From Internet Access Provision to Digital Rights Activism[1]

The History of the French Data Network

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Abstract

This paper chronicles the history of the French Data Network (FDN), France's first community network and first internet access provider accessible to the general public, from its foundation in 1992 to swarming through the Federation FDN in 2011. In France, the state played a central role in the development of early computer networks such as Cyclades, RENATER and Minitel. While these have already received scholarly attention, very little consideration has been given to political grassroots initiatives such as FDN and their role in co-shaping computer networks, their politics and their users. To help fill these gaps, this paper traces FDN's evolution from early concern with internet access and education to its more recent political commitments. In doing so, this paper simultaneously contributes to the development of a French national history of computer networks, to the ongoing diversification of digital rights activism historiography, as well as to future comparative research.

Based on interviews with the founding members and leaders of the French Data Network (FDN) (Benjamin Bayart, Laurent Chemla, Jean-Philippe Nicaise and Christian Paulus), this paper chronicles the history of FDN, France's first community network and first internet access provider accessible to the general public. In France, the state played a central role in the development of early computer networks such as Cyclades, RENATER and Minitel. While these have already received scholarly attention (see e.g. Schafer, 2012; Schafer & Tuy, 2013), very little consideration has been given to political grassroots initiatives such as that of FDN and their role in co-shaping computer networks, their politics and their users (Trudel & Tréguer, 2016; Pétin & Tréguer, 2018). To help fill in these gaps, this paper

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first traces FDN's evolution from its early concern with internet access and education to its involvement in the first campaigns to defend internet users' rights and early forms of digital activism in the mid-1990s. The paper then turns to the many challenges faced by FDN in the new context of powerful competition between commercial internet providers, rapid technological changes and a more restrictive regulatory framework. Finally, the paper discusses FDN's revival following the adoption of ADSL in 2005, and the organizational and strategic changes brought about by the creation of the *Fédération FDN* (FFDN), as well as the support given to WikiLeaks (2011) and the provision of VPN access to political dissidents during the Arab Spring (2011). In doing so, this paper simultaneously contributes to the development of a French national history of computer networks, to the ongoing diversification of digital rights activism historiography—one that has long been dominated by Anglo-Saxon perspectives (see Jordan & Taylor, 2004; Levy, 2001; Postigo, 2012)—as well as to future comparative research.

The early history of the French Data Network

At the end of the 1970s, personal computers finally came to France. At the time, magazines specializing in computer cultures reported that more than 100,000 computers had been sold in France (Thierry, 2012, p. 55). In 1985, an official report claimed that 860,000 households possessed a desktop device. By the end of the decade, France had become the top European market for PCs and over this period the number of computer clubs also rose significantly. This growth in computer use was facilitated by the government's voluntarist approach (Cats-Baril & Jelassi, 1994; Schafer & Thierry, 2012a). In 1978, when France was still lagging behind, the Nora-Minc report called for the unification of computers and telephone networks. That year also marked the would launch the unique experience of the Minitel (Gonzalez & Jouve, 2002; Schafer & Thierry, 2012a; Driscoll & Mailland, 2017). First intended as a way of giving the public access to databases, Minitel soon morphed into a communication device and a large-scale social experiment that led to the creation of France's earliest virtual communities. At the end of the 1980s, a quarter of French residents had access to Minitel. Other less popular computer networks were also accessible through dial-up connections, such as Calvacom, launched by Apple and the American College in Paris (Thierry, 2012).

All these early popular computer culture experiences, with their novices and "enlightened amateurs" (Schafer & Thierry, 2012b), were the backdrop against which the Internet swept through the country. In the early 1990s, as the Cold War came to an end, the Internet was growing and globalization

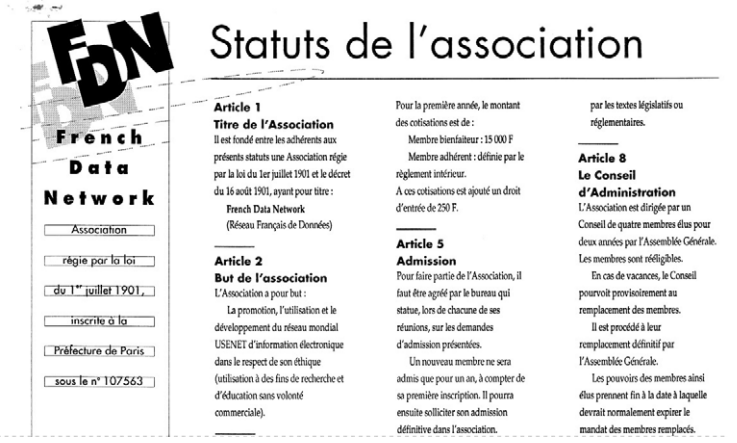
increasing to such an extent that it would soon culminate in a historic democratization of communications (Gerich, 1992). At the same time, the Internet's political economy was turned upside-down by a mounting wave of neoliberal commodification that opened telecom markets up to competition (Jin, 2008; Pickard, 2007)

A non-profit association, the French Data Network, was founded in 1992, prior to the onset of Internet "dinosaurs" such as Netscape (1993), Yahoo (1993), Internet Explorer (1994) and MSN (1994). FDN was the "crazy idea" of Christian Paulus, a 35 year-old computer scientist, and a handful of Parisian computer enthusiasts, including Jean-Philippe Nicaise, Hubert Delahaye and Arnaud Weber (Nicaise, 2016). Meeting over dinner in February 1992, this small group of friends began planning for a new service that would bypass existing French networks and connect directly to American servers using UUCP.[2] Then the project's code names were "Fou du Net" and "Fou Fou Net" (Nicaise, 2016). Paulus and his friends were mainly interested in the Internet's educational potential and had very little experience with activism. At the time, they simply wanted to "open up this emerging worldwide library to everybody" (Paulus, 2016, our translation). The association was conceived of as a means by which to mutualize access costs, and in line with this principle of solidarity FDN offered discounted prices to students and the unemployed (Nicaise, 2016).

In May 1992, Paulus and his friends contacted U. S.-based service provider UUNET and succeeded in joining the UUCP and SMTP[3] crowd—on the strength of three NEXT computers (and attached UUCP modems) located first in Nicaise's apartment and later in Paulus' living room, in Paris (Nicaise, 2016). The following month, on June 2nd, the French Data Network was formally created, with Paulus acting as president, Arnaud Weber as vice-president, Jean-Philippe Nicaise as treasurer, and Hubert Delahaye as secretary. In the succeeding two years, approximately 400 people joined FDN, including about 25 non-profit and for-profit organizations acting as proxy for their members (Nicaise, 2016). Communicating on UUCP and exchanging emails on SMTP required having your own microcomputer equipped with a modem and UUCP free software such as FreeBSD or NetBSD (Jørgensen, 2001). Members paid annual membership fees of 100 francs (15 euros)—or 10 francs for students—and a monthly flat-rate subscription of 180 francs (27 euros) entitling them to a generous data allowance. Among other services, FDN provided users with their own IP addresses and configurable email services, and ran file-sharing servers

2 UUCP is an abbreviation of Unix-to-Unix Copy, a suite of computer programs and protocols first released in 1979 to provide for remote command execution, file transfer by email, and news bulletins between computers.

3 Simple Mail Transfer Protocol (SMTP) is an internet standard for electronic mail transmission, first released in 1992.



FDN

French Data Network

Association

régie par la loi du 1er juillet 1901,

inscrite à la Préfecture de Paris

sous le n° 107563

Statuts de l'association

Article 1
Titre de l'Association
Il est fondé entre les adhérents aux présents statuts une Association régie par la loi du 1er juillet 1901 et le décret du 16 août 1901, ayant pour titre :
French Data Network
(Réseau Français de Données)

Article 2
But de l'association
L'Association a pour but :
La promotion, l'utilisation et le développement du réseau mondial USENET d'information électronique dans le respect de son éthique (utilisation à des fins de recherche et d'éducation sans volonté commerciale).

Pour la première année, le montant des cotisations est de :
Membre bienfaiteur : 15 000 F
Membre adhérent : définie par le règlement intérieur.
A ces cotisations est ajouté un droit d'entrée de 250 F.

Article 5
Admission
Pour faire partie de l'Association, il faut être agréé par le bureau qui statue, lors de chacune de ses réunions, sur les demandes d'admission présentées.
Un nouveau membre ne sera admis que pour un an, à compter de sa première inscription. Il pourra ensuite solliciter son admission définitive dans l'association.

par les textes législatifs ou réglementaires.

Article 8
Le Conseil d'Administration
L'Association est dirigée par un Conseil de quatre membres élus pour deux années par l'Assemblée Générale. Les membres sont rééligibles.
En cas de vacances, le Conseil pourvoit provisoirement au remplacement des membres.
Il est procédé à leur remplacement définitif par l'Assemblée Générale.
Les pouvoirs des membres ainsi élus prennent fin à la date à laquelle devrait normalement expirer le mandat des membres remplacés.

Fig. 1: Snapshot of FDN's original by-laws (January 1993, J.-P. Nicaise's personal archives)

from which members could download free open-source software to manage their modems and configure their connections. The FDN community contributed to this software by writing bits of code and translating English technical documentation and tutorials to make them more accessible to French users. Paulus even attracted national visibility among French internet pioneers by translating *Netiquette*—the set of social conventions used by first Internet users to regulate online interactions (Hambridge, 1995). Overall, things were going smoothly. Revenues were much better than expected and more than covered expenditure.

The following year, FDN teamed up with RENATER, the newly-formed public national network for academic and research institutions (see Schafer & Tuy, 2013). In his professional capacity, Nicaise was invited to join a meeting organized by RENATER and learned about the institution's proposal to subsidize internet connectivity. Excited about the prospect, FDN's co-founders reached out to RENATER later that year, emphasizing its educational focus and special prices for students and job-seekers. A couple of months later, RENATER granted FDN a special 64 kilobits per second line to their data center providing an uplink to the worldwide internet, a router, a first batch of public IP addresses with which to connect their servers to the Net, as well as its *fdn.fr* domain name—all for a symbolic price. The team was ecstatic and by March 1993, after some engineering work, the new infrastructure was up and running, still on UUCP. Later that year, FDN switched from UUCP modem to IP connections and was able to offer real internet access.

By that time, FDN was operating in—and trying to make sense of—a new ambiguous context. On one hand, the Internet was becoming increasingly commodified, as e-commerce and online advertising developed rapidly. On the other, the mid-1990s witnessed a "renaissance" of social movements in France and the rise of internet activism—namely use of the internet by social movements adopting what Stefania Milan (2013) calls "emancipatory communication practices" (see also Granjon & Torres, 2012). The internet sparked a political movement of tech activists whose aim was "to bypass the politics of enclosure and control enacted by states and corporations" and achieve "structural reform at the grassroots level through the creation of autonomous spaces of communication" (Milan, 2013, p. 10).

FDN and the rise of digital rights activism in France

This new context coincided with a change in FDN's leadership. By 1995, Paulus and his friends had been replaced by a new generation of FDN leaders, as the former were busy developing their careers in the booming tech sector (today, one of them works at France Télécom Orange while another works at Google). In March 1998, following a brief period during which Fabien Roy served as FDN president and Sam Przysma as interim president, FDN's members elected a new young president named Benjamin Bayart, a computer scientist in his early 20s, ushering in a new, more political era in FDN history.

While the Internet was getting increasingly politicized, FDN members were loosely connected to early forms of internet activism such as the Freenix association (free software) and the worldwide Blue Ribbon campaign for online freedom of speech, organized in 1996 to oppose the adoption by the U. S. Congress of one of the first Internet censorship laws, the Communications Decency Act (Chemla & Bayart, 2016). Also in 1996, the French government initiated its first regulatory crackdown, heightening censorship and its surveillance capabilities. In response, a handful of French internet pioneers created the *Association des utilisateurs d'internet* (AUI), the first French organization formed to defend the civil rights of internet users (Pétin & Tréguer, 2018). A few months earlier, the *Réseau associatif et syndical* (R@S) was set up in the aftermath of the November-December 1995 social uprising against the pension reform proposed by the right-wing government of the day. R@S was a key player on the early French internet activism scene and one of the first to consider the Internet as a means for organizing social movements (Sauterey, 2005; Granjon & Torres, 2012). R@S teamed up with workers' unions and local

organizations involved in the Global Justice Movement—the worldwide movement opposing neoliberal globalization and institutions like the World Trade Organization and the International Monetary Fund—providing them with secure e-mail, free hosting services and innovative web-publishing tools (Papatheodorou, 2005; Granjon & Torres, 2012). This led to interesting forms of cross-fertilization. On the one hand, these new links helped to politicize the techies. On the other, it educated these older activist organizations on the Internet's radical-democratic potential and the ability to exert bottom-up control over computer networks, in particular through free software (Coleman, 2005).

Looking back into the Usenet archives, it is interesting to note that FDN is frequently cited in the discussions of those involved in setting up AUI and R@S (AUI, 1995). The reason was not only that FDN was—or had been—their Internet access provider, but also that for many, it was their most significant reference in terms of setting up and operating a non-profit organization (Tréguer & Trudel 2017).

The politicization of the Internet intensified further in the months that followed, in the aftermath of the so-called Altern Affair (Schafer, 2018; Pétin & Tréguer, 2018). Built by a young French programmer named Valentin Lacambre, *altern.org* was a free hosting service which faced numerous challenges and was a key player in the French debate on "intermediary liability." An appellate court decision eventually held Lacambre liable for the content published by Altern's users, leading to the 47,000 websites hosted on the platform being shut down.

From then on, FDN increasingly took part in the emerging French and international internet activism scene (Chemla & Bayart, 2016). For FDN's active volunteers, citizen-owned and run internet providers seemed to be a natural avenue for resisting to the trend to commodification and political control over the new communication infrastructure (Bayart, 2016). Though the leading members of the emerging digital rights scene did not necessarily perceive FDN's political potential, all shared the goal of equipping newcomers with technical know-how and cultivating an understanding of the Internet's political importance.

Maintaining technological relevance: a condition for political action

Despite the increasing politicization of the Internet in the mid-1990s, FDN soon had more pressing concerns to deal with than taking a leading role in this early internet rights activism scene. Indeed, the most pressing issue was maintaining FDN's core activity, i. e. internet access provision.

FDN had around 20 mostly commercial internet provider competitors in France (see Rebillard, 2012). In the context of rapid privatization, regulation promoted both the unbundling of last-mile as well as facility-based competition, and new companies began developing their own network infrastructure (Michalis & Ruhle, 2001). This, along with the mobile telephone communications explosion and the democratization of internet access, made liberalization seem like a success story: innovation in telecom services was dynamic and fast paced, prices were low and the number of internet users was surging.

It was becoming increasingly difficult for FDN to keep pace and compete with commercial providers such as Wanadoo, Free and Club Internet. In 1996 alone, when the Internet made its first general public breakthrough, FDN lost 10% of its members to commercial providers. In 1997, an extraordinary general assembly cast doubt on the very survival of the association (French Data Network, 1997). At the time, FDN was also facing up to the consequences of the new European directives then opening up telecom markets to competition and imposing new obligations on operators. To be registered as a lawful telecom player, FDN had to pay an annual fee of about 130,000 francs (20,000 euros) to the newly created national regulatory authority, the *Autorité de régulation des télécommunications*. The fee was designed for commercial players, and for FDN the sum was equal to its revenues. To avoid this crushing financial burden, the organization did not register and chose to remain under the radar (Bayart, 2016).

At approximately the same time, RENATER suddenly decided that FDN was actually operating a commercial service and dropped its support. FDN eventually switched from RENATER to Oléane, a business-to-business telecom operator who also provided batches of IP addresses, but on less advantageous financial terms. This led to changes in the association's bylaws, adopted in March 1998 at Bayart's behest. Article 2 of the bylaws now read: "The association aims to promote, use and develop internet and Usenet networks in accordance with its ethics by promoting, in particular, its use for non-commercial research and educational purposes" (French Data Network, 1998, p. 3, our translation). The meeting's minutes show that the phrase "in particular" was especially important—and ambiguous—in that it suggested "a less rigid framework for the evolution of the French Data Network [...] clearly indicating our desire for openness to small scale entities such as craftsmen and small businesses" (French Data Network, 1998, p. 2, our translation).

In the mid-2000s, as connection speed significantly increased, thanks to the deployment of ADSL technologies, the situation worsened. By that time, FDN had only 40 subscribers, all of them using their slow FDN access

for very simple and old applications. The bulk of their internet use relied on mainstream access providers.

From 1999 to 2007, FDN had stayed off the grid, holding no general assemblies, and its activities were less intensive than ever on the political front. Its few remaining members were mostly preoccupied with the very survival of the association in the face of taxation issues and commercial "high-speed" ADSL services. But those users who remained with FDN were the most committed to its values and mission, and were tied to the emerging digital rights movement, which underwent a revival in the late 2000s. This revival coincided with the adoption of ADSL in 2005, a project undertaken by Bayart who had been setting up an ADSL system for a mainstream operator (Bayart, 2016). After 18 months of internal lobbying, finding and talking to the right people, he managed to find someone in the business department of the company ready to make a special offer: that large telecom provider would lease parts of its network to FDN through so-called "bitstream offers." Rather than having to deploy its own infrastructure in the last-mile networks, FDN could rely on that of this much bigger operator in exchange for a per-subscriber fee.

In 2005, the roll-out of ADSL service brought FDN back into the game, on a technical level as well as in membership terms. At 29 euros per month, the subscription fee was comparable to that offered by commercial players, and FDN began recruiting new members (Sirjean, 2017).

The *Fédération FDN* and the second wave of digital right activism

Having secured the future of the organization, Bayart also became more politically involved in the mid-2000s, addressing crowds of free software activists at public events. At one famous speech that gathered much viewership online, Bayart described the Internet's enclosure and growing centralization as a move towards a "Minitel 2.0" (Bayart, 2007). This talk struck a chord in an increasingly politicized activist milieu. In 2008, Bayart also participated in the foundation of *La Quadrature du Net* (acting as the association's treasurer), a group that would go on to occupy the political space that had been left vacant since the end of the *Association des utilisateurs d'internet* in 2002 and the disappearance of another similar organization, *Imaginons un Réseau Internet Solidaire* (Pétin & Tréguer, 2018).

In 2009, FDN was a vocal opponent of French HADOPI law, which aimed to restrict peer-to-peer exchanges and disconnect internet users responsible for copyright infringements (Lausson, 2010). According to Benjamin Bayart (2009), the debate surrounding the HADOPI law

contributed to politicizing a large number of 'mainstream' internet users for the very first time. It also paved the way for another central issue which dominated the policy agenda in subsequent years: that of Net neutrality—a central concept according to which telecom providers should not prioritize or block specific content or applications online (Marsden, 2010; Wu, 2010).

FDN was thus extremely active in fighting online censorship. In 2010-11, during the WikiLeaks Cablegate, FDN created a WikiLeaks mirror site to help circumvent censorship attempts and helped to channel donations to Julian Assange's organization to circumvent the banking blockade it was subjected to (Agence France-Presse, 2010; Champeau, 2012). During the Arab Spring, the organization set up modems and shared telephone numbers to allow Egyptian protesters to connect to the Internet through dial-up connections during the internet shutdown, also partnering with Reporters Without Borders to provide VPN services to political dissidents (Doucet, 2011; Luquin, 2011). All this attracted significant media coverage and helped publicize the role played by FDN in the debates surrounding digital rights.

This was the moment when Bayart, other FDN volunteers and a handful of other French non-profit access providers went on to motivate people across France to join and start building their own community networks. Rather than growing a single organization, the choice made was to 'swarm' in decentralized mode, creating many local non-profit organizations. Soon, in the context of the growing ability of the digital rights movement to frame these issues at the political level, Bayart's advocacy of non-profit internet access providers contributed to the creation of more than a dozen new initiatives across France, including amongst others, *Tetaneutral.net* (2010), *Lorraine Data Network* (2010) and *Sames Wireless* (2010). To coordinate these developments, share expertise and organize the movement's legal and political representation, an umbrella of non-profit organizations was also created: the *Fédération FDN* (FFDN), a "network of networks" now comprising about thirty community networks and 2500 member-subscribers. As a federation, FFDN and the various connected organizations were able to develop political and legal expertise within the existing political and legal institutions and educate the public on a range of issues, such as surveillance—a rising theme in the post-Snowden context (see Alloing, 2016).

Conclusion

While still providing internet access to many subscribers, FDN—and today FFDN—embarked on a major shift in the direction of political advocacy and remains a major player today in the field of French internet activism.

FDN's history suggests that community networks are crucial to understanding the broader history of communication networks, their uses and their politics. Our case study is one more indication of the central role of non-profit, alternative providers in popularizing access to the Internet in the early days when commercial provision had yet to go mainstream. These alternative providers and services acted as a key resource in the evolution of the early 1990s "enlightened amateurs," who sought to promote a "moral institution" of internet newcomers via *Netiquette* (Auray, 2012), to the more contemporary figure of the "critical Internet user," actively engaging with lawmakers and other power-holders while being able to point to these pockets of resistance alongside the key players (Paloque-Bergès, 2015; Pétin & Tréguer, 2018).

But FDN's history also shows that, as De Filippi and Tréguer (2015) have written, "[political] motives are not in and of themselves sufficient for the network to scale up beyond a restrained community of highly engaged individuals with strong ideological values" (p. 18). In order to survive and grow, "community networks must also provide a service that is considered at least as good and preferably better than that of mainstream ISPs" (p. 18). In the case of FDN, the adoption of ADSL technology in 2005 was certainly a turning point that allowed the association to survive and continue its political commitments.

Finally, this case study also contains interesting lessons for contemporary community networks, showing how they can act as a strategic locus for reinterpreting both ends of traditional "mediactivism" (Cardon & Granjon, 2013): the critique aiming to empower individuals and collectives to disseminate their own voices by mastering the roll-out of alternative networks, and the counter-hegemonic critique that tackles the structural issues, using these alternative networks as a symbolic resource to ward off forms of domination and collusion that divert telecommunications and media policies from the public interest.

If the history of the Internet remains largely to be written, this is all the more true of the history of community networks such as FDN and the broader history of internet rights activism. Our hope is that this article can provide a useful contribution to future comparative research that embraces the diversity of technological, political and national contexts.

References

Agence France-Presse (2010, December 3). L'hébergement de WikiLeaks en France menacé. *Le Monde*. Retrieved from www.lemonde.fr/technologies/article/2010/12/03/eric-besson-demande-que-le-site-wikileaks-ne-soit-plus-heberge-en-france_1448661_651865.html.

Alloing, C. (2016). La sousveillance: Vers un renseignement ordinaire? *Hermès*, 3 (76), 69-73.

AUI (1995). [Usenet archives]. Retrieved from https://groups.google.com/forum/#!searchin/fr.network.divers/Association$20usagers$20de$20l$27Internet|sort:relevance/fr.network.divers/ocqMSlhTywU/I3bWVEKzTe4J.

Auray, N. (2012). L'Olympe de l'Internet français et sa conception de la loi civile. *Les Cahiers du numérique*, 3 (2), 79-90.

Bayart, B. (2007). *Internet libre ou Minitel 2.0?* Retrieved from www.fdn.fr/actions/confs/internet-libre-ou-minitel-2-0.

Bayart, B. (2009). La neutralité du réseau. In M. Pasquini (ed.), *La bataille HADOPI* (pp. 65-76). Cergy-Pontoise: InLibroVeritas.

Bayart, B. (2016). Personal interview (F. Tréguer). July 15, 2016.

Cardon, D., & Granjon F. (2013). *Médiactivistes*. Paris: Presses de Sciences Po.

Cats-Baril, W. L., & Jelassi, T. (1994). The French Videotext System Minitel: A Successful Implementation of a National Information Technology Infrastructure. *MIS Quarterly*, 18 (1), 1-20.

Champeau, G. (2012, July 19). WikiLeaks va percevoir des dons en France grâce à FDN. *Numerama*, Retrieved from www.numerama.com/magazine/23217-wikileaks-va-percevoir-des-dons-en-france-grace-a-fdn.html.

Chemla, L., & Bayart, B. (2016). Personal Interview (F. Tréguer & C. Paloque-Bergès). July 14-16, 2016.

Coleman, G. (2005). *Indymedia's Independence: From Activist Media to Free Software*. Retrieved from http://journal.planetwork.net/article.php?lab=coleman0704&page=1.

De Filippi, P., & Tréguer, F. (2015). Wireless Community Networks: Towards a Public Policy for the Network Commons. In L. Belli & P. De Filippi (eds.), *Net Neutrality Compendium: Human Rights, Free Competition and the Future of the Internet* (pp. 261-275). New York: Springer.

Doucet, D. (2011, January 28). Comment contourner la censure en Égypte? *Slate.fr*, Retrieved from www.slate.fr/story/33411/comment-contourner-la-censure-en-egypte.

Driscoll, K., & Mailland, J. (2017). *Minitel: Welcome to the Internet*. Cambridge: MIT Press.

French Data Network (1997, December 6). *Compte-rendu de l'assemblée générale extraordinaire du 6 décembre 1997*. Retrieved from http://media.fdn.fr/html/ag98.html.

French Data Network (1998, March 21). *Compte-rendu de l'assemblée générale ordinaire de FDN du 21/3/1998*. Retrieved from http://media.fdn.fr/html/ag98.html.

Gerich, E. (1992). *Guidelines for Management of IP Address Space*. Retrieved from www.rfc-editor.org/rfc/rfc1366.txt.

Granjon, F., & Torres, A. (2012). R@S: La naissance d'un acteur majeur de l'"Internet militant" français. *Le Temps des Médias*, 18 (1), 87-98.

Gonzalez, A., & Jouve, E. (2002). Minitel: histoire du réseau télématique français. *Flux*, 47 (1), 84-89.

Hambridge, S. (1995). Netiquette Guidelines (Request For Comments No. 1855). *IETF*. Retrieved from www.ietf.org/rfc/rfc1855.txt.

Jin, D. Y. (2008). Neoliberal Restructuring of the Global Communication System: Mergers and Acquisitions. *Media, Culture & Society*, 30 (3), 357-373.

Jordan T., & Taylor P. (2004). *Hacktivism and Cyberwars: Rebels with a Cause?* London: Routledge.

Jørgensen, N. (2001). Putting it All in the Trunk: Incremental Software Development in the FreeBSD Open Source Project. *Information Systems Journal*, 11 (4), 321-336.

Lausson, (2010, July 10). HADOPI: le recours déposé par FDN est enfin transmis aux parties adverses. *Numerama*. Retrieved from www.numerama.com/magazine/16364-hadopi-le-recours-depose-par-fdn-est-enfin-transmis-aux-parties-adverses.html.

Levy, S. (2001). *Crypto: How the Code Rebels Beat the Government Saving Privacy in the Digital Age*. London: Penguin Books.

Luquin, A. (2011). *Internet Censorship In Egypt: A Humble Action From FDN*. Retrieved from http://blog.fdn.fr/?post/2011/01/28/Censure-de-l-internet-en-Égypte-:-une-humble-action-de-FDN.

Marsden, C. T. (2010). *Net Neutrality: Towards a Co-Regulatory Solution*. London: Bloomsbury Academic.

Michalis, M., & E. O. Ruhle (2001). Local Access Competition and Local Loop Unbundling. *Multimedia Und Recht*, 4 (1), 23-32.

Milan, S. (2013). *Social Movements and Their Technologies*. Basingstoke: Palgrave Macmillan.

Nicaise, J.-P. (2016). Personal Interview (F. Tréguer). October 27, 2016.

Paloque-Bergès, C. (2015). *When Institutions Meet the Web: Advocating for a "Critical Internet User" Figure in the 1990s*. Retrieved from https://halshs.archives-ouvertes.fr/halshs-01245511/document.

Papatheodourou, A. (2005). Samizdat.net, l'histoire d'un projet de médias

alternatifs sur Internet. Entretien avec Aris Papathedorou. *Matériaux pour l'histoire de notre temps*, 79 (1), 57-62.
Paulus, C. (2016). Personal Interview (F. Tréguer & D. Trudel). October 19, 2016.
Pétin, P., & Tréguer, F. (2018). Building and Defending the Alternative Internet: The Birth of the Digital Rights Movement in France. *Internet Histories*.
Pickard, V. (2007). Neoliberal Visions and Revisions in Global Communications Policy from NWICO to WSIS. *Journal of Communication Inquiry*, 31 (2), 118-139.
Postigo, H. (2012). *The Digital Rights Movement: The Role of Technology in Subverting Digital Copyright*. Cambridge: MIT Press.
Rebillard, F. (2012). La genèse de l'offre commerciale grand public en France (1995-1996), Entre fourniture d'accès à l'Internet et services en ligne "propriétaires." *Le Temps des Médias*, 18 (1), 65-75.
Sauterey, F. (2005). Utiliser les ressources du Net au profit des forces progressistes: Le Réseau associatif et syndical. Entretien avec François Sauterey. *Matériaux pour l'histoire de notre temps*, 79 (1), 52-56.
Schafer, V. (2012). De Cyclades à RENATER: Des réseaux de données pour la recherche et l'enseignement (années 1970-1980). *Histoire de la recherche contemporaine*, 1 (2), 180-187.
Schafer, V. (2018). Du grand secret à la "défaite de l'Internet:" Enjeux, mobilisations et controverses autour du pouvoir des intermédiaires en France dans la décennie 1990. *Histoire et Informatique*, 23-39.
Schafer, V., & Thierry, B. G. (2012a). *Le Minitel. L'enfance numérique de la France*. Paris: Cigref/Nuvis.
Schafer, V., & Thierry, B. G. (2012b). From the Minitel to the Internet: The Path to Digital Literacy and Network Culture in France (1980s-1990s). In G. Goggin & M. McLelland (eds.), *The Routledge Companion to Global Internet Histories* (pp. 77-89). London: Routledge.
Schafer, V., & Tuy, B. (2013). *Dans les coulisses de l'Internet. RENATER, 20 ans de technologie, d'enseignement et de recherche*. Paris: Armand Colin.
Sirjean, F. (2017). *French Data Network, 25 ans plus tard!* Paper presented at Les journées du logiciel libre, Lyon, April 1, 2017.
Thierry, B. G. (2012). Révolution 0.1: Utilisateurs et communautés d'utilisateurs au premier âge de l'informatique personnelle et des réseaux grand public (1978-1990). *Le Temps des Médias*, 18 (1), 54-64.
Tréguer, F., & Trudel, D. (2017). *The History of the French Data Network*. Paper presented at Computer Networks Histories: Local, National, and Transnational Perspectives, Lugano, December 15, 2017.
Trudel, D., & Tréguer, F. (2016). *Alternative Communication Networks*

Throughout History. Retrieved from www.netcommons.eu/sites/default/files/d5.1_history_v1.1.pdf.
Wu, T. (2010). *The Master Switch.* New York: Alfred A. Knopf.

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