An open digital strategy for post-Covid 19

Contribution of the NLCL to the consultation of France Stratégie

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Summary: The CNLL, federation of free software and open digital companies in France, represents since its creation in 2010 a force of proposal to the public authorities. This document proposes eight lines of action to facilitate the exit of the crisis COVID-19, the economic recovery, and the ability to respond to future crises and strategic issues in the digital sector, based on the capabilities and fundamental values of free software, open source and open digital.

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INTRODUCTION

The global health crisis has brutally highlighted the vulnerability of our societies, which have been brought to a standstill in just a few days. It reveals the fragility of our interdependent economies, the alteration of our ecosystems and our dependence on technology.

The industry and open source communities share and promote values - collaboration, resilience, transparency, independence, interoperability - that are crucial in the fight against the pandemic and the changes in social and economic life it brings about.

The CNLL, as a federation of free software and open digital companies, wished to observe this experience in order to analyse the impacts of the crisis in the digital sector and to make proposals for the "post-VID-19" period. Since its creation in 2010, the CNLL has been making proposals to the public authorities to establish the basis of an industrial policy for free software that benefits the entire French economy in terms of competitiveness, employment, innovation and technological expertise.

FINDINGS IN THE CRISIS

1. The development of community initiatives

In this period of crisis and containment, many initiatives led by the free and open digital movements have been launched to respond to digital needs that have been rethought in light of current social issues. Complementary or alternative to public measures, these community solidarity movements are thus demonstrating their relevance in meeting the needs of rapid organisation in a pragmatic manner. This formidable development of community initiatives also illustrates a clear current trend towards **openness in its various forms***:* **open** *science* (sharing of data and research articles), participatory democracy, free sharing of culture, etc. Free software, open source and open hardware are one way of implementing and accelerating this openness.

2. Adaptability of people, organizations and systems

At the heart of the current situation, one of the major roles played by the collective participation of civil society has been to provide reliable and quality information on the evolution of the pandemic by providing global (e.g. https://covid19-dash.github.io/) or local (e.g. https://veille-coronavirus.fr/) statistics. This has also made it possible to respond to local needs by providing, for example, maps of self-help in cities (e.g. https://lebonfinement.fr/?CarteEntraide).

The free, open and cooperative model has amply demonstrated its benefits and strengths during this period. Of all the services offered, the most ethical, supportive and fair are those that have implemented free software.

As explained in the May 5 article in Entreprendre magazine[1], what we have seen in recent weeks in organizations that have been broken up, where work is now done at a distance and where the work environment has been disorganized, managerial relationships have been disrupted, and personal constraints are intruding into the professional world, is that **the companies that work best are those that have built a "liberated" corporate culture**.

By "liberated" or "resilient" culture, we mean a corporate culture that promotes or reinforces the company's ability to react, adapt and be flexible, a company that gives its employees a sense of responsibility and gives them autonomy of action to deal with, among other things, the unexpected.

This also raises the question of the vision conveyed by the logic of risk analysis and BCPs (Business Continuity Plans), which often consists of thinking of the company as a place of control, monitoring and prediction, where spontaneity and improvisation have little place.

3. Reinforcement of inequalities, particularly in the digital environment

Without a computer, mobile phone or internet access, confinement quickly becomes a nightmare. There are many examples that demonstrate this growing digital divide linked to the COVID-19 crisis: a lack of computer equipment or difficulties in using it reinforce the feeling of exclusion, a student whose parents are not comfortable with these digital uses finds himself or herself at a disadvantage when it comes to following distance learning courses, etc.

A study published by INSEE in 2019 already highlighted the digital divide. According to the results of this study, 17% of the French population is affected by illiteracy, with one person in five unable to communicate via the Internet. Older people, those with fewer qualifications and modest incomes are among those most affected.

While communicating via the Internet seems almost unavoidable in the professional and personal world, just over 21% of the population over 15 years of age does not have this capacity.

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[1] https://www.entreprendre.fr/covid-19-interroge-les-entreprises-sur-leurs-capacites-de-resilience/

According to a United Nations analysis[2], the coronavirus crisis has accelerated the adoption of digital solutions, tools and services, accelerating the global transition to a digital economy. It also highlights the gap between the connected and the unconnected, revealing how far digital adoption is far from being a reality for many.

4. Strengthening the GAFAM

The increasing use since the beginning of the health crisis of the services of companies such as Facebook, Google and Amazon could strengthen and even encourage their activity after the crisis. The need for entertainment but also the increased use of teleworking has led to an acceleration in the demand for connectivity and access to these services.

As explained by the deputy Cédric Villani in his interview of 27 April 2020 with the magazine l'Expansion[3]: "*The coronavirus crisis amplifies the phenomenon of the dominant position of the GAFAM by exacerbating economic rivalries and placing digital at the centre of all our organisations* [...] *Flexible and reactive, these groups have adapted very quickly to current conditions and some of them are even taking advantage of the situation to grow even more, like Amazon thanks to home delivery of goods. "*

[2] "Inequalities in digital preparedness are hampering the ability of much of the world to take advantage of technologies that help us cope with the coronavirus pandemic at home," said Shamika Sirimanne, UNCTAD's Director of Technology and Logistics. "This situation has important implications for development that cannot be ignored. We must be careful not to leave those who are less digitally equipped even further behind in a post-coronavirus world. Source: https://news.un.org/fr/story/2020/04/1065932

[3] https://lexpansion.lexpress.fr/entreprises/cedric-villani-il-va-etre-beaucoup-plus-complique-d-attaquer-les-gafam_2124452.html (article in restricted access to subscribers)

THE FUTURE OF OPEN DIGITAL IN THE POST-COVID ERA

1. Adapting to the new forms of work organisation of tomorrow and fostering openness and collaboration

The COVID-19 crisis has led to widespread teleworking. What will be left of it afterwards? What will be the impact on working methods? What will be the place of free software in this new context?

Teleworking is a profound trend in our tertiary economies, offering flexibility to organisations and individuals, and responding to ecological constraints. The crisis only increases this trend, which will certainly continue in the "after". According to a study by the American firm Gartner[4], two thirds of companies will keep at least 5% of their employees, who were not before, teleworking after the crisis.

In an article written for the magazine TAF (Travailler au futur[5]), the development of distance activities is foreseen, either in the framework of telework or with the development of the status of self-employed worker, which has seen a leap forward in the wake of the Covid-19 crisis. Some companies are now only considering the use of self-employed workers for certain functions, in order to avoid their organisation being overwhelmed in times of crisis.

Open source software is fully in line with the new ways of working and collaboration that are emerging. Indeed, these have been developed for more than 30 years in a distributed way and the ecosystems that develop and value these software have been the pioneers of distributed collaborative work, as explained in the article by Kiane Goudarzi, Veronique Sanguinetti and Vincent Chauvet: "Telework: five good practices to borrow from "open source" development"[6].

The increase in the offer of collaborative tools, necessary in this new context (document sharing, collaborative writing, teleconferencing, chat tools, etc.), will certainly continue in the future, with a significant part occupied by open source solutions. Indeed, the accessibility and flexibility of use of the latter is a major asset. These tools are already numerous and their number continues to grow every day.

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[4] https://www.gartner.com/en/newsroom/press-releases/2020-04-03-gartner-cfo-survey-reveals-74-percent-of-orgs-to-shift-some-employees-to-remote-work-permanently

[5] https://www.futuribles.com/fr/article/quelle-organisation-du-travail-et-de-la-production/

[6] https://theconversation.com/travail-a-distance-cinq-bonnes-pratiques-a-emprunter-au-developpement-open-source-139348

To go further in supporting these new ways of working, what proposals can be made to support this orientation towards openness and the generalisation of free resources, two strong trends in the business world of tomorrow?

Proposal 1: Create an Individual Right to Contribution (ICD) to open source projects.

Philippe Lemoine's Report[7] on "the new grammar of success, the digital transformation of the French economy", proposes (Recommendation n°101) to create an Individual Right to Contribution (DIC) to enable employees to devote time to *open* projects, for example by transforming the Individual Right to Training (DIF) into an DIC. The DIF is a system that allows employees in the private sector and civil servants in the public sector to follow continuous training. This right corresponds to 20 hours of training per year. Thus, the idea would be to build on these hours or to free up specific new ones so that public officials can develop their creativity around collaborative projects.

Proposal 2: Support companies that implement open innovation strategies.

- Include in the personal training account an individual right to contribution, allowing an employee to participate in "open" projects (social innovation, Fab Lab, "open" startup, etc.).
- Develop the "1% open" to encourage companies to develop open innovation projects: for example, include it in the criteria for defining corporate digital[8] responsibility (use of free resources, contribution to open source, development of partnerships, investment in social innovation, etc.).

This proposal, as well as the previous one, has already been presented by the National Digital Council in 2015 in its report "Ambition Numérique"[9] led by Benoît Thieulin.

[7] https://www.economie.gouv.fr/files/files/PDF/rapport_TNEF.pdf

[8] "*The responsibility of companies for the production, use and protection of data collected in the course of their business*". Source: https://www.strategie.gouv.fr/actualites/groupe-de-travail-responsabilites-numeriques-entreprises-de-plateforme-rse

[9] https://cnnumerique.fr/files/2017-10/CNNum--rapport-ambition-numerique.pdf

2. Improving the sustainability of key software for digital infrastructures

The current crisis highlights the absolute necessity of having reliable, well-maintained infrastructure, which is the condition for maintaining economic activity in the country. By infrastructure we mean not only the hardware but also the basic software components on which network and cloud services are based. The sustainability of these infrastructures will be improved if they are maintained and financed as common goods.

History also demonstrates the importance and place of free software in these infrastructures. The example par excellence is the birth of the cloud, which is essentially based on the availability of a free and reliable OS, Linux, supported by a rich ecosystem that is just as free and reliable. Without this ecosystem of free software constituting a pre-existing digital infrastructure, there is no cloud. However, the development and especially the maintenance of this free software are ignored by public authorities and private companies that use this common good without participating too much in its sustainability. There are countless examples, but let's take two emblematic ones:

- **openssl**, the software that ensures a large part of the security of Internet exchanges, is created and maintained by a developer who barely had enough to live on for years,
- **zdata**, the time zone information base, without which no computer system can be on time, was maintained until 2011 by a single person on his or her own time. This person received a copyright infringement complaint from a company (which quickly retracted it), and decided to abandon the maintenance. An emergency backup solution had to be found with ICANN.

These are just a few examples of the failure to take into account the importance and sustainability of our digital infrastructures. Each of these bricks is essential to the functioning of our modern world, but we are unaware of the risk associated with this abuse of exploiting the goodwill of a few humans. Many critically important Free Software projects are in a similar state of maintenance.

What proposals can be made to improve this situation, support contributors and enhance the sustainability of our infrastructures?

Proposal 3: Maintain and finance key software for digital infrastructure as a public good.

The State has a key role to play: just as our roads allow the development of economic activities, the State must consider free software, and in particular the free software on which our digital infrastructure is based, as digital commons. These digital commons need to be maintained and funded. The State must, on the one hand, participate in maintenance and, on the other hand, find the means to ensure the necessary funding for this maintenance, and, as with roads, use its prerogative to force the funding of strategic structures by their users. Identifying the allocation of resources is a project in its own right, as are the financing structures and possible taxes.

The EESC opinion entitled Towards a policy for European digital sovereignty[10] published in 2019 recommends on this subject (recommendation 17): '*Financial support could be provided at European, national and regional level for projects aimed at developing alternative solutions based on free software for services deemed to be of general interest (geolocation, educational and cultural content, enhancement of regions and heritage, etc.). "*

The growth in the number of "digital commons" makes it possible to imagine a society structured not around the ownership of a technology, but on the contrary around the capacity of the players to work together and create value in common.

3. Strengthening digital sovereignty

More than ever, the health crisis that we are experiencing highlights the necessary technological independence that should be targeted by States, even though, in the absence of concrete systemic actions, the influence of the GAFAMs is likely to increase after the crisis.

Overcoming Europe's difficulties in finding alternative solutions

In his above-mentioned interview, Cédric Villani regrets Europe's inability to bring about alternative solutions. He mentions his own experience in the National Assembly and advocates European digital sovereignty:

"We *rely on Zoom for video conferencing, exchange messages on Gmail or Telegram, and my own team uses Google Calendar to organize my schedule. Europe is having a hard time getting digital solutions to emerge in everyday use. In this time of pandemic, we feel even more strongly*

[10] Source: https://www.lecese.fr/travaux-publies/pour-une-politique-de-souverainete-europeenne-du-numerique

our over-reliance on American tools. The notion of sovereignty, including digital sovereignty, is making a strong comeback, but the future lies in European sovereignty: in terms of digital, this is the right scale. I am campaigning for the creation of a "buy european act" mirroring what the United States has been doing for decades. ...] I especially insist that the ball is in our court: in digital Europe we must aim for more flexibility, more ambition, more confidence."

We also regularly observe that there is a European software offer, often free software, in parallel with the American offer. We will therefore have to ask ourselves whether European buyers are overly interested in American solutions.

What proposals can be made to take greater advantage of free software and open standards to enhance the digital sovereignty of the state and the public cloud?

Proposal 4: Improve digital sovereignty by giving real priority to free software, particularly from French and European open source publishers.

The FOSS ecosystem was initially formed in response to monopolistic trends in the IT market due to its own network externalities. More recently, the revelations of Edward Snowden, the growing awareness of the excessive influence of "GAFAMs" on all aspects of society, and finally the place of technology in the economic war that states are now waging, have brought to the forefront the need for a genuine strategy of technological independence at the state level. Free software, because it ensures a better balance of power between suppliers and users of technology, through its open and transparent nature, represents an asset that France should exploit in this context.

In 2018, the **Court of Auditors** observed: "The use of free software is first and foremost a security and sovereignty issue. It allows their users to be sure of the actions carried out by the software, to protect themselves against undesirable functions and possibly to modify it according to the identified uses. "[11]

In the Senate, the commission of inquiry on digital sovereignty, set up in April 2019 and chaired by Gérard Longuet, delivered its report in October 2019, entitled "**the duty of digital sovereignty**"[12].

The report regrets "the absence of a State doctrine on free software", and encourages it to "rapidly initiate inter-ministerial discussions on this subject" and recommends that:

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[11] https://www.ccomptes.fr/sites/default/files/2018-01/04-Amplifier-modernisation-numerique-Etat-Tome-1.pdf

[12] https://www.senat.fr/rap/r19-007-1/r19-007-11.pdf

"Public administrations [can] also initiate discussions on the use of free software in order to ensure that they have control over their data and to better conduct, potentially at lower cost, the public policies for which they are responsible".

It states that the State does not seem to have, according to the hearings conducted, a "general doctrine to integrate this essential dimension of data security in its calls for tenders".

It also mentions the example of the Gendarmerie which, since 2009, has equipped the 80,000 computer workstations of its services with open-source IT solutions that have enabled it to regain its independence and sovereignty vis-à-vis private publishers. The report adds: "It would be very useful to quickly take stock of this unique experience and assess the possibilities of its extension to other ministries".

At the European level, the European Parliament has formally decided to implement such principles, in a resolution voted on 14 May 2020 where it "recognises the added value that free and open software can bring to the Parliament; stresses in particular their role in improving transparency and preventing blocking effects by suppliers; also recognises their potential for improving security as they allow weaknesses to be identified and corrected; strongly recommends that any software developed for the institution be made public under a free and open software licence"[13].

However, to be effective and competitive, this strategy of independence and recourse to free software will have to rely on a dynamic Open Source professional ecosystem, in particular French publishers and integrators, in order to propose concrete and operational solutions, maintained over time, and to stimulate innovation and competitiveness (*see* also our proposal 8). The digital sovereignty of the State and of Europe therefore requires a strong willingness to develop - both through public procurement and through aid for innovation - a local and European open digital sector.

So the subject is not new, far from it. What real changes can we expect today in view of the increased need for independence highlighted by the crisis? When will a real priority be given to free software? When will there be close collaboration with publishers and the French Open Source professional ecosystem?

[13] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0084_FR.html#title2

Proposal 5: Enhance the sovereignty of the Cloud by promoting open standards, transparent approaches, interoperability and data protection.

As part of its cloud computing strategy, the government needs to focus on strategic issues (such as digital sovereignty) rather than just pragmatic or operational issues when choosing solutions and vendors. For critical and sensitive data, the State should rely exclusively on *cloud computing* platforms built using open technologies and standards and that allow for easy switching of vendors, which implies developing and maintaining, internally or through local experts, know-how on open source technologies. The state must also ensure that its own data is only stored in an environment that meets the highest European standards of data protection.

4. Bridging the digital divide through knowledge exchange and sharing

Beyond the financial vision and the savings in public expenditure that can be achieved with free software, there are necessarily other parameters to be taken into account in public action around local economic development, access for all, etc.

The digital divide, already well identified before, has been reinforced by the acceleration of dematerialization generated by confinement, and thus inequalities in the control of digital uses.

What are the proposals to bring all the actors together towards a common interest and make our territory more viable and sustainable? The values of openness and inclusiveness of free software can significantly contribute to the reduction of inequalities in the digital world, and propose a positive dynamic that would facilitate and accelerate the exit from the crisis.

Proposal 6: Improve access to equipment and software by building on the values of openness and inclusiveness of open source software.

Indeed, free software, based on knowledge sharing and exchange, allows everyone, whatever their level of income, to equip themselves and to have general access to all the services available via the Internet. Everyone can use and participate in them, through structured communities. The State and communities have long been moving towards

free software. While the software industry is relocating, free software, as a service economy, is developing local, national or European activity, and makes it possible to reduce dependence on GAFAM, which has increased during the crisis.

Proposal 7: Train more and better to and through free software, generalize MOOC-type platforms.

MOOC platforms promote inclusiveness by offering open and unlimited access to online content, usually at a low or no cost.

CNLL studies, such as the 2018 study,14show and qualify a significant need for skills to cope with the growth of the open source software industry. Concretely, and according to the various studies that converge towards the same order of magnitude, 3,000 net job creations are needed each year to cope with the growth of the sector. There is therefore a strong need to specifically train students and employees in collaborative development practices and tools (languages, *frameworks,* development tools ...) derived from free software. However, our contacts with the academic world have shown us that the curricula offered today do not integrate the free software dimension. There are indeed few specific training courses, and in most of the other training courses, if the courses often lead the students to use some open source tools, they do not present what makes the specificity of a software engineer specialized in open source: community dimension, mechanisms of contribution to a software, licenses, transparency, collaborative innovation, business models, etc...

We therefore advocate State support for these platforms and in particular for those dedicated to skills and professions in the digital sector, especially those based on free software, such as the FUN platform (France Université Numérique)[15].

As MEP Marcel Kolaja points out, "*[such training] should not be limited to the technologies of a specific company but should be devoted to a variety of tools, and should encourage the use of interoperable solutions and free and open source software*"[16].

[14] https://new.cnll.fr/documents/12/ReponseCNLLconsultation__PacteProductifNumerique2019_Final_NJ0fGw6.pdf

[15] https://www.fun-mooc.fr/

[16] https://www.kolaja.eu/en/post/20200219-thoughts_on_the_european_digital_strategy/

5. Fostering economic recovery through open innovation

The post-crisis recovery of the economy will be the subject of numerous recovery plans and government support. We very much hope that the digital component of these plans will include real and tangible support for free software and open hardware initiatives. This is indeed a necessary condition for encouraging competition and innovation.

Free software is a catalyst for innovation and job creation. It can be an important lever for employment and competitiveness for our industry as a whole in the difficult economic context that we will experience in the coming months.

Recognized in 2008 by Georgia Tech as "world champion of open source", or more recently as number 1 in Europe by turnover (about 5 billion euros annually in 2019) on open source technologies[17], France is undeniably a tropism for the adoption of free software. Does this translate into an economic advantage? Many economists think so[18].

"Free software is a powerful driver for innovation": this sentence is taken from the joint declaration of the Franco-German summit in December 2016 and should serve as a principle for many actions of the French government (individually or in cooperation with other European states, first and foremost Germany)**.**

Open innovation is defined as: "A distributed innovation process based on deliberately managed knowledge flows across organisational boundaries, using financial and non-financial mechanisms in accordance with the organisation's business model".

Our interpretation of the work of economists in this field, confirmed by our experience as entrepreneurs, is simply to state that: "The free / open source software development model is the "purest", "most open" form of the open innovation model, which is itself recognized as the most efficient way to realize and disseminate innovation today".

This leads us to make a final proposal to promote this vision of openness in public procurement:

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[17] "Open Source: a dynamic market fueled by digital transformation and innovation", Study conducted by teknowlogy Group for the National Free Software Council (CNLL), Syntec Numérique and Systematic: https://cnll.fr/media/2019_CNLL-Syntec-Systematic-Open-Source-Study.pdf

[18] Par exemple: "Government Technology Policy, Social Value, and National Competitiveness", Harvard Business School Strategy Unit Working Paper No. 19-103, Frank Nagle, 2019. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3355486

Proposal 8: Take full account of interoperability and the phenomena of open innovation and collaborative development when drafting and awarding public contracts.

Public procurement must take into account all the benefits, direct and indirect, of proposals respecting interoperability or proposed by companies that have adopted open and transparent development models, when evaluating responses to its calls for tenders.

This proposal is in line with :

- Article 9 of the ESR law of 2013 which states that: "Open source software is used as a priority" in the context of digital services and resources made available by higher education in France[19],
- Article 16 of the Digital Republic Act of 2016: "[The administrations concerned] shall encourage the use of free software and open formats when developing, purchasing or using all or part of [their] information systems. "[20]
- Article 49 of the European [21] Parliament's 2018 budget discharge report, which "strongly recommends that any software developed for the institution be made public under a free and open source software licence".

We observe nevertheless that the "strong recommendations", "incentives" and even "priority", even if they are written into the Law, are not enough to compensate for the lack of notoriety and commercial power of the solutions developed by the free software industry, compared to the equivalent proprietary or private solutions. Like Benoît Thieulin in his report to the EESC in 2019[22], we believe that it is necessary to consider: "[In the framework of a policy to support the development of these resources [...] the obligation of a proportion of free software in responses to public tenders", in other words a **quota**.

[19] Article L123-4-1 of the Education Code.
[20] https://www.legifrance.gouv.fr/eli/loi/2016/10/7/ECFI1524250L/jo/article_16
[21] Already quoted.
[22] Already quoted.

We also recommend introducing or strengthening, and enforcing, interoperability obligations between platforms in order to ensure real competition, and mobilising the leverage of public procurement to put forward requirements for interoperability, open standards and access to source code.[23]

[23] See also proposal 43 of the information report *New role and new strategy for the European Union in global Internet governance* by Senator Catherine-Morin Desailly: "encourage the development of free software by integrating it into public procurement and by imposing open standards, provided that skills in the use of such software and standards are developed. "Source: http://www.senat.fr/rap/r13-696-1/r13-696-11.pdf (2014).

CONCLUSION

In conclusion, and in the light of the various arguments raised in this paper, we believe that the approach of openness and sharing of resources and knowledge can be a tremendous support both to facilitate a way out of the crisis that will follow the pandemic and a way to strengthen the systemic resilience of our society with regard to future crises.

Even more than before the crisis, it seems to us necessary that a close collaboration be established between the free software ecosystem, and in particular the companies of the open digital sector, and the services of the State. We also advocate a strengthening of collaboration at the European level, which seems to us to be an indispensable condition, particularly in the fight to regain our digital sovereignty.

The CNLL has been cooperating for years with the bodies responsible for the State's digital policy (Etalab, DINSIC, DINUM, etc.) on an ad hoc basis. We would like to see a closer dialogue between our organisation and the public authorities on these subjects.

Credits

Text written by Catherine Nuel, Stefane Fermigier, Pierre Baudracco and the Board of Directors of the CNLL on the basis of the CNLL roadmap drawn up in 2010 and regularly updated.

See all of our analysis and recommendations on these topics on the page: https://cnll.fr/publications/

The CNLL is also co-signatory of the collective text "Covid-19 - Pour du libre et de l'open en conscience", from which some of the observations of this document are inspired: https://cnll.fr/news/le-cnll-soutien-le-m%C3%A9morandum-covid-19-pour-du-libre-et-de-lopen-en-conscience/