshop. Giving up certain aspects, albeit useful ones, offered by Gafam's tools is a way to respond to a sensible wish for emancipation and sovereignty and is likely to arouse a desire. It may be

44 Following on from Ritimo's publications, the author favors the feminine in order to "not use the masculine by default."

45 Dominique Cardon and Antonio A. Casilli, *Qu'est-ce que le Digital Labor?*, INA Éditions, Bry-sur-Marne, 2015.

46 Framasoft proposes Framapads for collaborative publishing in GoogleDocs, Framadates to replace surveys like Doodle, Framadrops to replace file-sharing software such as WeTransfer, etc. Though laudable, some of these initiatives still raise the issue of a new centralization of services.

47 Ritimo (ed.), *La Souveraineté technologique*, June 2014. [Online] <http://plateforme-echange.org/IMG/pdf/dossier-st-fr-2014-07-05.pdf> [accessed 10 September 2014].

48 A digital self-defense guide published by Boum.

relevant to further explore a theory of affects, so as to understand why explaining *digital labor* is not sufficient to fix alternative IT uses.

Conclusion

One can affirm that the issue of data property, raised numerous times by Morozov, concerns us both at the individual and collective levels. Their re-appropriation requires a new perspective on IT tools, “genuine black boxes” that the awareness-raising workshops presented in this article try to make a bit more intelligible. Campaigning for a new digital literacy of daily IT practices also demands that one never forgets that IT and its practices occur in an uneven world. The *digital gap* and *gender gap* approaches, which consider that IT expertise is only a question of generation or genre⁴⁹ seem hardly heuristic. If IT allows one to fight against inequalities, it is not so much through an innate potential of technology as through the awareness of the inequalities existing in the social world which IT is part of. In *The Mind Managers*, Herbert Schiller goes as far as to conclude that the idea according which the answers to poverty, political apathy and other social issues could be provided by technology is “cruel and deceitful.” He continues: “it would be mean to suggest that children coming from ghettos will manage to put aside generations of hardship simply by sitting in front of a computer.”⁵⁰ Along with Mattelart, Schiller considers that the emancipation opportunities will potentially come from the digital workers themselves, from people working in the IT industry, who have both the required knowledge, economic resources and time to initiate critical reflection on the devices. This emancipation will not happen by itself and social sciences must play an active role in it.

This reflection could certainly be extended from workshops to the institutional level. The only countries in which a reflection on technological sovereignty has been initiated are all located in Latin America: Cuba, Ecuador, Venezuela and Brazil⁵¹. As for France, certain precedents may suggest that a national strategy has been developed: take for example the actions of the CNIL, or the various declarations stating that priority should be given to free software.⁵² However, this effort is hampered by widespread practices, which in my opinion result from the successful computing literacy

49 Fabien Granjon, “Fracture numérique,” *Communications*, vol. 88, n°1, 2011, p. 67.

50 My translation of the extract quoted by Mark Hudson, “Un puñado de pioneros que se fueron demasiado pronto,” in Alfonso Gumucio Dagrón and Thomas Tufte (dir.), *Antología de comunicación para el cambio social: lecturas históricas y contemporáneas*, CFSC Consortium, 2008, p 732.

51 This research work is ongoing, especially in the case of Cuba. This country boasts a legal corpus on the technological sovereignty public policy, which translates into places dedicated to software and hardware training and appropriation, as well as significant investment in universities with an aim to train IT developers, so as to maintain their role of software exporters for the continent.

52 Following April’s action, the French Parliament passed a law giving priority to free software in higher education and research as well as in the administration. [Online] <http://www.april.org/le-parlement-francais-adopte-pour-la-premiere-fois-france-une-disposition-legislative-donnant-la-priorite> [accessed 10 March, 2016].

developed by Gafam with regards to people's daily uses, including in decision-making positions.

Besides, the perception of free software is largely determined by its cost: for instance, an interview conducted in 2014 with a digitization manager at the *Archives Nationales* revealed that the recommendation about the use of free software was not followed up, since it was perceived as a choice of the State to justify budget cuts, while free software—through its open nature—would in fact ensure the durability of the data the *Archives* are in charge of. Unfortunately, through lack of awareness, free software is perceived as and/or mistaken for free-of-charge and sometimes lower-quality software.

The literacy initiated by Gafam also continues through partnerships with the Ministry of Education.⁵³ Still in this context, technological sovereignty practices stay topical, for example through workshops, and are likely to counter the effects of a literacy left in the hands of Gafam.

The awareness of daily IT practices cannot be achieved without a political economics of the data industry. The digital literacy that Gafam have imposed on us can be overcome. In the wake of Mattelart, Morozov and Schiller, but also following on from the numerous propositions of the free software activists, I believe that we have to think together about the essentially imperialist economic logic of Gafam and alternative means of re-appropriation. In other words, the objective is to establish technological sovereignty as an anti-establishment practice in the field of IT, in order to integrate it in other anti-imperialist struggles. These practices, well thought-out and implemented from various positions, whether academic or associative ones, through collectives, physical events or tutorials and publications, provide weapons to fight the ignorance or resignation of numerous internet users, with a view to achieve collective emancipation.

Bibliography

AMOROSO FERNÁNDEZ Yarina, “Algunas consideraciones acerca de la protección jurídica del software,” *Informática y derecho*, vol. 3, Santiago du Chili, 2012. [Online] http://www.egov.ufsc.br/portal/sites/default/files/25_3.pdf [accessed 16 May, 2016].

BROCA Sébastien, *Utopie du logiciel libre: du bricolage informatique à la réinvention sociale*, Neuvy-en-Champagne, le Passager clandestin, 2013.

CAMPELO Erika (ed.), *Pour une information et un Internet libres*, Ritimo, Coredem, Paris, 2014. [Online] coredem.info/rubrique20.html [accessed 16 May, 2016].

CARDON Dominique and CASILLI Antonio A., *Qu'est-ce que le Digital Labor?*, INA Éditions, Bry-sur-Marne, 2015.

⁵³ On this topic, see the previous agreements between the Ministry of Education and Microsoft [Online] <http://eduscol.education.fr/data/fiches/microsoft.htm> [accessed 6 March, 2016]. See also the recent partnership which, unlike the previous ones, was more covered by the media and has aroused more negative reactions among teachers. [Online] <http://www.najat-vallaud-belkacem.com/2015/11/30/numerique-a-lecole-partenariat-entre-le-ministere-de-leducation-nationale-et-microsoft/> [accessed 6 March, 2016].

DULONG DE ROSNAY Mélanie, *Les Golems du numérique. Droit d'auteur et Lex Electronica*, Paris, Presses des Mines, 2016.

FUCHS Christian and SANDOVAL Marisol, "Digital Workers of the World Unite! A Framework for Critically Theorising and Analysing Digital Labor," *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, vol. 12, n° 2, 1 september 2014, p. 486-563.

FUCHS Christian and SEVIGNANI Sebastian, "What Is Digital Labor? What Is Digital Work? What's their Difference? And Why Do These Questions Matter for Understanding Social Media?," *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, 6 June, 2013, vol. 11, n° 2, p. 237-293.

GRANJON Fabien, "Fracture numérique," *Communications*, vol. 88, n°1, 2011, p. 67.

HUDSON M., "Un puñado de pioneros que se fueron demasiado pronto," in Dagron Alfonso Gumucio and Tufte Thomas (ed.), *Antología de comunicación para el cambio social: lecturas históricas y contemporáneas*, CFSC Consortium, 2008, p 732. (The is an older version of the work in its entirety: *Communication for Social Change Anthology: Historical and Contemporary Readings*, CFSC Consortium, 2006, p 732.)

IPPOLITA, *La Face cachée de Google*, Paris, Payot, 2008.

LÖWY Michael, *Le Marxisme en Amérique latine de 1909 à nos jours*, Paris, La Découverte, 1980.

MOULIER-BOUTANG Yann, *Le Capitalisme cognitif: la nouvelle grande transformation*, Paris, Éditions Amsterdam, 2008.

MOROZOV Evgeny, *Le Mirage numérique : pour une politique des big data*, Paris, Les Prairies Ordinaires, 2015.

MATTELART Armand, with GRANJON Fabien and SÉNÉCAL Michel (ed.), *Communication transnationale et Industries de la culture*, translated by David BUXTON, Natalia CALDERÓN BELTRÁN and Jacques GUYOT, Paris, Presses des mines, 2015, vol. 3/3.

MATTELART Armand, GRANJON Fabien and SÉNÉCAL Michel, *Communication, idéologies et hégémonies culturelles Armand Mattelart*, translated by David Buxton, Natalia Calderón Beltrán and Jacques Guyot, Paris, Presses des Mines, "Matérialismes," 2015, vol. 3/1.

MATTELART Armand, with GRANJON Fabien and SÉNÉCAL Michel (ed.), *Communication transnationale et Industries de la culture*, translated by David BUXTON, Natalia CALDERÓN BELTRÁN and Jacques GUYOT, Paris, Presses des mines, "Matérialismes," 2015, vol. 3/3.

MATTELART Armand, "Idéologie, information et État militaire," *L'Homme et la société*, no. 47-50, 1978, p. p. 3-49.

MATTELART Armand, *La Globalisation de la surveillance*, Paris, La Découverte, 2008.

MATTELART Armand, *La cultura como empresa multinacional*, Buenos Aires, Editorial Galerna

MATTELART Armand et VITALIS André, *Le Profilage des populations*, Paris, La Découverte, 2014.

NETCHITAILOVA Ekaterina, “The Flâneur, the Badaud and Empathetic Worker,” *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, 17 janvier 2014, vol. 12, n° 1, p. 113. [Online] <http://www.triple-c.at/index.php/tripleC/article/view/500> [accessed 22 October, 2015].

RITIMO (ed.), *La Souveraineté technologique*, June 2014. [Online] <http://plateforme-echange.org/IMG/pdf/dossier-st-fr-2014-07-05.pdf> [accessed 10 September, 2014].

SCHOLZ Trebor, *Digital Labor. The Internet as Playground and Factory*, New York, Routledge, 2013.

STALLMAN Richard S., *Richard Stallman et la révolution du logiciel libre*, Paris, Eyrolles, 2010.

VAIDHYANATHAN Siva, *The Googlization of Everything (and Why We Should Worry)*, Berkeley, University of California Press, 2011.