Incorporating digital commons into government policies

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BEST PRACTICES GUIDE

FOR DIGITAL COMMONS – GOVERNMENT RELATIONS

DIGITAL COMMONS CAN SAVE GOVERNMENTS MONEY, PROMOTE PUBLIC TRANSPARENCY AND TRUST, AND ENHANCE DIGITAL SOVEREIGNTY BY REDUCING DEPENDENCIES ON BIG TECH PROPRIETARY PRODUCTS.

BEST PRACTICES GUIDE FOR DIGITAL COMMONS – GOVERNMENT RELATIONS

Digital Commons Policy Council

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CONTENTS

AUTHORS AND ACKNOWLEDGEMENTS 4

EXECUTIVE SUMMARY 6

OVERVIEW 7

What Are Digital commons? 8
Why Should Governments Support Digital Commons? 11
Background 13
Aims and Lessons 14
23 Recommendations to Government 16

SECTION 1. GOVERNMENT-LED DIGITAL COMMONS INITIATIVES DURING EMERGENCIES 20

1.1. Open-Source COVID Contact Tracing Apps 22
1.2. Open GIS Data for Rescue Operations 23
1.3. Conclusion: The Importance of Communication 24

SECTION 2. DIGITAL COMMONS FOR DATA GOVERNANCE AND OPENNESS 26

2.1. Data Governance 28
2.2. Open Data for Research 30
2.3. Open Government Data Intermediaries 32
2.4. Conclusion: The Role of Academia 34

SECTION 3. PUBLIC FUNDING AND PROCUREMENT AND SUPPORT: THE CASE OF FRANCE 36

3.1. Open Calls for Commons 38
3.2. The Citizen Initiatives Accelerator 41
3.3. Conclusion: Current and Emerging Public Procurement and Digital Commons Issues 42

APPENDICES 44

A. Germany's Sovereign Tech Fund 46
B. Testimonial from a Citizen Initiative Accelerator Laureate: Open Food Facts 48
C. Networking Opportunities: Digital Commons Public Events and Conferences 50

CREDITS AND CONTACT INFORMATION 54

DCPC PUBLICATIONS 2021-2024 55

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BEST PRACTICES GUIDE OVERVIEW
EXECUTIVE SUMMARY

The *Best Practices Guide for Digital Commons – Government Relations* aims to provide interested policymakers and public service officials with best practices to support digital commons projects.

Digital commons such as open source software (OSS) are community-developed resources which can be used by anyone. Many have been widely adopted by industry: for example, OSS represents 90% of software stacks.

- **See "What Are Digital Commons?" (p. 8)**

Adopting digital commons can save governments money, increase interoperability for public services and digital infrastructure, and enhance a nation's digital sovereignty by reducing its dependence on Big Tech proprietary products, so that technical decisions are based on local laws, norms and values.

- **See "Why Should Governments Support Digital Commons?" (p. 11) and "23 Recommendations for Government" (p. 16)**

Because of their open and transparent nature, digital commons can help restore trust in public health measures, as occurred with COVID-19 apps.

- **See "Section 1. Digital Commons for Emergency Response" (p. 20)**

Digital commons can also increase citizens' democratic participation and access to data.

- **See "Section 2. Digital Commons for Data Governance and Openness" (p. 26)**

As digital commons are non-rival public goods, many firms which rely on them do not contribute to their maintenance, resulting in damaging vulnerabilities. Governments have begun to step in to remedy these market failures.

- **See "Section 3. Public Funding and Procurement: The Case of France" (p. 36) and "Appendix A. Germany's Sovereign Tech Fund" (p. 46)**

WHAT ARE

DIGITAL COMMONS?

Digital commons are open and transparent projects and resources

Digital commons are resources such as software, data, information, culture and knowledge which are created, shared and maintained by communities of diverse actors including unpaid volunteers, private and public sector employees, and researchers.

These communities develop governance mechanisms and rules (such as licenses) which prohibit the resources' enclosure: this allows anyone to access them, and improve them. Since no one organisation or person controls the resource, there is transparency over its functioning and, usually, no payments are required to use it.

Examples of digital commons include free, libre and open source software (i.e., FLOSS or OSS), Wikipedia, the Linux kernel, Open Street Maps and COVID tracing apps such as the UK's NHS COVID-19 or Germany's Covid-Warn. The shape of these resources is directed by the requirements of the producing community: the objectives and outcomes of a project primarily reflect the demands of their initial contributors, who are also its prime beneficiaries.

Open Source Software has become the industry standard, but industry support is uneven

This integrity of product and process results in exceptional robustness, and free, libre and open source software (FLOSS) have been widely adopted by industry. The open source software (OSS) collaborative development model was embraced by Red Hat in 1993 and IBM in 2002. Google's Android, launched in 2008, is based on Linux, and Microsoft bought the OSS GitHub development platform for $7.5 billion in 2018.

More widely, OSS constitutes up to 90% of software stacks.[2] Harvard researchers have estimated that without OSS to power digital products and services, it would cost companies $8.8 trillion to develop the software from the ground up.[3]

Although firms such as Google[4] and Microsoft are major contributors to open-source development, they typically only fund projects that support their products. Because digital commons are public goods, many

other firms do not contribute at all: they are "free riding". This means that ongoing maintenance is sometimes lacking. Consequences of firm lack of support have global impacts, such as the Heartbleed bug in 2014 or vulnerabilities within a Java logging library, Apache Log4j, in December 2021.[6]

Government support for digital commons

The critical nature of the Log4j vulnerability led the US Presidency to gather stakeholders from US government agencies, Big Tech companies, and OSS foundations to improve OSS security. Participants discussed "how to prioritise the most important open source projects and put in place sustainable mechanisms to maintain them," but these mechanisms did not include a coordinated government response.[7]

In contrast, Log4j incited Germany to set up a Sovereign Tech Fund in 2022, which precisely intends to address market failures by supporting OSS developers and projects.[8]

France has also been at the forefront of support for FLOSS. Since 2012, the French government runs a public tender for fixing bugs in Free Software used by ministries.[9] In 2018, France published its open source contribution policy.[10]

In 2021, France created code.gouv.fr, the first European Open Source Programme Office to support the use and the contribution to key open source software.[11] It aimed to increase the understanding and use of free software and digital commons in the public sector, to develop and support the release and opening of public source codes and to use free and open source software to strengthen the attractiveness of the state as an employer, for example by promoting public contributions to digital commons projects and communities.

Still in 2021, the second plan for Open Science included open source as a key element of the French Open Science strategy.[12]

Another notable instance of French engagement is the Education Ministry's *Digital Strategy for Education 2023-2027* which aims to support and promote digital commons by creating a national "forge" for teachers - e.g., a Web-based collaborative software platform to develop and share computer applications.[13]

Switzerland's *Federal Law on the Use of Electronic Means for the Performance of Government Tasks* embraced in 2023 the use of open source software so that wherever possible, the federal government should disclose the source code of software that it has developed for free reuse.[14]

Finally, the European Commission funded the European Free and Open Source Software Solutions for European Public Services project (FOSSEPS)[15] and Next Generation Internet (NGI), a EUR 250 million initiative which includes, amongst many other projects, NGI Commons (2024-2026) which aims to harmonise relevant NGI efforts with national and European digital commons policies: "The project seeks to elaborate on a long-term strategy for Internet Commons (IC), which are critical for sovereignty and trust, helping to overcome fragmentation and close the gap between grassroot commoners' initiatives and top-down sovereignty policies."[16]

[2] See https://openssf.org/oss-security-mobilization-plan/

[3] Hoffmann, M., Nagle, F. & Zhou, Y., The value of open source software, *Harvard Business School Strategy Unit Working Paper No. 24-038*, Jan. 2024. https://ssrn.com/abstract=4693148

[4] See https://opencollective.com/google#category-BUDGET

[5] See https://github.com/microsoft/foss-fund

[6] RNZ, Apache Log4j: Software flaw 'being actively exploited', CERT NZ warns, 13 December 2021. https://www.rnz.co.nz/news/national/457779/apache-log4j-software-flaw-being-actively-exploited-cert-nz-warns

[7] See https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/13/readout-of-white-house-meeting-on-software-security/

[8] See https://www.sovereigntechfund.de and Appendix A.

[9] See https://code.gouv.fr/fr/utiliser/marches-interministeriels-support-expertise-logiciels-libres/

[10] See https://www.numerique.gouv.fr/publications/politique-logiciel-libre/

[11] See https://code.gouv.fr/fr/plan-action-logiciels-libres-et-communs-numeriques/

[12] See https://www.ouvrirlascience.fr/deuxieme-plan-national-pour-la-science-ouverte/

[13] See https://www.education.gouv.fr/strategie-du-numerique-pour-l-education-2023-2027-344263

[14] See https://datenrecht.ch/en/bundesgesetz-ueber-den-einsatz-elektronischer-mittel-zur-erfuellung-von-behoerdenaufgaben-embag-in-schlussabstimmung-angenommen/

[15] See https://joinup.ec.europa.eu/collection/fosseps/news/fosseps-critical-open-source-software-study-report

[16] See https://ngi.eu/ngi-projects/ngi-commons/

WHY SHOULD GOVERNMENTS SUPPORT DIGITAL COMMONS?

To increase the safety and reliability of critical FLOSS systems

As mentioned above, many private firms which rely on open digital infrastructure have no incentive to contribute to its maintenance. This "free riding" behaviour means that volunteers working in projects are not properly supported. As a result ongoing maintenance (e.g., patching security defects, updating software to be compatible with new operating systems, and fixing bugs) can be tardy or altogether absent, resulting in potentially damaging security breaches such as the 2021 Log4j vulnerability.[17]

To save money

Digital common resources can be used without paying licence fees, unlike Big Tech products. For example, the UK is spending billions of pounds on public sector software every year.[18] Governments could divert some of the vast amounts of money they currently spend on public sector tech towards implementing and maintaining the digital commons, generating considerable savings and supporting ethical and nationally and internationally interoperable alternatives.[19]

To promote public transparency and trust

That the code of open source COVID-19 apps was published enabled users to understand how the apps worked, and what data was collected. This increased public confidence at a crucial time, since misinformation about the pandemic had eroded trust in public health measures. As members of the Demos UK think tank wrote in 2010: "Conspiracy theories are a reaction to the lack of transparency and openness in many of our institutions. The more open our institutions, the less likely we are to believe we are living in a conspiring world."

[17] See https://www.cyber.gov.au/about-us/advisories/2021-007-log4j-vulnerability-advice-and-mitigations

[18] Clark, L., Government tech spending in England more than doubles in five years, The Register, 11 January 2023. https://www.theregister.com/2023/01/11/government_tech_spending_england/

[19] Bartlett, J. & Miller, C., The power of unreason: conspiracy theories, extremism and counter-terrorism. Demos, p. 39, 2010. http://www.demos.co.uk/publications/thepowerofunreason

To enhance digital sovereignty by reducing a government's dependence on Big Tech proprietary products

Big Tech products generally originate from companies headquartered in China or the USA. In order to buttress national security and sovereignty, dependence on proprietary products and services controlled from other countries should be minimised. The digital commons offer a decentralised alternative.

To take an active part in the governance of key digital infrastructure

Decision-making regarding the strategic orientations of key digital infrastructure should be democratised. An archetypal example is the Linux Foundation, which is an industrial consortium controlled by firms with common market interests. However the interests of Big Tech firms do not align with those of the FLOSS community, or with the public interest. It is past time for governments to take a more active role in the governance of key FLOSS projects and digital commons.

Digital Commons Policy Council

The Digital Commons Policy Council (DCPC) is an international think tank founded in 2021 at the University of Canberra, building on the earlier work of the peer-reviewed *Journal of Peer Production*.[20] The DCPC produces public reports based on empirical data, submissions to lawmakers, educational resources for schools, and scientific articles to increase recognition for the digital commons and the voluntary work that creates these common goods. The DCPC's first report mapped how firms are collaborating with communities of unpaid volunteers to produce open source code, used in the digital infrastructure which powers the contemporary economy.[21] It featured invited comments by French open source specialists from the fields of academia, industry and activism, including Framasoft, a popular education association that proposes alternatives to Big Tech products,[22] and Inno3, a consultancy firm specialising in intellectual property and organisational open infrastructure.[23]

DCPC-CIS Policy Lab 2024

The DCPC-CIS 2024 Policy Lab was held in Paris on May 30 and 31 2024, in partnership with the Centre Internet et Société (CIS) of the French National Center for Scientific Research (Centre National de la Recherche Scientifique, CNRS). The Policy Lab enabled participants to share experiences, present their work, and discuss long-term challenges and opportunities. The event brought together thirty digital commons experts from Australia, Belgium, France, Germany, Italy, the Netherlands, Norway, Sweden and the UK. They included representatives from diverse organisations:

Academia – Institut Polytechnique de Paris ; Fondazione Bruno Kessler – Digital Commons Lab ; University of Canberra ; University of Dundee ; Université Paris 8 ; Université de Technologie de Compiègne.

Civil society organisations – Collectif pour une Société des Communs (Collective for a Society of the Commons); Electronic Frontier Norway ; Inno3 ; Open Forum Europe ; Open Future ; Open Knowledge Foundation.

[20] See http://peerproduction.net/

[21] O'Neil, M., Cai, X., Muselli, L., Pailler, F. & Zacchiroli, S. *The coproduction of open source software by volunteers and big tech firms*, N&MRC/DCPC, University of Canberra, 2021. https://doi.org/10.25916/r8vg-hd09

[22] See https://framasoft.org/en/

[23] See http://bas.inno3.fr/fr

AIMS AND LESSONS

Digital commons communities and projects – Civic Data Coop Liverpool ; Framasoft ; La Coop des Communs (The Commons Coop); Open Food Facts ; Wikimedia France.

Public sector organisations – Agence Nationale de la Cohésion des Territoires, ANCT (Agency for Territorial Cohesion), France; Direction Interministérielle du Numérique, DINUM (Interministerial Digital Directorate), France; Sovereign Tech Fund, Germany.

The aim of the DCPC-CIS 2024 Policy Lab was to identify best practices and opportunities in the public institutions – digital commons space, and to develop tools for facilitating cooperation between public institutions and digital commons. Participants identified problems and solutions on Day 1, and sorted themselves into groups on Day 2 to collaboratively develop resources, one of which was a Best Practices Guide. Guide editors sought to identify and document successful digital commons public support mechanisms in different countries that could be replicated elsewhere.

The Guide aims to provide interested policymakers and public service officials with best practices to support digital commons projects.

The Guide does not claim to present a comprehensive account of best practices for digital commons – government relations. It highlights representative cases of digital commons – state cooperation:

1. Government-led commons initiatives during emergencies
2. Citizen participation in data governance, open data and open government
3. Public funding and procurement with digital commons in France

Lessons can be drawn from these cases about how best to foster successful collaborations, but there is also space for improvement:

- Lack of clear communication with the public to create knowledge and trust in open source Covid contact tracing apps hampered their adoption

- Governments target new solutions, but these solutions do not endure, because financing for digital commons projects' long-term maintenance and sustainability is often lacking

- Separate communities and government entities work towards similar objectives in a scattered and uncoordinated manner, so duplication may occur[24]

Similarly, the complexity of procurement processes and corresponding legal frameworks in France has raised a number of issues:

- Public administration staff need to gain a deeper understanding of the digital commons and of these commons' cultural and ethical values of openness and transparency before any tendering for commons can occur

- Different types of resources – such as training for staff and the creation of Open Source Program Offices (OSPOs) – are needed to support public administration activities in this area

- Digital commons projects need to be prepared, and able, to participate in public procurement

[24] For example, in the French public sector several organisations have been working toward implementing the national design system (see https://www.systeme-de-design.gouv.fr). While the code.gouv.fr team identified opportunities for collaboration between ministries, it was unable to eliminate the possibility that redundancies were occurring.

23 RECOMMENDATIONS

The long-term sustainability and security of digital commons such as open source software can and should be buttressed by government procurement processes, industrial policy, and public service policy.

This will enable governments to pivot towards increased cost savings, support for ethical initiatives and technological sovereignty in the public sector.

Audit (Digital Sovereignty)

1. Governments should conduct an assessment of their nation's digital sovereignty, measuring its dependence on foreign IT companies.

2. Once this assessment has been completed, governments should map out how the use of free and open source software and of digital commons can help to reduce this dependence: for example, via its industrial policy and via an open source policy within the public service.

Duplication (avoidance of)

3. Governments should create public sector software catalogues to foster reuse within the public sector.

4. Governments should create a national software repository for the hosting and collaborative development of public sector open source software projects.

5. Governments should foster increased awareness of networking opportunities amongst public servants.[25]

Education Policy

6. Open source software's adoption by the IT industry has made it the current technical standard. Governments need to ensure there is adequate and appropriate study of open source at different levels of the education system, as part of an effort to upskill the workforce in key competencies for future industries. Future generations of developers need to learn technical skills (e.g., core open source conventions), interpersonal skills (e.g., how to communicate effectively and in an inclusive manner) as well as ethical values of sharing, transparency and openness.

Industrial Policy (a): bringing the country's digital commoners together

7. Governments should define and implement an IT industrial policy strengthening the country's "free and open source software firms."

8. Governments should bring together the country's digital commons stakeholders and ask them what they need. On discerning such needs, such as funding and skills, governments should commit to meeting them over time, to ensure long-term maintenance and reduce volunteer burnout.

9. The value of maintenance, of caring for projects, needs to be given its due.

Industrial Policy (b): addressing market failure in the realm of software security

10. Governments should introduce a preference for firms contributing to the digital commons – for example, in the UK's Public sector procurement policy.[26] This would help to reduce "free riding," when firms benefit from a resource without contributing anything in return.

11. The "Log4Shell" vulnerability revelations in 2021 exposed potential risks and also served as a catalyst for the creation of Germany's Sovereign Tech Fund in 2022.[27] Governments should consider setting up an entity modelled on the Sovereign Tech Fund, which supports the development, improvement, and maintenance of open digital infrastructure, notably through its Bug Resilience Program.[28]

12. The European Union should play a key role in helping government setting up such Funds and in facilitating their networking.

Open Source Software Funding Policy

13. When funding open source projects, funding bodies should observe some "simple rules."[29]

14. Examples of such rules include, but are not limited to: "Incorporate diversity, equity, inclusion, and belonging throughout the project" (improving diversity in software teams leads to better software, as a growing body of evidence supports that diverse teams increase novelty and impact of scientific outputs);[30]

15. "Elevate nontechnical contributions as essential to the project" (acknowledge contributions that are not focused on writing code, such as improving software design, writing documentation, developing tutorials, advocating for the project, and formal testing of new product features);

16. "Fund work that supports project contributors and community" (OSS is only relevant because of the community surrounding it, and that community requires investments to properly develop and thrive);

17. "Ensure that software is usable into the future" (with regard to technical choices, encourage OSS maintainers to build on existing technical successes, adding to the ecosystem rather than creating a new one).

Procurement

18. Governments should follow the French State's lead in supporting and incentivising digital commons initiatives through government procurement processes.

19. A notable, while still experimental, French initiative in this regard is the "appels à commun," open calls or tenders for commons.[31]

Public Service Policy

20. Governments should be inspired by counterparts which have created Open Source Program Offices (OSPOs). Examples include the Free Software Unit within DINUM (France), Digital Iceland, and Red.es (Spain). The purpose of these OSPOs is to define and operationalise a strategy for the use and maintenance of open source software in public administrations. Governments should set up such an entity and provide it with adequate resources in order to enable their public services to achieve digital sovereignty.

21. Governments should establish an enforceable right for public servants to contribute to the digital commons: those wishing to contribute should be able to do so.

22. Governments should initiate and support digital commons networks across the public sector to facilitate knowledge exchange and new collaborations.

Trust

23. When governments rely on digital commons communities to elaborate solutions against emergencies, clear communication is key to build public trust in the solution.[32]

[25] See appendix C for some examples.

[26] See https://www.gov.uk/guidance/public-sector-procurement-policy

[27] See https://www.sovereigntechfund.de/

[28] For a detailed presentation of the Sovereign Tech Fund, see Appendix A.

[29] Strasser, C. et al., Ten simple rules for funding scientific open source software. *PLoS Comput Biol* 18(11): e1010627, 2022. https://doi.org/10.1371/journal.pcbi.1010627

[30] Yang, Y. et al., Gender-diverse teams produce more novel and higher-impact scientific ideas. *Proc Natl Acad Sci*. 119(36):e2200841119, 2022. https://doi.org/10.1073/pnas.2200841119

[31] See section 3.

[32] See section 1.

BEST PRACTICES GUIDE SECTION 1

SUMMARY

- Governments can lead open source or open data-driven projects and call upon the expertise of digital commons communities in times of emergency.
- This allows government to draw on the collective intelligence of communities and enhances transparency vis-a-vis the general public.
- However, absent an appropriately resourced explanatory social marketing campaign, miscommunication may hamper resource adoption.
- This section presents two types of initiatives:
    1. Covid apps – Open source development enhanced security and transparency
    2. Emergencies – The use of open data facilitates coordination among institutional and non-institutional actors while planning rescue operations

SECTION 1. GOVERNMENT-LED DIGITAL COMMONS INITIATIVES DURING EMERGENCIES

1.1. Open-Source COVID Contact Tracking Apps

Several European countries adopted an open source approach, relying on mass collaboration, to develop COVID-19 contact tracing applications. Countries that adopted this approach include Italy, Germany, Ireland, and the UK. These apps were developed to interact with Apple and Google software components, rendering them fully interoperable across Android and iOS systems. Many such apps adopted a privacy-preserving decentralised data storage system, with contact data being stored on distributed devices rather than on a centralised database.

GERMANY

Corona Warn App

Mandated by the German government, the Corona Warn App was developed by Deutsche Telekom and SAP. By adopting an open source approach (the code was made freely available on GitHub), developers sought contributions from all interested actors. Similarly to other European apps, the Corona Warn App used a decentralised model. However, Corona Warn App was more successful than the Italian Immuni in terms of its adoption: there were 46 million downloads of Corona Warn for a population of 80 million, whereas Immuni was downloaded 10 million times for a population of 60 million. Among the reasons for this success was the engagement of external industry and community stakeholders. A solid organisational structure among developers with a separate testing team and a group of architects supervising the work also contributed to quick development and deployment.[1]

- Corona Warn App code https://github.com/corona-warn-app/cwa-app-android

UNITED KINGDOM

News media miscommunication hampered some apps' adoption

Miscommunication regarding the apps' production and operations occurred in several locations. For example, the Italian press did not emphasise the openness of Immuni's code, which may have influenced the app's low download rate. While an open source development process alone is likely not sufficient to foster people's trust in a piece of technology, news media miscommunication clearly created confusion and fuelled mistrust in applications in other countries. Initial press reports in the United Kingdom spread the idea that the UK contact tracing app was developed by Apple and Google. In reality, these firms only provided a kit for developers so that apps across the globe could interact with Android and iOS operating systems.[2]

NHS COVID-19 app

The UK app was initially envisaged as a centralised app that would harness the high amount of data that the National Healthcare System (NHS) possesses. A fragmented approach eventually unfolded in the UK, with Scotland and Northern Ireland adopting the Google-Apple decentralised protocol (based on EU Member the Republic of Ireland's app) and the rest of the UK eventually following suit. Independently of the app's operational characteristics and development process, this is a significant example of the role played by the popular press in creating accurate common understandings and trust in technological solutions in times of emergency.

- UKHSA-Collaboration https://github.com/ukhsa-collaboration/

[1] See Fawaz Enaya, M. et al., A case study on the development of the German Corona-Warn-App, *Journal of Systems and Software*, Vol. 213, 2024. https://doi.org/10.1016/j.jss.2024.112020.

[2] Ball, J., The UK's contact tracing app fiasco is a master class in mismanagement, *MIT Technology Review*, 19 June 2020. https://www.technologyreview.com/2020/06/19/1004190/uk-covid-contact-tracing-app-fiasco/

1.2. Open GIS Data for Rescue Operations

ITALY

Database di Sintesi Nazionale (DBSN)

The Italian Database di Sintesi Nazionale (National Synthetic Database) is a geographic database compiled by the Military Geographic Institute (Istituto Geografico Militare). It brings together government open data, open data available on OpenStreetMap and satellite data and is arguably Italy's most comprehensive geographic database. DBSN contains a variety of layers, including amenities and green areas subdivided by use (e.g., parks, private gardens, meadows, etc.) and by type of ownership (public or private).

During disasters, DBSN proves useful for both civilian protection activities and cultural heritage preservation actions.[3] The wealth of data it contains allows for careful reconstruction of the geography of a territory and for accurate analyses of the environmental impacts of disaster situations. The Italian Civil Protection Department uses it regularly when requiring up-to-date and machine-readable data for rescue operations.

- Database di Sintesi Nazionale https://www.igmi.org/it/dbsn-database-di-sintesi-nazionale

UNITED STATES

OnTheMap for Emergency Management

OnTheMap is a GIS (Geographic Information System) database that leverages Longitudinal Employer-Household Dynamics (LEHD) data, that is to say administrative data originating from various levels of government. Under this scheme, states share Unemployment Insurance earnings data and Quarterly Census of Employment and Wages (QCEW) data with the Census Bureau. This data is combined with additional administrative and survey data. Based on this, the program creates statistics on employment, earnings, and job flows at various geographic, industry and demographic levels.[4]

The LEHD data is then fed into OnTheMap, which shows workers and their families' home locations, thus providing an updated database of a region's residents demographic status and location. This is useful support for data-driven emergency management operations, as it allows rescuers to quickly grasp the demographic characteristics of disaster-hit areas, enabling focused interventions. Indeed, using open government data in the aftermath of hurricane Sandy (2012) improved emergency services response in comparison with the handling of hurricane Katrina (2005). Between these two events, the Obama administration had approved open government regulations that facilitated demographic data flow within public administrations and coordination across public actors in times of emergency.[5]

- OnTheMap https://onthemap.ces.census.gov/

[3] Santoro, E., The acquisition, production and dissemination of geospatial data for emergency management and preservation of cultural heritage., *Int. Arch. Photogram. Remote Sens. Spatial Inf. Sci.*, XLII-5/W1, 15–24, 2017. https://doi.org/10.5194/isprs-archives-XLII-5-W1-15-2017

[4] Chen, C., Pardo, T. & Chen, S., Exploring on the role of Open Government Data in Emergency Management. 16th International Conference on Electronic Government (EGOV), St. Petersburg, Russia, pp.303-313, 2017. https://inria.hal.science/hal-01702976/document

[5] Roberts, P.S., Misra, S. & Goldberg-Foss, M., Open governance and disaster planning, recovery, and response: Lessons from the United States. In: Kanbara, S., Shaw, R., Kato, N., Miyazaki, H., Morita, A. (eds) *Society 5.0, Digital Transformation and Disasters. Disaster Risk Reduction.* Springer, Singapore, 2022. https://doi.org/10.1007/978-981-19-5646-1_10

1.3. Conclusion: The Importance of Communication

Digital commons projects, albeit open to all, can be difficult to grasp for citizens without required technical knowledge, including highly educated people who do not possess advanced IT skills. Communication therefore plays a crucial role for the successful deployment of bottom-up commons projects. This means that developer communities, governments, and the news media must better coordinate their trust-building mission when open source projects suddenly assume a critical importance in times of emergency.

BEST PRACTICES GUIDE SECTION 2

SUMMARY

- Governments can contribute to the digital commons through making their own data available.
- In turn, digital commons can be used to increase citizens' democratic participation and to facilitate citizen access to the data collected by governments.
- Relevant initiatives encompass a wide range of aims, from developing participatory and democratic engagement methods to the challenges of understanding digital literacy as a barrier to participation.
- Many initiatives rely on academic labour: we examine the benefits and costs of this involvement in this section's conclusion.
- This section presents examples of three types of initiatives:
    1. Data governance – the management and use of public and community data
    2. Open data for research - using government datasets that are accessible, exploitable, and editable
    3. Open government data intermediaries – extending the boundaries of open government data, for example by using this data for social movement activism

SECTION 2. DIGITAL COMMONS FOR DATA GOVERNANCE AND OPENNESS

2.1. Data Governance

Incorporating democratic participation into data governance is a key concern. Participatory mechanisms currently being trialled for the participatory management of data and digital assets include data cooperatives and data trusts.

AUSTRALIA/CANADA/NEW ZEALAND

Canadian First Nations Principles of Ownership

Maiam nayri Wingara Indigenous Data Sovereignty Collective

Indigenous Data Sovereignty initiatives, particularly in Australia, Canada and New Zealand, have developed and piloted novel approaches to community led data governance and management. These are designed to avoid harm to Indigenous communities which have been negatively impacted by uses of data, and to ensure Indigenous communities and nations have control over their own data as a way of realising their sovereignty. Many such initiatives involve Indigenous academics and include collaborations with universities.

- Canadian First Nations Principles of Ownership https://fnigc.ca/ocap-training/
- Maiam nayri Wingara Indigenous Data Sovereignty Collective https://www.maiamnayriwingara.org/

UNITED KINGDOM

ALISS

This local information network is a coproduced, web-based system for finding and sharing information about community assets across Scotland.

- ALISS https://www.alliance-scotland.org.uk/digital/aliss-a-local-information-system-for-scotland-2/

Data Trusts

The Data Trusts project explores how existing national laws establishing trusts can support better community ownership and governance mechanisms for the management of data assets. For example, Prospect Brixham in Devon is a data trust established within a local fishing community to support place-based design and management of data that impacts the local community.

- Data Trusts https://datatrusts.uk/about
- Prospect Brixham https://prospectbrixham.org/brixham-data-trust

Digital Living Standards

This project seeks to understand how to improve diverse publics' understanding and use of data and digital technologies. Its goal is to empower communities to encourage participation in commons approaches.

- Digital Living Standards https://www.liverpool.ac.uk/humanities-and-social-sciences/research/research-themes/centre-for-digital-humanities/projects/digital-living-standard/

Liverpool City Region Civic Data Cooperative

The Civic Data Cooperative is a project based within the University of Liverpool, in partnership with the regional government and the NHS, to develop novel approaches to data sharing and public participation to improve local services and reduce inequalities.

- Civic Data Cooperative https://civicdatacooperative.com/project/data-commons/

Midata

Data cooperatives are another model for participatory governance and democracy. An example is Midata - a health data cooperative that is open to anyone to join and securely store and share their health records. The cooperative's team includes many academics. An early example (whose present status is unclear) of a health data coop was Spanish project Salus. Coop which pioneered data sharing, developed re-use licenses, and used a blockchain ledger to make data flows transparent.

- Midata https://www.midata.coop/en/home/

2.2. Open Data for Research

The principles of open science (whether in terms of facilitating the reproducibility of research, or via funder policies promoting open research data in the public interest) pioneered data being made openly available, along with open access publications. Often free and open licences are used to facilitate access to such open data, although datasets which include personal data may require certain restrictions (e.g., access controls to preserve privacy).

CAMBODIA / LAOS

Open Development Mekong

Open Development Mekong began as an academia-policy collaboration to foster open data practices and infrastructures. It originated in Cambodia, then expanded to other countries in the Mekong Valley such as Laos. Over the years, Open Development Mekong has worked with many local government bodies in the region to develop a range of open datasets. One of the more recent focus areas of this initiative is indigenous data sovereignty.

- Open Development Mekong https://opendevelopmentmekong.net/

CANADA

Montréal in Common:

Montréal in Common is a city-wide community of organisations working together with digital data. Initiatives develop, test and deploy solutions to mobility (e.g., reducing local single-occupancy vehicle car trips) and food issues (e.g., reducing waste along the food distribution chain), as well as to promote data-related municipal legislation (e.g., facilitating community collaboration and data access). Thirteen experimental projects are seeking to contribute to the ecological transition and to promote social inclusion.

- Montréal in Common https://opennorth.ca/resources/montreal-in-common/

EUROPEAN UNION

Open Data Ireland

Under Article 10 of the EU's Open Data Directive (2019), member states are encouraged to adopt national policies for making publicly funded research openly accessible: research is not just a consequence of open government data, but a specific focus area in and of itself. EU member state governments make their administrative data openly available in compliance with this legal obligation. An example is Open Data Ireland.

- Open Data Ireland https://data.gov.ie/

FRANCE

Recherche Data Gouv

Article 30 of France's Law for a Digital Republic ("Loi pour une République numérique," adopted in 2016), supports open access for publications and data. In addition, Recherche Data Gouv proposes not only a repository for scientific datasets but a network of workshops ("ateliers de la donnée") to train researchers.

- Recherche Data Gouv https://recherche.data.gouv.fr/fr

Zenodo

Zenodo is an increasingly important international open repository for academic research, datasets and related digital artefacts. It was developed under the European OpenAIRE programme and is operated by CERN.

- Zenodo https://zenodo.org/

UNITED KINGDOM

Economic and Social Research Council

A prominent funding body which incentivises open data produced through research is the UK's Economic and Social Research Council (ESRC). The ESRC's research data policy stipulates that receiving funding mandates that any data deriving from an ESRC grant is deposited, ideally on an open basis, with the UK Data Service. This requirement is widely considered to be effective by the social science research community in the UK.[1] Other funders, such as the Wellcome Trust, provide their own platform for publishing funded research including data.

- ESRC research data policy https://www.ukri.org/wp-content/uploads/2021/07/ESRC-200721-ResearchDataPolicy.pdf
- UK Data Service https://ukdataservice.ac.uk/about/
- Wellcome Trust https://wellcomeopenresearch.org/faqs

Open Government Licence

The UK Government has created its own open licence for using public sector data, including in research.

- Open Government Licence https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Understanding Glasgow

A remarkable example of an open data/commons projects with academic involvement is Understanding

Glasgow, which aims to describe life circumstances and health in the city. The website provides a host of key indicators such as population (e.g., births, deaths), lifestyle (e.g., smoking, alcohol, diet), health, cultural vitality, etc., showing trends and comparisons within the city and with other cities.

- Understanding Glasgow https://www.understandingglasgow.com/

2.3. Open Government Data Intermediaries

Early projects such as Minnesota e-democracy (US) and My Society (UK) led the way and inspired the Open Australia Foundation and g0v.taiwan, which work with government to make government data open, machine readable and easier to understand by the public.

AUSTRALIA

Open Australia Foundation

This registered charity expands the boundaries of open government data by providing tools and platforms to citizens, journalists and researchers. It was inspired by My Society (UK), and reused source code from this earlier project. OAF develops and maintains a range of free, libre and open source software that is widely applied in its own projects and by other civic initiatives as well as firms. OAF publishes, sorts and archives government open data. It has created a website to assist people wishing to make Freedom of Information requests, and publishes and archives FOI requests as well as communications between involved parties. OAF engages in policymaking through its membership of the Australian Open Government Partnership Civil Society Network. The OAF's operations have raised questions: given government agencies, such as data.gov.au, provide

[1] Allanson, P., et al., *Doing ESRC Data Better: A study for the Economic and Social Research Council (ESRC)*, Leverhulme Research Centre for Forensic Science, Energy Environment and Society, Dundee Law School, 2024. https://discovery.dundee.ac.uk/en/publications/doing-esrc-data-better-a-study-for-the-economic-and-social-resear

open data, why is the OAF necessary? Should the OAF have the right to make all FOI requests and responses publicly accessible on its website?

- Australian Open Government Partnership Civil Society Network https://opengovernment.org.au/
- Open Australia Foundation (OAF) https://www.oaf.org.au/
- OAF FLOSS https://github.com/openaustralia
- OAF FOI requests https://www.righttoknow.org.au/

TAIWAN

g0v.taiwan

g0v.taiwan (gov-zero Taiwan) is not a charity but rather a "grassroots social movement community." It develops and maintains various FLOSS resources and projects. It began with the aim of making government data open and understandable, but projects now also include culture and heritage (such as an online library of languages in Taiwan). While gov-zero Taiwan shares the OAF's aims, it has played a more activist role by providing technical support (using FLOSS) during the Sunflower Student Movement of April 2014. One of its founders, Tang Feng (Audrey Tang) was Taiwan's first Minister of Digital Affairs (2016-2024). One of the Ministry of Digital Affairs' policy objectives is to "participate in international democratic networks, and increase Taiwan's contributions to the international community."

- g0v.taiwan https://g0v.tw/intl/en/
- g0v.taiwan FLOSS https ://github.com/g0v

UNITED KINGDOM

My Society (2003)

My Society was inspired by the Minnesota e-democracy project, and might be the most influential entity producing open source online democracy tools. Its volunteers develop and maintain a range of free, libre and open source software for their own projects and for related civic initiatives, such as Open Australia Foundation.

- My Society https://www.mysociety.org/
- My Society FLOSS https://github.com/mysociety

UNITED STATES

Minnesota e-democracy project (1994)

The first citizen-initiated, volunteer-based project of its kind, which used FLOSS to reduce costs.

- Minnesota e-democracy https://www.e-democracy.org/

2.4. Conclusion: The Role of Academia

These examples illustrate how research funding (and related conditions tied to it) can result in digital commons resources in the form of openly and freely available research data. Academics can help to develop and sustain open data and digital commons activities, especially where there is a direct research benefit and where it can be linked to local needs. Other overarching research programmes examine ethical and policy requirements, the challenges of practice and the general engagement of publics within digital and data commons.

There is strong academic interest in open data and digital commons approaches which provide an opportunity for initiating and developing the open and transparent management and access to research data, as exemplified by the FAIR Principles.[2] Government data policy can thus both support and benefit from open science and open research data practice. Indeed research funding can be a productive route for incentivising openness and maximising returns on investment while creating outputs. However academic research leadership also entails risks, such as resources no longer being supported when research funding cycles ends, or the privileging of academic outcomes, such as publications, over sustainable practices.

[2] FAIR refers to the Findability, Accessibility, Interoperability, and Reuse of digital assets. See https://www.go-fair.org/fair-principles/

BEST PRACTICES GUIDE SECTION 3

SUMMARY

- The French government has established an interministerial marketplace to pool open source software resources and expertise,[1] and is supporting digital commons via innovative procurement practice.[2]

- Members of commons require appropriate support to participate in procurement processes as they face structural disadvantages when competing with lobbyists for proprietary IT firms who have developed long-term relationships.

- The initiatives highlighted in this section are part of the French technological landscape which comprises public operators, innovation "incubators" and "fabriques," initiatives such as France tiers-lieux,[3] and key organisations such as the Agency for Ecological Transition (ADEME) and the Interministerial Digital Directorate (DINUM).

- This section presents two initiatives:

  1. Open Calls for Commons – tenders specifically organised for the digital commons ecosystem, launched by ADEME in 2021

  2. Citizen Initiatives Accelerator – support mechanisms to assist selected digital commons and free software projects to articulate with the public sector, launched in 2021 by Etalab, taken over by beta.gouv.fr in 2022 (both part of DINUM)

[1] See https://code.gouv.fr/fr/utiliser/marches-interministeriels-support-expertise-logiciels-libres/

[2] It must nonetheless be acknowledged that a significant proportion of French public administrations still lack an understanding of digital commons. Developing internal expertise and knowledge will contribute to addressing this issue.

[3] "Third places," distinct from home and work, are sites where people can meet and collaborate. See https://francetierslieux.fr/

SECTION 3. PUBLIC FUNDING AND PROCUREMENT: THE CASE OF FRANCE

3.1. Open Calls for Commons

Open calls or tenders for commons ("Appels à communs") are an innovative practice pioneered in 2021 by ADEME, France's Agency for Ecological Transition ("Agence de la transition écologique").[4]

AIMS

In contrast to Calls for Projects which rely on one respondent, Calls for Commons are well suited to address complex problems which require pooling the resources and skills of a diverse ecosystem. For example, ADEME's first call for commons sought to increase territorial resilience, defined as "the ability to anticipate disturbances, whether sudden or slow; to mitigate or absorb their effects; to recover and bounce back thanks to learning, adaptation and innovation; and to evolve towards a new state of 'dynamic equilibrium'."[5]

The collaborative production of open resources required the creation of dedicated tools such as a wiki (gathering knowledge, feedback, protocols, etc.), a discussion forum, and workshops to co-define needs with community members. A number of challenges were identified.

CONDITIONS

Respondents needed to

- prove that they were based in a French-speaking region of the world;
- present a financial plan which included 30% of co-financing or self-financing (support provided in the context of the Call for Proposals could not exceed 70%) as well as post-Call for Proposals financial arrangements;
- provide details of the project's short- and medium-term environmental impacts;
- pledge to publish data in an open data format;
- justify the capacity of the responding digital commons project to respond to the challenge (e.g., experience, community size and dynamism, proposed actions and deliverables, contribution to the public interest, etc.);
- guarantee the project's eligibility, in particular by providing evidence concerning the ability to legally receive public funding;[6]
- finally, projects had to be developed using open licenses, integrate communities of users and contributors, and be publicly documented.

Each responding entity wishing to apply for the Call had to enter information into a wiki, in order to make itself known to other applicants, so that compatible initiatives could work together. Respondents also needed to subscribe to an information email list, and sign a rights and obligations charter. Finally project owners were asked to carry out self-diagnoses (e.g., answer a series of predefined questions) of their projects to identify their level of development. ADEME mobilised an advisory team of experts in various aspects of the commons (legal, community, financing) to both support and evaluate applicants to the Call for Commons.

OUTPUTS: PROJECTS

We present a selection of supported projects, followed by a review of the wider benefits of the scheme.

FILECO toolbox

Designed to support local food chain projects. It includes three tools:

1. A collection of industry organisational diagrams indicating to what extent parts of the food industry are integrated and cooperate: this served to develop a common language as well as various standard diagrams, adaptable to diverse agricultural and food industries;
2. Simple technical-economic references regarding investments and expense items;
3. A list of points to be aware of beforehand, to help members of a project ask the right questions and plan collective entrepreneurship models adapted to local needs.

- FILECO https://wiki.resilience-territoire.ademe.fr/wiki/Bo%C3%AEte_%C3%A0_outils_FILECO

Kit d'Alerte et d'Action pour la Résilience des Territoires (KAART)

Designed to alert local decision-makers to the resilience challenges facing their territories through differentiated shock briefs and a national and local appeal campaign.

- KAART https://wiki.resilience-territoire.ademe.fr/wiki/Kit_d%E2%80%99Alerte_et_d%E2%80%99Action_pour_la_R%C3%A9silience_des_Territoires_%28KAART%29

Diagnostic Mobilités

A methodological guide and open source tool for carrying out rapid standardised territorial diagnoses based on National Institute of Statistics and Economic Studies (Institut national de la statistique et des études économiques, INSEE) data, as well as

on road traffic data when available from the national database, and then applying it to local contexts.

- Diagnostic Mobilités https://wiki.resilience-territoire.ademe.fr/wiki/Diagnostic_Mobilit%C3%A9

OUTPUTS: OVERALL

The initial co-construction of the challenges enabled ADEME to identify and address issues faced by a large number of players. The scheme established a directory of players who took part in the Call, and mapped existing resources. The documentation produced by the commons projects or by the advisory team is non-exclusive. It can thus be shared in the wiki under an open license, and reused by any commons project. By funding shared projects under an open license, the Call for Proposals ensures the development of projects that will spread and federate a large community, eventually becoming industry standards.
Since “Appel à communs” bring together players from the same ecosystem, they facilitate the pooling of existing resources and the subsequent development of cooperative ventures. This means the developed commons will continue to evolve and develop beyond the initial framework of the Call. The Call for Commons also led to resource pooling between participating projects. For example, the CRISALIM and FILECO commons shared skills, while the Bio-Scène and Data Patch commons which had a shared objective went one step further by merging completely.

- ADEME Open calls for commons https://wiki.resilience-territoire.ademe.fr/wiki/Appel_à_Communs_Sobriété_et_Résilience_-_2023

[4] See https://www.ademe.fr/en/frontpage/

[5] What is an “Appel à communs”? A look back at ADEME’s innovative initiative, https://labo.societenumerique.gouv.fr/en/articles/what-is-a-common-call-back-on-lademes-innovative-initiative/

[6] Ibid.

3.2. Citizen Initiatives Accelerator

PROCESS

Launched in 2021, the Citizen Initiatives Accelerator ("Accélérateur d'initiatives citoyennes" or AIC) aimed to strengthen cooperation between the French public sector and citizen initiatives involved in digital commons for the public interest. Four projects were supported in 2023-2024, and fifteen have been supported in total. This scheme, initially started by Etalab, is now supported by the beta.gouv.fr digital services incubator within the French Interministerial Digital Directorate (Direction Interministérielle du Numérique, DINUM). Projects responding to Calls completed an application setting out their short- and long-term objectives, the difficulties they encountered and their reasons for joining the programme.

The four projects selected in 2023-2024 were allocated a budget of €500,000. In addition, these projects benefit from tailor-made support, which is provided over the long term (12 months, renewable) by a core team and is enhanced by an ecosystem of partners (Make Sense,[7] the Beta Gouv Community, etc.).

SUPPORT

This support takes the form of:

- Facilitating, preparing and monitoring contacts with public and semi-public partners/users who are key to the development of the project

- Mobilising expert management support to fulfil a strategic objective for the development of the selected project. Examples of what this kind of business support might entail include coaching for project development, legal analyses (e.g., licences, contracts, etc.), team structuring and organisation, governance consolidation and management, technical development, etc.

In practical terms, the selected projects work with the support team to draw up a roadmap setting out their priorities, objectives and the resources to be deployed during the support period. This roadmap is updated regularly at meetings with the support team.

To illustrate the profound impact this support mechanisms has on project development, a Testimonial from a laureate project, Open Food Facts, is included in the Appendices section.[8]

- AIC Manifesto https://communs.beta.gouv.fr/manifeste

- List of all AIC-supported projects https://communs.beta.gouv.fr/laureats

3.3. Conclusion: Best Practices for Public Procurement to Include the Digital Commons

An article on the French government's Digital Society Lab (Labo Société Numérique) website proposes for discussion a number of clauses for public sector organisations dealing with the commons and the ethical and social challenges of digital technology.[9] Specifically, the article suggests that including digital commons in public procurement documents should involve:

- defining the meaning of "digital commons" and related concepts (e.g., "documentation," "open licences," "open source code")
- specifying how the outputs are to be shared (e.g., appropriate licences)
- anticipating the management of prior knowledge (e.g., under what licences previous contributions to the digital commons were made)
- indicating shared governance requirements (e.g., setting up wikis and code management tools)
- providing for reversibility (e.g., use of open standards)

[7] See https://www.makesense.ai/

[8] Open Food Facts aims to promote transparency in the food industry; it is now the largest open food product database, and powers several hundred third-party applications.

In addition, to successfully support the digital commons, public procurement mechanisms need to include training programs enabling public sector organisation staff to familiarise themselves with digital commons principles and how to best support communities.

Public sector organisations should also:

- Train legal experts regarding the legal challenges posed by digital commons and free, libre and open source software (e.g., explain that a public tender can explicitly require OSS; be aware of issues related to trademarks; etc.)
- Train project managers regarding the concrete challenges of governance (e.g., how can a public organisation act as a useful contributor to digital commons which follow an open governance model)
- Facilitate mediation between technical, legal and project management teams, for example by setting up digital commons hubs within organisations, such as Open Source Program Offices (OSPOs)
- Factor in regular project support and follow-up, and not just focus on the upstream phase of the contract award

For their part, digital commons actors should:

- Consider adopting a "quality assurance" label, as that would reassure public sector partners. This label could be based on indicators such as contribution, shared resources, open governance, communication, sobriety, eco-design, etc.
- Seek training or support regarding procurement processes in order to increase their tendering capacity

[9] Digital Society Lab, "How to secure the use of digital commons in a public procurement contract?" https://labo.societenumerique.gouv.fr/fr/articles/comment-sécuriser-le-recours-à-des-communs-numériques-dans-le-cadre-dun-marché-public/

BEST PRACTICES GUIDE APPENDICES

SUMMARY

A. Germany's Sovereign Tech Fund: its mission is to secure and strengthen foundational open digital technologies

B. Testimonial from a Citizen Initiative Accelerator Laureate: Open Food Facts

C. Networking Opportunities: Digital Commons Public Events and Conferences

APPENDIX A. GERMAN SOVEREIGN TECH FUND

The Sovereign Tech Fund (STF) started operating in October 2022. It is financed by the German Federal Ministry for Economic Affairs and Climate Action. Its 2023 budget was EUR 11.5 million, and in 2024 EUR 17 million were allocated to it in the German federal budget. The Sovereign Tech Fund's mission is to secure and strengthen open and foundational digital technologies. Relevant communities are distributed globally, so the STF works with people, companies, and FLOSS communities everywhere. Projects are identified by the Sovereign Tech Fund team through a scouting process based on research and recommendations ("pull" method) and through an open application process ("push" method). In 2024 the STF launched a pilot Fellowship program to support individual maintainers who contribute to FLOSS development voluntarily.

- STF General Funding https://www.sovereigntechfund.de/programs/applications

- STF Fellowships https://www.sovereigntechfund.de/programs/fellowship

APACHE LOG4J

As one of the most widely-used logging libraries, Log4j is integral to the functionality of nearly every Java-based software application. Its significance cannot be overstated, as it forms the backbone of logging mechanisms for countless digital systems worldwide. Users include the U.S. Cybersecurity and Infrastructure Security Agency (CISA), the U.S. Federal Bureau of Investigation (FBI), the U.S. National Security Agency (NSA), the Australian Cyber Security Centre (ACSC), and the Canadian Centre for Cyber Security (CCCS). In December 2021, Log4j faced global scrutiny due to security vulnerabilities.[1] This revelation served as a catalyst for the creation of the Sovereign Tech Fund. In December 2023, STF announced that three maintainers were joining its ranks to work on Apache Log4j. All three are members of the Apache Logging Services team and project management committee (PMC), the group that governs the Log4j project. Until then, such core maintainers had not received substantial financial support for their critical open source work.

- STF Log4j https://www.sovereigntechfund.de/tech/log4j

BUG RESILIENCE PROGRAM (BRP)

The Sovereign Tech Fund's Bug Resilience Program (BRP) addresses

private firms' failure to support small and medium-sized open source projects. The program aims to lower these open source projects' risk of harbouring bugs and to improve their capacity to respond to bugs as they are discovered. Combining openness with increased collaboration and scrutiny simplifies vulnerability management. This principle is a cornerstone of the BRP's approach to enhancing the resilience of open digital infrastructure. The principle applies to reducing technical debt and improving contribution guidelines via BRP's direct contributions service, as well as to its code audit service. BRP emphasises responsible disclosure, as it provides services to software projects relied upon by millions of users worldwide. Responsible disclosure ensures that discovered vulnerabilities are reported in a manner whereby they can be remediated and announced in a way that minimises any potential abuse or damage occurring to the users of affected software.

- BRP https://www.sovereigntechfund.de/programs/bug-resilience

- BRP Direct contributions https://www.sovereigntechfund.de/programs/bug-resilience#direct-contributions

- BRP Code Audit https://www.sovereigntechfund.de/programs/bug-resilience#code-audits-to-reduce-high-risk-vulnerabilities

A PROPOSAL FOR A UK TECH FUND

In a 2024 article, three British open source specialists advocated creating a UK equivalent of the STF. We reproduce an extract from this article below:

> "Modelled on the German Sovereign Tech Fund, the UK Open-Source Maintenance fund should divide funding between proactive and reactive maintenance.
>
> - Bug bounty programme - this fund would pay "bounties" to developers who safely reveal security exploits or bugs, rather than exploiting or releasing them publicly. This fund incentivises safe bug fixing.
>
> - Pro-active development fund - this open fund will be run on a rolling basis with open-source developers able to apply for funding for projects that would support safety and reliability.
>
> - Specific calls - development priorities may be identified by the National Cyber Security Centre, this fund would open specific grant calls for developers to contribute to the problem areas identified."[2]

[1] See https://www.cyber.gov.au/about-us/advisories/2021-007-log4j-vulnerability-advice-and-mitigations

[2] Milton, T., Osborne, C. & Pickering, M., A UK open-source fund to support software innovation and maintenance, *UKDayOne*. https://ukdayone.org/briefings/a-uk-open-source-fund

APPENDIX B. OPEN FOOD FACTS TESTIMONIAL:

CITIZEN INITIATIVES ACCELERATOR SUPPORT

Open Food Facts received crucial support from the Citizen Initiatives Accelerator (Accélérateur d'Initiatives Citoyennes, AIC) in 2024. This support enabled Open Food Facts to significantly expand its relations with the public sector and from there its positive impacts on French society. Open Food Facts is a collaborative database of food products with ingredients, allergens, nutrition facts and all the minutiae of information found on product labels.[3]

OVERALL ASSESSMENT OF AIC SUPPORT IMPACT ON OPEN FOOD FACTS

- Open Food Facts made contact with more government departments and bodies in less than a year than in the ten years since its creation.
- As a result, Open Food Facts has a better understanding of how it can work with other countries in the future.
- Open Food Facts' visibility within, and impacts upon, government departments increased.
- It has not won every funding opportunity, but is continuing to win over minds, one by one.
- Open Food Facts is grateful for the invaluable support of the AIC and looks forward to continuing its development as a major player in food transparency.
- Open Food Facts is a concrete example of the success of the AIC's support and we encourage other citizen initiatives to apply in order to benefit from this valuable support.

SPECIFIC ACHIEVEMENTS

Collaboration with an AI expert from Artificial Intelligence Lab (Lab IA)

This served to strengthen Open Food Facts' artificial intelligence capabilities. The first project is the creation of a specialised food spellcheck to process all the ingredient lists in Open Food Facts, in order to improve the quality of the common information and the analysis of the lists, which is essential for future environmental labelling.

Collaboration with the General Directorate for Competition, Consumer Affairs and Fraud Control (Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes, DGCCRF)

- Setting up access to SignalConso[4] in collaboration with the DGCCRF, to provide consumers with better information.

- This has generated more reports and a greater awareness of the service.

- Initial discussions on price management with Open Prices, a food price comparison functionality.[5]

Collaboration with France's Agency for Ecological Transition (Agence de la transition écologique, ADEME)

- Estimation of the percentage of ingredients in food recipes, required for the official environmental labelling formula. AIC contributed EUR 35,000 and ADEME contributed EUR 35,000.

Collaboration with Ministry of Agriculture and Food Sovereignty (Ministère de l'Agriculture et de la Souveraineté alimentaire, MASA)

- Structuring the commons: organisation of a hackathon with the Ministry of Agriculture and Food Sovereignty.

- Support for the development of the Open Food Facts commons thanks to the "Numériques et Données" investment fund for Ecological Planning.

Numérique en Communs

- Advocacy for the commons at Numérique en Communs, an annual conference organised by the Agency for Territorial Cohesion (Agence Nationale de la Cohésion des Territoires, ANCT).

[3] See https://world.openfoodfacts.org/

[4] SignalConso is a fraud reporting website for French consumers. See https://signal.conso.gouv.fr/en

[5] See https://prices.openfoodfacts.org/app/

Event name	Country	City	Date	Days	Description
Common(s) Cause: Towards a Shared Advocacy Strategy for the Knowledge Commons https://openfuture.eu/event/commons-cause-wikimania-2024/	Poland	Katowice	06/08/2024	1	Conversations about shared advocacy strategies.
EU Open Source Policy Summit 2024 https://summit.openforumeurope.org/	Belgium	Brussels	02/02/2024	1	To explore the strategic applications and advancement of open technologies in the ever-changing digital policy context in Europe and globally.
FOSDEM https://summit.g0v.tw/2024/	Belgium	Brussels	03/02/2024	2	A grassroots non-commercial event for free, libre and open source software developers.
g0v Summit 2024 https://summit.g0v.tw/2024/	Taiwan	Taipei	4-5/05/2024	2	g0v Summit is a biennial gathering focusing on open government, open-source collaboration, and citizen participation. It is a high-profile event of the international open government movement.
Internet Governance Forum https://www.intgovforum.org/en/content/igf-2024	Riyadh	Saudi Arabia	15/12/2024	5	An international event often hosted in European cities, discussing global Internet governance issues.

Event name	Country	City	Date	Days	Description
Next Generation Internet (NGI) Workshop https://www.ngi.eu/event/ngi-commons-workshop-2024-co-creating-digital-commons-priorities-for-europes-digital-decade/	Netherlands	Amsterdam	06/06/2024	1	Workshop organised by NGI.
Numérique en Commun(s) https://numerique-en-communs.fr/	France	Chambery	25/09/2024	2	An annual event organised by the Agency for Territorial Cohesion (Agence Nationale de la Cohésion des Territoires) which gathers French state and digital commons actors.
Open Data Science Conference https://odsc.com/	UK	London	05/09/2024	2	Covers topics related to open data, data science, and AI.
OpenExpo Europe https://openexpoeurope.com/en/	Spain	Madrid	13/06/2024	1	The largest European B2B event on the latest free and open source software, open data and open innovation applied to all sectors of the economy.
OpenForum Academy Symposium https://symposium.openforumeurope.org/	USA	Boston	13-14/11/2024	2	The OFA Symposium is an academic conference covering questions relating to the social, political and economic impact of open source.
Open Repositories Conference https://or2025.openrepositories.org/	USA	Chicago	15-18/06/2025	4	Explores and reflects on the ways repositories enable transparent and sustainable information and data.

Event name	Country	City	Date	Days	Description
OW2 Con- Open Source software and Digital Commons https://www.ngi.eu/event/open-source-community-annual-conference-2024/	France	Paris	11/06/2024	2	Discussions on the technological, business and ethical aspects of open source software.
SOOCON https://stateofopencon.com/	UK	London	4-5/02/2025	2	Open source software, open hardware, open data, open standards & AI openness.
Trento Open Festival https://www.trentinoinnovation.eu/en/trento-open-festival/	Italy	Trento	06/06/2024	3	Discovering the use or development of open technologies.
Wikimania https://meta.wikimedia.org/wiki/Wikimania_2025	Kenya	Nairobi	2025	TBD	Annual gathering on free knowledge projects organised by the Wikimedia Foundation.

DIGITAL COMMONS POLICY COUNCIL

The DCPC is an international think tank established in 2021. It advocates for the recognition of digital commons and of the voluntary work that creates these common goods. It also seeks to support initiatives that use digital commons to accelerate the transition to a more ecologically sustainable and fair society. It does so by publishing public reports based on empirical data, educational resources for schools, and scientific articles, and by making submissions and recommendations to government.

DCPC publications: https://dcpc.info/publications/
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The News and Media Research Centre (N&MRC) advances public understanding of the changing media environment. N&MRC is Australia's nationally recognised research centre for the study of news media industries, audiences and public discourse. At a time of epistemic crisis for the media industries, we research and advocate for a media system that builds trust, inclusivity and diversity, to defend and repair the social fabric. The Centre conducts both critical and applied research projects with partners and institutions in Australia and internationally.

More information at https://www.canberra.edu.au/research/centres/nmrc

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II. RÉSULTATS PRÉLIMINAIRES DU SONDAGE DEBIAN 2023 : SOUTENABILITÉ

III. CONSTRUIRE LA RÉSILIENCE GRÂCE À LA LITTÉRATIE INFORMATIONNELLE

IV. DOCUMENTS RELATIFS À LA FONDATION DU DIGITAL COMMONS POLICY COUNCIL

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