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NOTE

From:	General Secretariat of the Council
To:	Delegations
Subject:	ERAC SWG OSI Opinion on Open Science and Open Innovation in times of pandemic

Delegations will find in annex to this Note the ERAC Standing Working Group on Open Science and Innovation Opinion on Open Science and Open Innovation in times of pandemic, as adopted by written procedure.

ANNEX

ERAC Standing Working Group on Open Science and Innovation (SWG OSI)

Opinion on Open Science and Open Innovation in times of pandemic

Executive summary

The current COVID-19 pandemic presents unique opportunities for Open Science and Open Innovation. Preprints have shown their potential for fastened discussion of research results between peers and a certain ability to auto-correct, while the benefits of opening the access to research outputs in all disciplines - including the social sciences and the humanities -, investing in FAIR data infrastructures and services as well as promoting training in data stewardship have been made obvious.

Challenges include the need to ensure the reliability and the immediate accessibility of research outputs, including FAIR data, while the traditional peer reviewing process shows its limitations. The absence of contextualization in the sometimes premature media coverage of research results may also jeopardize public confidence in scientists' work.

Hence the ERAC SWG OSI notably recommends that open access to publications resulting from publicly funded research activities be generalized in all disciplines. Proper data standards should be agreed early on, taking into account the disciplinary specificities, while interoperable and federated ecosystems of FAIR data have to be implemented, as well as distributed analytics and machine learning. Furthermore we recommend that research assessment and research integrity policies take more into account, and in a more systematic way, the requirements connected to Open Science and Open Innovation, in order to foster researchers' engagement in these areas, as well as the trustworthiness of scientific knowledge.

ERAC SWG on Open Science and Innovation

Opinion on Open Science and Open Innovation in times of pandemic

The purpose of writing a position paper on Open Science and COVID-19 pandemic flows from the unprecedented range of Open Science and Open Innovation initiatives that the current crisis has stimulated. The ERAC SWG OSI considers that the current COVID-19 crisis works as a catalyser for Open Science and Open Innovation, providing scientists and policy makers – but also innovators, funders, media and citizens - with many opportunities, but also significant new challenges. To maximize the benefits of the openness paradigm and face efficiently the challenges thereof, we propose a set of evidence-based recommendations.

This opinion paper capitalizes on existing literature and reports as well as on SWG OSI "Open register of Open Science and Open Innovation related initiatives in the context of COVID-19". The register has been completed in Spring and Summer 2020 by OSI delegates as well as by external experts and stakeholders (it was accessible on line for several weeks in the form of a shared document). Through the register, which is annexed to this opinion paper, SWG OSI has collected some of the most significant Open Science and Open Innovation initiatives that have been launched since March 2020 at international, European, national and institutional level in order to fight against the new Coronavirus. There is no pretention to completeness though, but rather a will to evidence the diversity of the initiatives.

Through the register and the position paper, SWG OSI also intends to highlight the deeply interdisciplinary nature of the research and innovation activities that relate to COVID-19. As such, a particular focus is brought in the register as well as in the position paper to the contribution of Social Science and Humanities (SSH) scholars.

I. The pandemic as a catalyser for Open Science

The COVID-19 pandemic has emphasised the need for sharing data and scientific results as early and as widely and openly as possible. It has stimulated the production of an unprecedented number of openly accessible publications and preprints, as well as the launch of many initiatives at institutional, national, European and international level that relate to the diverse dimensions of Open Science and Open Innovation (Tse et al., 2020).

It has also stimulated the writing of several scientometric and bibliometric studies (like Aristovnik et al., 2020 and Homolak et al., 2020) as well as policy reports from international organizations and stake holders. WHO (https://www.who.int/news/item/29-05-2020-international-community-rallies-to-support-open-research-and-science-to-fight-covid-19), OECD (http://www.oecd.org/coronavirus/policy-responses/why-open-science-is-critical-to-combatting-covid-19-cd6ab2f9/) and European Commission (https://ec.europa.eu/info/news/commission-launches-manifesto-maximise-accessibility-research-results-fight-against-coronavirus-2020-jul-28_en) have all underlined from the beginning of the pandemic the need of (more) Open Science. UNESCO hosted an online meeting of representatives of ministries in charge of science all over the world, and underlined the urgency of stepping up information sharing through Open Science (https://en.unesco.org/news/unesco-mobilizes-122-countries-promote-open-science-and-reinforced-cooperation-face-covid-19), while also taking the right to privacy into account (https://en.unesco.org/covid19/communicationinformationresponse/opensolutions).

The Scholarly Publishing and Academic Resources Coalition (Sparc) Europe (https://sparceurope.org/covid-19-and-open-science/) as well as the COAR Confederation of Open Access Repositories (https://www.coar-repositories.org/news-updates/open-science-in-the-time-of-covid-19-lets-not-return-to-business-as-usual-when-the-pandemic-is-over/) have plead for the need to pursue further the Open Science efforts that COVID-19 crisis has stimulated. In regard to Open Innovation CESAER, the association of leading universities of science and technology in Europe, reminds that “utilisation of research and knowledge exchange has never had such a high profile as during the global Covid-19 pandemic, including the diverse and urgent challenges associated with securing supply chains and providing healthcare, testing, equipment and a range of research, and often in conjunction with a range of partners in [...] local, national, and international ecosystem involving industry partners and healthcare providers” (Kinnaird et al., 2020).

Furthermore national rectors' conferences, like for example in France, national consortia and governments have drafted position papers to urge publishers to open the access to COVID-19 related literature.

1. An unprecedented quantity of fast publications

In 2003 at the occasion of the SARS outbreaks, only 22% of the epidemiological studies on SARS were submitted to journals during the outbreak, while only 8% were accepted and 7% published before the end of the crisis (Barbour, 2020). In comparison, a substantial amount of articles dedicated to COVID-19 have been published ahead-of-print with submission-to-publication reduced around ten times on average (Homolak et al., 2020). Furthermore on 1 June 2020, a total of 21.400 documents – 41% of which being articles - written by 66,504 different authors and published in 2,548 journals could already be retrieved from the Scopus database (Aristovnik et al., 2020).

According to the bibliometric analysis of COVID-19 research across science and social science research landscape conducted by Aristovnik et al. (2020), most publications where authored by researchers from USA, China and Italy in the health sciences, life sciences and physical sciences – the only group of disciplines in which USA is ranked in second place - and USA, China and India in the social sciences & humanities. Top 20 journals in COVID-19 research by number of documents retrieved cover a significant share (41%) of total citations and have a relatively high source normalized impact per paper (SNIP). Moreover, the majority of these journals are subject to health sciences and they are classified predominantly in the following sub-subject areas or fields: infectious diseases, general medicine and microbiology (medical). Most of the top 20 journals are from Western countries such as the United Kingdom, the Netherlands and the United States.

Health sciences delivered a total of 14,187 documents, life sciences a total of 4,143 documents of which 928 documents are considered as pure life sciences, physical sciences a total of 1,625 documents and social sciences and humanities a total of 1,812. It should be noticed though that the number of documents in SSH is the disciplinary group that has grown the most in June 2020, focusing mostly on the socio-economic consequences of the pandemic. Health sciences are more focused on health consequences, while life sciences are oriented towards drug efficiency and physical sciences focused on environmental consequences.

2. A diversity of initiatives in Open Science and Open Innovation

Beyond this remarkable increase in fast publication outputs at the occasion of the COVID-19, there have been notable achievements in a diversity of domains relating to Open Science and Open Innovation[1].

Open Access

Journals and publishers that in other circumstances would have kept their publications behind a paywall have opened or temporarily made more flexible the access to COVID-19 publications (and where relevant related research data). Some of the actions were coordinated by the international association of STM publishers (https://www.stm-assoc.org/about-the-industry/coronavirus-2019-ncov/), or initiated directly by publishers such as Elsevier (https://www.elsevier.com/about/press-releases/corporate/elsevier-gives-full-access-to-its-content-on-its-covid-19-information-center-for-pubmed-central-and-other-public-health-databases-to-accelerate-fight-against-coronavirus) or journals such as *The Lancet* (https://www.thelancet.com/coronavirus, BMJ (https://www.bmj.com/coronavirus) or the *NEJM* (https://www.nejm.org/coronavirus). Furthermore publishers like those federated by the Open Access Scholarly Publishers Association (OASPA) have taken initiative to speed up their reviewing process.

Archives of preprints (Rxiv repositories in particular) have played a new and unique role, the number of papers published on Rxiv repositories having increased steadily since the beginning of the epidemic, and only a small fraction thereof being published in journals (Homolak et al., 2020). In particular, the platform COVID-19 SARS-CoV-2 preprints has been commonly implemented by medRxiv and bioRxiv. A range of innovative solutions to provide peer review to preprints like among others the UK Outbreak Science Rapid PREreview platform has been made available to researchers of all disciplines.

[1] See, for a more detailed presentation of the initiatives, the annexed ERAC Standing Working Group on Open Science and Innovation "Open Register of Open Science and Open Innovation related initiatives in the context of COVID-19".

On the other hand, open repositories of COVID-19 literature (most often not limited to scholarly articles) have been developed such as the COVID-19 Open Research Dataset (CORD-19) (USA) which includes over 52,000 scholarly articles and defines itself as a "Free, Open Resource for the Global Research Community" (https://www.whitehouse.gov/briefings-statements/call-action-tech-community-new-machine-readable-covid-19-dataset/), or the European COVID-19 Data Platform which provides access to over 100,000 scientific publications and pre-prints (through its connection to Europe PubMedCentral). All around Europe Universities like the Slovenian Central technological Library of the University of Ljubljana (http://www.ctk.uni-lj.si/), Slovenia, provided their users with an overview of freely accessible electronic resources during the epidemic.

Other dimensions of Open Science and Open Innovation

The COVID-19 pandemic has emphasised the importance of rapid data availability and data accessibility. Next to open access to publications, data availability and accessibility is a key driver for Open Science and Innovation. In the past few months quality research data has even become the most important element in research, innovation and policy making.

Among other remarkable initiatives that relate to the wide and early sharing of research data in a manner that is as open and FAIR (findable, accessible, interoperable and reusable) as possible, the abovementioned European Covid-19 Data Platform aims to facilitate data sharing and analysis, in order to accelerate coronavirus research. It brings together relevant datasets submitted to EMBL-EBI and other major centres for biomedical data in Europe as well as in third countries (https://www.covid19dataportal.org/).

Furthermore source data have been made FAIR and available for reuse in a distributed manner by potential future infectious disease outbreaks. Notably GO FAIR - soon endorsed by the other three international data related organisations CODATA, RDA and WDS - started an emergency implementation network called VODAN (Virus Outbreak Data Network) namely to make source data FAIR and make them available for reuse in a distributed manner by potential future infectious disease outbreaks. The network even made a joint appeal, "Data Together COVID-19", including a distributed approach wherever possible (see Annex for further details about this and other similar initiatives).

In regard to citizen science the EU-Citizen.Science initiative provides citizen scientists with a selection of resources related to the current pandemic. EU-Citizen.Science is an online platform for sharing knowledge, tools, training and resources for citizen science – "by the community, for the community" (https://eu-citizen.science/citizen-science-resources-related-covid19-pandemic/).

Open Innovation principles have inspired actions at European level such as the EUvsVirus European online Hackathon which allowed innovators to share their ideas in order to implement innovative solutions to COVID-19 related problems (https://euvsvirus.org/). The Open Covid Pledge of the Open COVID Coalition consists in the publication of standard licenses that can be used by anyone that has adopted the pledge (https://opencovidpledge.org/licenses/).

At national level initiatives have been taken in regard to the diverse dimensions of Open Science and Open Innovation taking the form either of national contributions to European or international initiatives, or specific national or institutional projects (see Annex for further details).

Open Science and Open Innovation in the SSH

As mentioned above, the raise in COVID-19 related publications in the SSH came at a second stage and focused on the socio-economic consequences of the pandemic. It is worthwhile to notice though that a broad scope of SSH related initiatives concerned the different dimensions of Open Science.

Preprints have been used as a privileged way of communication between SSH scholars (via SocArXiv or PsyArXiv notably.) Open repositories and hubs of COVID-19 literature have been implemented like the COVID-19 Social Science Research Tracker in the USA, the World Pandemic Research Network (WPRN) which maintains a searchable global directory of the scientific resources available on the societal and human impacts of the COVID-19 pandemic (https://wprn.org), or the COVID-19 SSH Data Portal which is intended to aggregate information about past, current and future datasets produced by the SSH research communities (https://covid19.eui.eu/About-the-Data-Portal). OPERAS, the European Research Infrastructure for the development of open scholarly communication in the social sciences and humanities, has launched its OPERAS Beyond Covid-19 Open Access reference library of humanities and social sciences research. Based on an accumulation of reading notes it provides access to the content of selected publications that relate to the social and human dimensions of the pandemic, while a complementary Zotero library stores bibliographic references of selected publications (https://operas.hypotheses.org/4084).

Epistemological and cultural differences in SSH exist within Europe in regard to data-driven research and in relation to what constitutes data in those fields. Therefore it is not yet possible to reach a level of data sharing equivalent to what is to be found in the health and life sciences. Nevertheless attempts have been made to aggregate information about existing and future COVID-19 related datasets produced by SSH scholars, and to provide basic services (see for ex. in the Annex the European University Institute COVID-19 Knowledge Hub). SSH ERIC Research Infrastructures have also integrated into their surveys several modules related to COVID-19 (in the case of SHARE and ESSurvey) or have ongoing COVID-19 activities through their involvement in the H2020 project SSHOC (CESSDA and CLARIN). It is also one of the aims of the European COVID-19 Data Platform to link omics and clinical data with relevant SSH data and bridge the divide between lab data and SSH data.

At national level, initiatives have contributed to fully integrate the SSH research insights in the COVID-19 Open Science and innovation endeavours. Among many other significant initiatives the SSH COVID-19 portal aims to organize SSH expertise from Dutch universities through a public platform. This portal provides fast and direct access to academic experts (https://ssh-covid19.nl/).

Furthermore, social scientists and humanists engage in science communication activities and public debates, notably through individual or collective blogging and collaborations with newspapers (like for ex. the Belgian *Carta Academica* collective of academics who published regular chronicles on social, psychological and economic aspects of COVID-19).

II. Opportunities

- The pandemic has raised awareness as never before on the need to react in a fast and collaborative way – like for example in the joint European Commission and RDA (Research Data Alliance) fast-track working group working on recommendations and guidelines on data sharing which involved over 300 experts worldwide in a bottom up approach -, and on the relative inefficiency of traditional publication and peer review modes in such emergency circumstances. Open Science has become in any case a main issue in academia as well as in policy agendas.

- Preprints have shown their potential for early discussions of research results between peers, and a certain ability to auto-correct (Rentier and Vanholsbeeck, 2020). For example a prepublication on the BioRxiv platform suggesting similarities between SARS-CoV-2 (the virus that causes COVID-19) and HIV was withdrawn 48 hours after publication. By contrast, *The Lancet* withdrew a controversial study on the use of hydroxychloroquine after two weeks.

- The need to invest in FAIR data has become more apparent than ever, as well as the importance of investments in data infrastructures and other research infrastructures, and in skills and data stewardship.

- Open Science and Open Innovation principles and realities have received unprecedented media attention, contributing to communicate the value of scientific knowledge as a public good to lay audiences.

- As a complex and multidimensional challenge, the pandemic emphasises the need of an interdisciplinary response at scientific level, and as such the need of an Open Science that is inclusive of all disciplines. Indeed if the pandemic has been primarily dealt with from a health perspective, it is accompanied by major challenges of an economic, political, social, psychological and cultural nature.

- More specifically the pandemic has emphasized the timeliness of some of the EU Commission initiatives in the fields of Open Science, such as the European publishing platform (Open Research Europe), the European COVID-19 Data Platform and Portal, and the European Open Science Cloud (EOSC). Together these tools, services and federated Open Science ecosystems provide an important opportunity to manage the whole dissemination process of scientific publications and research data, as well as that of other important research outputs, such as software, algorithms, workflows and protocols.

III. Challenges

Open Access to publications

- The traditional system of publication via peer reviewed articles, which is still largely dominant in scholarly communication, has shown that it could be easily overload in case of a sudden overflow of papers (Homolak et al., 2020).

- While the reduction of the submission-to-publication time allows for fast exchange of information among scientists, it raises issues relating to the scientific quality of the published studies and the efficiency of the peer reviewing process (Besançon et al., 2020). Since the beginning of the pandemic, even prestigious journals had to retract published papers, after serious doubts about the reliability of the underlying data had been expressed.

- The reliability of scientific results is crucial to maintain the public's trust in science and evidence informed policymaking. The absence of contextualization in the media coverage or even in the policy making of non-yet reviewed and sometimes contradictory research material (like preprints or announcements of research results via the social media) may thus harm the public confidence in scientists' work.

- Open Access to COVID-19 articles and underlying data still depends to a large extent on the good will of publishers, and on conditions fixed by them, rather than on editors' or authors' will, in particular whenever the host journals are not published in Open Access and/or publishers only offer temporary open access to relevant literature. This is particularly a problem since research on the new corona virus draws on a long tail of often closed research literature, or articles published in non-biomedical disciplines (Larivière et al., 2020).

Open Research Data

- Many data tools developed in the COVID-19 context are tools that help to visualize the data rather than store and share it (Sparc Europe, 2020).

- Researchers have not been able to collect, access and proceed all the relevant 'Real World' observations and data from the onset of the epidemic, because of the lack of human to machine and machine to machine fluent communication and ad hoc distributed analytics and machine learning. This has probably delayed by weeks if not months the provision of valuable research insights on the disease progression and drug repurposing as well as social and traditional care measures.

- Furthermore a majority of the data produced in COVID-19 related research are not FAIR, or even are of a rather low quality (Homolak et al., 2020).

- Collecting the information about the existence of datasets at national level was not always an easy process. Fragmentation of data across infrastructures and countries is a major issue.

- Data alone are often of no use without access to the methods and software used for producing the data, and the context of their production.

Interdisciplinarity

- The overflow of scientific information available has not been balanced with the production of synthetic and interdisciplinary knowledge (Aristovnik et al. 2020).

- For interdisciplinary research to be successful, technical data interoperability stumbling blocks need to be overcome, to ensure smooth data sharing and interlinking between data from different domains.

- Data sharing asks for a cultural change and epistemological (r)evolution in some disciplines, notably (but not exclusively) in the SSH.

Open Science related principles and policies

- There are in most European countries not enough career incentives and rewards for researchers – and particularly researchers at an early stage of their career – to engage in Open Science practices.

- Open Innovation perspective on IP arrangements allows for faster innovation but could limit the lever to trade off between accessibility, affordability and fair restrictions for profiting commercially from publicly funded research.

- Disparities are still significant across the EU and its Member States in the field of Open Science, not all of them having national Open Science initiatives and/or strategies. Hence financial support and ad hoc funding may lack to support Open Science and Open Innovation in general, and actions linked to this sanitary crisis in particular.

IV. Recommendations

The following recommendations are grouped thematically rather than according to specific audiences. SWG OSI considers indeed that, while some stakeholders – researchers, innovators, policy makers, funders, media or citizens – are de facto more concerned by some of those guidelines, it would be artificial to relate too narrowly certain recommendations to certain actors. All of them have indeed to contribute to a better uptake of Open Science in academia and in society.

Open Access to publication

- During the crisis, many academic publishers provided free access to their publications, but on a restrictive way (not all of the resources and/or only temporarily). This Open Access approach to publications resulting from publicly funded research activities should be generalized in all disciplines, without delay, without frontiers.

- Scholars and editors should have a more prominent role in the governance of the journals which they edit or in which they publish, and be able to pressure publishers – as service providers to the scholarly community - to adopt fair Open Access business models.

- For fighting against such global challenges there is a need of essential results being accessible in English at an international level to the global research community. Nevertheless relevant research outputs should not only be published in English in Western top journals but also in local language for the local communities (also outside of academia) (Larivière et al., 2020; Pölönen, 2020).

Open Research Data

- Opening articles is not enough. There is a need to make the data behind research papers accessible in a FAIR way, to ensure the reproducibility – in particular if the peer review process has been lightened –, the accountability and the reuse of the research outputs.

- Information should be provided about computer codes, protocols as well as about the context of production of the data.

- Proper data standards need to be agreed early on, and are very important for data acquisition and integration. Fragmentation in data access should be avoided by promoting standards, interoperability, federated ecosystems, EOSC, the European COVID-19 Data Platform.

- Whenever data cannot be publicly opened, the existence of relevant datasets should be sufficiently documented so that data may be found and shared more restrictively by duly identified scientists, in a controlled and fair manner.

- Integration of SSH experts in the design of data platforms is recommended, to better take into account the specificities of data and Open Science outside of the STEM disciplines.

Open Science services, infrastructures and tools

- Appropriate investments should be made early on in data infrastructures and other research infrastructures.

- Facing the overflow of information, more efficient text and data mining and artificial intelligence tools are needed.

- In particular, there is a need to enable near real-time streaming of 'real world' observations and data in combination to established knowledge to support early evidence based responses to an emerging health threat like COVID-19. Distributed analytics and machine learning should be further implemented over FAIR data sources, which may contain petabytes of data globally.

- The use of persistent and unique identifiers (PID) for all research outputs should be generalized, as well as CC licences – or similar relevant types of licences, according to the different types of research outputs - whenever possible.

- Open Peer Review practices that crowdsource the expertise among a broader group of scholars, fasten the reviewing process and strengthen its transparency should be further promoted.

Open Science related principles and policies

- Continued technical and financial assistance should be provided to Member States who are in the process of developing their Open Science policies and strategies.

- Connecting Open Science to the principles of research integrity and accountability is crucial. For example, preprints and faster submission-to-publication time suppose a high level of scientific integrity and responsibility, because of the lightering of the peer review process they may imply.

- Open Science needs copyright retention, and accessibility to articles and data should not be exclusively dependent of publishers. Retention of copyright strategy should be also used for research data, whenever relevant and feasible.

- Rewards and incentives frameworks, as well as career progression criteria, must include a better recognition for open science practices in all disciplines, so that those who engage, also at an early stage of their career, get something out of it rather than only doing it "for the greater good".

- Training and curricula in Open Science and data stewardship should be further implemented, and take the disciplinary specificities into account.

- In an Open Innovation perspective, IP should be managed more creatively and openly by distinguishing between IP that have to remain protected, those that can be shared selectively and the long tail of IP that could be opened up to everyone (enabling others to innovate more while saving on patent renewal fees) (Chesbrough, 2020).

(Open) Science Communication and Science of Open Science

- Communication should be encouraged towards researchers and society in a regular way about what Open Science and Open Innovation have made possible to achieve, using concrete examples from the pandemic (rather than theoretical principles).

- Science communication towards media and lay audience as well as scientific policy advice should not only popularize and relate to the most recent findings, but also contextualize in a meaningful way how research results are produced and disseminated. In other words: an isolated preprint should not be perceived by journalists, the public or policy makers as being equally valid than an article in a peer-reviewed journal (in particular if it itself reinforces the conclusions from previous studies).

- Furthermore, lay audience should be made aware that science progresses – most often slowly - through consensus, and that divergent results facing a new phenomenon like the COVID-19 is not a sign of scientific failure, but the usual way science progresses.

- Post-pandemic studies are to be encouraged and funded, which assess retrospectively topics such as the value of preprints vs. traditional articles, of peer review vs. open peer review, the FAIRness and quality of data, the obstacles towards interdisciplinary consolidation of knowledge.

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Challenges include the need to ensure the reliability and the immediate accessibility of research outputs, including FAIR data, while the traditional peer reviewing process shows its limitations. The absence of contextualization in the sometimes premature media coverage of research results may also jeopardize public confidence in scientists' work.

Hence SWG OSI notably recommends that open access to publications resulting from publicly funded research activities be generalized in all disciplines. Proper data standards should be agreed early on, taking into account the disciplinary specificities, while interoperable and federated ecosystems of FAIR data have to be implemented, as well as distributed analytics and machine learning. Furthermore we recommend that research assessment and research integrity policies take more into account, and in a more systematic way, the requirements connected to Open Science and Open Innovation, in order to foster researchers' engagement in these areas, as well as the trustworthiness of scientific knowledge.

ANNEX I

ERAC Standing Working Group on Open Science and Innovation

Open register of Open Science and Open Innovation related initiatives

in the context of COVID-19

This open register makes a distinction between Open Science initiatives without a disciplinary focus (I) and Open Science initiatives that focus on, or involve SSH research (II). The rationale behind this distinction is our general feeling that although Open Science efforts in medical studies and the STEM, in regard to the pandemic, have been quite well documented both at national and EU level, the same is not always true in regard to the SSH.
Our main ambition is thus to primarily provide information about initiatives that are not yet fully covered by the monitoring work currently done at EU level by the Governing Board of the EOSC which of focuses on COVID-19 related research data and will be progressively accessible via the EU Covid-19 Portal (http://www.covid19dataportal.org/).

Both for OS/OI initiatives without a disciplinary focus and OS/OI initiatives focusing on/involving SSH the structure of the register is the same:

1. Publications

- 1.1. Journals and e-books
- 1.2. Preprints and discovery platforms
- 1.3. Open repositories and hubs of COVID-19 literature, including (but not necessarily limited to) Open Access outputs
- 1.4. Blogging
- 1.5. Policy initiatives

2. Other European or international level initiatives

- 2.1. Open Research Data
- 2.2. Other Open Science dimensions (incl. Citizen Science and Open Innovation)

3. Other national level initiatives

This document does not pretend to be comprehensive in any way and remains open for comments and any relevant addition.

(Last updated on 12 November 2020)

I. Open Science and Open Innovation initiatives (without a focus on SSH)

1. Publications

1.1. Journals and e-books

- **Open Access to COVID-19 articles.**

Following journals and publishers (non-exhaustive list) are currently going open access with respect to COVID publications:

- The Lancet: https://www.thelancet.com/coronavirus
- The BMJ: https://www.bmj.com/coronavirus
- The JAMA: https://jamanetwork.com/journals/jama/fullarticle/2770861
- The NEJM: https://www.nejm.org/coronavirus
- EUROPMC (articles, preprints, patents…) https://europepmc.org/
- Wellcome Open Research: https://wellcomeopenresearch.org/collections/covid19/about-this-collection
- Public Library of Sciene: https://plos.org/covid-19/
- Elsevier
  "From today, Elsevier, a global leader in research publishing and information analytics specializing in science and health, is making all its research and data content on its COVID-19 Information Center available to PubMed Central, the archive of biomedical and lifescience at the US. National Institutes of Health's National Library of Medicine, and other publicly funded repositories globally, such as the WHO COVID database, for as long as needed while the public health emergency is ongoing. This additional access allows researchers to use artificial intelligence to keep up with the rapidly growing body of literature and identify trends as countries around the world address this global health crisis"
  https://www.elsevier.com/about/press-releases/corporate/elsevier-gives-full-access-to-its-content-on-its-covid-19-information-center-for-pubmed-central-and-other-public-health-databases-to-accelerate-fight-against-coronavirus

- **Consortium Couperin list of journals and publishers that provide OA during the pandemic (articles + ebooks)** (in French) (FR)

Not all initiatives are of the same nature. Some publishers and scientific information suppliers temporarily open up their entire catalogue, others open up the information relating to Covid-19, others extend or relax the conditions of access in view of the situation, and finally, some initiatives may be at the limit of the promotional offer.

The modalities are also diverse, from total and unconditional opening to opening on request.

https://www.couperin.org/site-content/145/1413-covid19-recensement-des-facilites-offertes-par-les-editeurs-du-fait-de-la-pandemie?preview=1

- **Official petition for access to electronic resources from publishers by the Association of the Italian Universities (CRUI)** (IT)

The main list of resources/initiatives reported by Italian Universities/Research is available here https://www.crui.it/archivio-notizie/covid-19-petition-for-access-to-electronic-resources-from-publishers.html#tabella1

- **JISC Resources for Coronavirus crisis** (UK)

https://subscriptionsmanager.jisc.ac.uk/about/resources-for-coronavirus-crisis

- **Open Access Scholarly Publishers Association (OASPA)**

"The group of publishers and scholarly communications organizations — initially comprising eLife, Hindawi, PeerJ, PLOS, Royal Society, F1000 Research, FAIRsharing, Outbreak Science, and PREreview — is working on **initiatives and standards to speed up the review process while ensuring rigor and reproducibility** remain paramount. The group has issued an Open Letter of Intent and is launching an initiative to ensure a rapid, efficient, yet responsible review of COVID-19 content."

https://oaspa.org/scholarly-publishers-working-together-during-covid-19-pandemic/

- **Simas and Juskuv list of Publisher Access Changes to COVID-19** (USA)

Maintained by Sam Simas (Digital Services & Research Librarian) & Rachael Juskuv (Research & Instruction Librarian), Bryant University) Library.

https://docs.google.com/document/d/1SqjcSrRPPNpPj7K4B1pUQdCbznSIyLznPKGd4dZwJ6s/mobilebasic

- **International association of STM publishers**

"In direct response to the health emergency, publishers provided free access to relevant peer reviewed publications to ensure that throughout the duration of the outbreak, research and data quickly reaches the widest possible audiences. On the 30th January STM reached out to members to coordinate and broaden the wider efforts to make relevant research quickly and freely available. Over the subsequent days and weeks, more than 32,000 articles, chapters and other resources have been made findable and useable in this manner."

https://www.stm-assoc.org/about-the-industry/coronavirus-2019-ncov/

- **ULB (Université Libre de Bruxelles) list of journals and publishers that provide OA during the pandemic (articles + ebooks)** (in French) (BE)

https://bib.ulb.be/fr/documents/ressources-electroniques-temporaires

- **UNIPG** (IT)

(Università degli Studi di Perugia) as an example of Italian Universities whose libraries offer OA during the pandemic (articles + ebooks) (in Italian) (IT)

1.2.Preprints and discovery platforms

- **bioRxiv**
- **medRxiv**
- **COVID-19 SARS-CoV-2 preprints** from medRxiv and bioRxiv

- **Outbreak Science Rapid PREreview** (UK)

This platform was designed to facilitate rapid, open review of preprint related to outbreaks and as such allows users to:

  - Find rapid reviews of existing preprints;
  - Request reviews of preprints (your own, or preprints you are interested in);
  - Review preprints.

Outbreak Science is a non-profit organization aiming to advance the science of outbreak response. Outbreak Science supports early and open dissemination of data, code, and research.

This open project is funded by the Wellcome Trust as a collaboration between Outbreak Science and PREreview.

PREreview is an open project fiscally sponsored by the non-profit organization Code for Science & Society. PREreview's mission is to increase diversity in the scholarly peer review process by empowering all researchers to engage with preprint reviews.

https://outbreaksci.prereview.org/

- ***Rapid Reviews: Covid 19*** **Overlay Journal** (USA)

To combat this [misinformation because of un-peer reviewed preprints], MIT Press and the Berkeley School of Public Health are launching a new COVID-19 journal, one that will peer review preprint articles getting a lot of attention -- elevating the good research and debunking the bad.

The Rapid Reviews: COVID-19 journal will be led by Bertozzi, who will serve as the first editor in chief. Unlike a traditional journal, authors will not submit their work for review. Instead, the Rapid Reviews team will select and review already-published preprint articles -- a publishing model known as an overlay journal.

https://www.insidehighered.com/news/2020/06/29/new-mit-press-journal-debunk-bad-covid-19-research#.XvnOOLk0fyA.twitter

- **ScienceOpen** (DE)

ScienceOpen is a discovery platform with interactive features for scholars to enhance their research in the open, make an impact, and receive credit for it.

"On ScienceOpen we have begun to gather publisher collections of coronavirus literature together with a daily update of new preprints and articles in this super collection to highlight the carefully vetted publications produced by some of the world's top academic publishers".

"The ScienceOpen platform allows you to search within this growing resource, filter by preprint or open access, sort by date, citation number or Altmetric score. Researchers can share with one click, recommend or review articles to help us all improve this growing body of knowledge".
https://www.scienceopen.com/collection/Coronavirus

1.3. Open repositories and hubs of COVID-19 literature, including (but not necessarily limited to) Open Access outputs

- **ACSA (Australian Citizen Science Association) Open Register of citizen science initiatives that relate to COVID-19**

Maintained jointly by ACSA, CSA, ECSA, RICAP, Citizen.Science Asia, CitSAia
https://docs.google.com/document/d/1qJhOG9Qw7kud-VKA1yucp-iGxO0X2mwELSaf8nL2Ulo/edit#heading=h.kildxnv8j04d

- **CORD-19** (USA)

A Free, Open Resource for the Global Research Community.
In response to the COVID-19 pandemic, the Allen Institute for AI has partnered with leading research groups to prepare and distribute the COVID-19 Open Research Dataset (CORD-19), a free resource of over 280,000 scholarly articles (on 20 November 2020), including over 41,000 with full text, about COVID-19 and the coronavirus family of viruses for use by the global research community.
https://www.whitehouse.gov/briefings-statements/call-action-tech-community-new-machine-readable-covid-19-dataset/
https://www.semanticscholar.org/cord19

- **ELEMENT AI** (Canada)

"In its current form, the platform is configured to the COVID-19 Open Research Dataset (CORD-19)* which is a dataset of papers and articles related to COVID-19 research. Leveraging a semantic search model, users can search with keywords, phrases and even copy entire paragraphs of text into the search bar, yielding articles that contain content that is semantically similar -- helping to uncover potential patterns across research papers that may not otherwise have been perceptible".
Element AI is an artificial intelligence company based in Montreal, Quebec.
https://www.elementai.com/covid-research

- **PubMed LitCovid** (USA)

"LitCovid is a curated literature hub for tracking up-to-date scientific information about the 2019 novel Coronavirus. It is the most comprehensive resource on the subject, providing a central access to 72516 [20 November 2020] (and growing) relevant articles in PubMed. The articles are updated daily and are further categorized by different research topics and geographic locations for improved access. You can read more at Chen et al. Nature (2020) and download our data here."
https://www.ncbi.nlm.nih.gov/research/coronavirus/

- **Slovenian Central technological Library (CTK) of the University of Ljubljana** (http://www.ctk.uni-lj.si/english.html) (SI)

Free Resources during the Epidemic section on provides an overview of freely accessible electronic resources during the epidemic. These are corona virus-related resources and other resources provided by publishers during the corona virus outbreak, either in addition to subscribed content or as trials to contents that we do not have regular access to.
https://docs.google.com/spreadsheets/d/1LUYMbIrvVBm5kU_IcTNGPUufoVwtKiy9lbiVqyi-now/edit#gid=0

- **SPARC Europe**

A curated collection of blogs, articles, news on calls to action and key open resources that showcase how open science supports COVID-19.
https://sparceurope.org/coronaopensciencereadsandusecases/

1.4.Blogging

1.4.1. Individual blogs

1.4.2. Collective blogs

- **Blogging in the Time of Coronavirus: A Reading List**

https://wordpress.com/discover-wordpress/2020/04/02/blogging-coronavirus/

- **Club des médecins blogueurs** (FR)

The "Club des médecins blogueurs" is an informal grouping of bloggers, mostly doctors, who have met on the web and particularly on Twitter.

The articles come exclusively from the syndication feeds (RSS) of selected sites. No article can be indexed individually.

https://www.clubdesmedecinsblogueurs.com/

1.5.Policy initiatives

- **Policy pleas for Open Science in a COVID-19 context (and beyond) were made by several international organizations.**

WHO (https://www.who.int/news/item/29-05-2020-international-community-rallies-to-support-open-research-and-science-to-fight-covid-19), OECD (http://www.oecd.org/coronavirus/policy-responses/why-open-science-is-critical-to-combatting-covid-19-cd6ab2f9/) and European Commission (https://ec.europa.eu/info/news/commission-launches-manifesto-maximise-accessibility-research-results-fight-against-coronavirus-2020-jul-28_en) have underlined from the beginning of the pandemic on the need of Open Science. UNESCO hosted an online meeting of representatives of ministries in charge of science all over the world, and underlined the urgency of stepping up information sharing through Open Science (https://en.unesco.org/news/unesco-mobilizes-122-countries-promote-open-science-and-reinforced-cooperation-face-covid-19), while also taking the right to privacy into account (https://en.unesco.org/covid19/communicationinformationresponse/opensolutions).

- **A consortium call to academic publishers to open COVID-19 related research by Couperin.org, ADBU and EPRIST** (FR)

https://www.couperin.org/images/stories/AO/COVID-19-CALL-TO-ACADEMIC-PUBLISHERS---2020-03-19.pdf

- **CESAER**

In regard to Open Innovation CESAER reminds that "utilisation of research and knowledge exchange has never had such a high profile as during the global Covid-19 pandemic, including the diverse and urgent challenges associated with securing supply chains and providing healthcare, testing, equipment and a range of research, and often in conjunction with a range of partners in our local, national, and international ecosystem involving industry partners and healthcare providers"
https://www.cesaer.org/news/increasing-visibility-of-the-role-of-the-university-in-innovation-ecosystems-659/

- **COAR Recommendations for COVID-19 resources in repositories**

https://www.coar-repositories.org/news-updates/covid19-recommendations/

COAR (https://www.coar-repositories.org/news-updates/open-science-in-the-time-of-covid-19-lets-not-return-to-business-as-usual-when-the-pandemic-is-over/) has also plead for keeping the Open Science efforts that COVID-19 crisis has stimulated in the future.

- **EUA news (9 April 2020)**

"Several national rectors' conferences and national consortia, including in France, Spain, Switzerland, the United Kingdom and the United States, have called for Open Access to coronavirus and related research. They have also called for extending access to digital collections held by publishers that are needed to fulfil the research and teaching missions of universities from outside the campus."
https://eua.eu/news/484:consortia-and-universities-call-for-wide-access-to-electronic-resources-amidst-coronavirus-crisis.html

- **ICOLC (International Coalition of Library Consortia) Statement on the Global COVID-19 Pandemic and Its Impact on Library Services and Resources**

https://icolc.net/statement/statement-global-covid-19-pandemic-and-its-impact-library-services-and-resources

- **Official French governmental requesting Open Access to researchers and founders** (in French) (FR)

https://www.enseignementsup-recherche.gouv.fr/cid150779/le-gouvernement-demande-l-ouverture-complete-des-publications-et-donnees-scientifiques-issues-de-la-recherche-francaise-sur-le-covid-19.html

- **Sparc Europe** (https://sparceurope.org/covid-19-and-open-science/) has plead for keeping the Open Science efforts that COVID-19 crisis has stimulated in the future.

- **UK'sWellcome Trust statement, 'Sharing research data and findings relevant to the novel coronavirus (COVID-19) outbreak' (Wellcome Trust 2020)** (UK)

The statement calls on researchers, journals and funders to ensure that research findings and data relevant to this outbreak are shared rapidly and openly to inform the public health response and help save lives. It also requests that publication of pre-prints do not pre-empt later publication in journals. The large number of signatories include many publishers and the European Commission.
https://wellcome.ac.uk/coronavirus-covid-19/open-data

1.

2. Other European or international level initiatives

2.1.Open Research Data

- **Academic Data Science COVID-19 resources**

A living list of data and datascience resources.
https://academicdatascience.org/covid#body-content-2

- **European Covid-19 Data Platform and Portal**

The European COVID-19 Data Platform, a fully operational use case of the European Open Scienshae Cloud, responds to a need to enable researchers to store, share, access, analyse and process research data and metadata on COVID-19, rapidly, and effectively, thereby accelerating scientific discovery and innovation for the benefit of society.
The European COVID-19 Data Platform facilitates (or in some cases is very soon expected to facilitate) access to data and metadata across research fields from omics, pre-clinical research, clinical trials and observational studies, to epidemiological data and other data flows from the Social Sciences and Humanities, across Member States and across the world.
The platform is very versatile and allows for the wide and early sharing of different types of data. This includes the sharing of open and unrestricted data, e.g. viral sequencing data, as well as sensitive data for which controlled access is necessary.

"The aim of the COVID-19 Data Portal is to facilitate data sharing and analysis, and to accelerate coronavirus research. [...] To address this challenge, EMBL-EBI and partners have has set up the COVID-19 Data Portal, which will bring together relevant datasets submitted to EMBL-EBI and other major centres for biomedical data. The aim is to facilitate data sharing and analysis, and to accelerate coronavirus research."
https://www.covid19dataportal.org/

- **Humanitarian Data Exchange (HDE) responsibility for Covid-19**

GITHUB and the Humanitarian Data Exchange each have an accumulating series of datasets on the geography of the spread of the disease (including positive test cases, hospitalizations, and deaths).

The Humanitarian Data Exchange (HDX) is an open platform for sharing data across crises and organisations. Launched in July 2014, the goal of HDX is to make humanitarian data easy to find and use for analysis. Our growing collection of datasets has been accessed by users in over 200 countries and territories. Watch this video to learn more.

HDX is managed by OCHA's Centre for Humanitarian Data, which is located in The Hague. OCHA is part of the United Nations Secretariat and is responsible for bringing together humanitarian actors to ensure a coherent response to emergencies. The HDX team includes OCHA staff and a number of consultants who are based in North America, Europe and Africa. https://data.humdata.org/event/covid-19

- **LENS Human Coronaviruses Data Initiative (AU)**

"The Lens has assembled free and open datasets of patent documents, scholarly research works metadata and biological sequences from patents, and deposited them in a machine-readable and explorable form."

https://about.lens.org/covid-19/

The Lens is an academic search engine produced by the Autralian University of Queensland and provided by Cambia, an independent international non-profit organization dedicated to the democratization of innovation.

- **The Protein Data Bank**

The Protein Data Bank (PDB) is an international open database that contains the 3D structural data of proteins and nucleic acids deposited by researchers from around the world. The PDB maintains a collection of SARS-CoV-2 structures including the main protease and spike protein/receptors.

https://www.rcsb.org/

- **Joint RDA-EU Commission working group on recommendations and guidelines on data sharing**

The European Commission is working together with Research data alliance (RDA) where a fast-track working group working on recommendations and guidelines on data sharing is established. It was a true collaborative effort involving over 300 experts worldwide in a bottom up approach.

https://www.rd-alliance.org/groups/rda-covid19

The objectives of the RDA COVID-19 Working Group (CWG) are:

- to clearly define detailed guidelines on data sharing under the present COVID-19 circumstances to help stakeholders follow best practices to maximize the efficiency of their work, and to act as a blueprint for future emergencies;
- to develop guidelines for policymakers to maximise timely data sharing and appropriate responses in such health emergencies;
- to address the interests of researchers, policy makers, funders, publishers, and providers of data sharing infrastructures.

https://www.rd-alliance.org/group/rda-covid19-rda-covid19-omics-rda-covid19-epidemiology-rda-covid19-clinical-rda-covid19-0

- **TIM Open Access**

TIM Open Access is open to anyone and contains data related to science and innovation that are free of access. For this launch, it contains Semantic Scholars, Cordis, and Patstat. Additional open access datasets will be added in the future. https://www.timanalytics.eu/TimOpenAccess/login.jsp

In addition, considering that it is sometimes difficult for researchers on viruses to be at the same time experts in text mining, or simply have the time to do both, they have indexed the CORD-19 dataset and integrated it into TIM Open Access. The CORD-19 dataset has been put together by the Allen institute for AI and some of its partners (https://allenai.org/data/cord-19). This open dataset contains more than 50K scientific publications on coronaviruses and it is updated once a week. 40k of the publications are full text to allow for text mining. This dataset is now accessible to anyone wishing to extract knowledge from these full text articles. Users can search the CORD-19 dataset through our system and automatically access various visualisations on keywords, organisations, countries, and others. https://ec.europa.eu/knowledge4policy/text-mining/cord-19_en

2.2. Other Open Science dimensions (incl. Open Innovation and Citizen Science)

- **ESFRI (European Strategy Forum on Research Infrastructures) Web Page "European RIs vs COVID-19"**

"We are currently experiencing a public health crisis unprecedented in the modern European history of the last decades. As thousands of European citizens are infected with the SARS-CoV-2 every day and the number of casualties is increasing rapidly, Europe needs a coordinated effort of all available knowledge and resources to fight the pandemic.

ESFRI believes that the opportunities provided by European Research Infrastructures to support the science-led response to the COVID-19 outbreak are extremely important. ESFRI is helping the scientific community by aggregating information about dedicated services offered by Research Infrastructures and communicating all relevant actions as broadly as possible. To this end, ESFRI has created this focused webpage that lists and provides quick links to the information gathered."

https://www.esfri.eu/covid-19

- **EU-Citizen.Science Citizen science resources related to the COVID19 pandemic**

"A selection of resources related to the current COVID19 pandemic. It contains links to citizen science and crowdsourcing projects that might be of interest to:

- citizens wanting to help tackle the virus
- researchers looking for support during interruptions to their fieldwork
- parents looking for ideas to support children who are homeschooling
- anyone looking for useful ways to fill their time while self-isolating."

EU-Citizen.Science is an online platform for sharing knowledge, tools, training and resources for citizen science – by the community, for the community.

https://eu-citizen.science/citizen-science-resources-related-covid19-pandemic/

- **EUvsVirus European online Hackathon**

From 24th to 26th April 2020, the first European online hackathon allows innovators to share their ideas in order to implement innovative solutions to COVID-19 related problems. Individuals or teams, experts or not in health, finance, social cohesion, education and distance working, all can register to take part in this Europe-wide challenge.

https://euvsvirus.org/

- **Frontiers Coronavirus Funding Monitor**

"A curated list of open funding calls and other support for researchers, non-profit organizations and commercial organizations, specifically for COVID-19 and coronavirus-related research. Updated daily."

https://coronavirus.frontiersin.org/covid-19-research-funding-monitor

- **The Horizon Results Platform**

A dedicated section with results relevant to COVID-19 developed by H2020 projects.

- **Horizon 2020 Open Access guidelines for H2020 projects working on COVID-19, SARS-CoV-2 and related topics**

Includes links to relevant resources that have been developed by the European Commission.

- **Open Covid Pledge**

The Open COVID Coalition publishes standard licenses that can be used by anyone that has adopted the Open COVID Pledge.

Our licenses have many features in common. Every Open COVID License (OCL) grants the public worldwide permission to use the pledgor's intellectual property rights (copyright and patent rights, or patent rights only) so long as they are used for the purpose of diagnosing, preventing, containing, and treating COVID-19. This is allowable without having to negotiate a special agreement, or pay a royalty or other fee to the patent or copyright holder.
https://opencovidpledge.org/licenses/

- **Open AIRE**
    - OpenAIRE COVID-19 activities page (now and near the release of the Gateway). https://www.openaire.eu/openaire-activities-for-covid-19
    - Call for Experts https://docs.google.com/forms/d/e/1FAIpQLSfyrerIZ1G4bzXN_hgCyWKEz5hwlmFcZmkHT2iYs6GebLKhEA/viewform
    - Call for Resources https://docs.google.com/forms/d/1mtSTisRylAuEIULuPJ97cQZzsi89Hmzp_2iiCZX1BhQ/viewform?edit_requested=true
    - National webinar (like this one organised by the NOAD in Greece) to engage national communities. (En España no lo vamos a hacer porque nos han dicho que por ahora no procede).
    - Press release: https://www.openaire.eu/collaboration-for-covid-19
    - https://zenodo.org/

      Zenodo is a general-purpose open-access repository developed under the European OpenAIRE program and operated by CERN. It allows researchers to deposit data sets, research software, reports, and any other research related digital artifacts. For each submission, a persistent digital object identifier (DOI) is minted, which makes the stored items easily citeable.

- **WHO Covid-19 technology access pool initiative**

"In an overwhelming vote, the European Parliament late last week agreed to support a World Health Organization initiative to create a Technology Access Pool, which would collect patent rights, regulatory test data, and other information that could be shared for developing drugs, vaccines, and diagnostics to combat Covid-19."

https://www.statnews.com/pharmalot/2020/07/13/europe-who-covid19-patents-vaccine-pandemic/

"The COVID-19 Technology Access Pool (C-TAP) will compile, in one place, pledges of commitment made under the Solidarity Call to Action to voluntarily share COVID-19 health technology related knowledge, intellectual property and data. The Pool will draw on relevant data from existing mechanisms, such as the Medicines Patent Pool and the UN Technology Bank-hosted Technology Access Partnership. Shared knowledge, intellectual property and data will leverage our collective efforts to advance science, technology development and broad sharing of the benefits of scientific advancement and its applications based on the right to health."

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/covid-19-technology-access-pool

3. Other national level initiatives

- **AT**

Austrian Knowledge Transfer Centres

Regarding COVID-19 related Knowledge Transfer, the regional Austrian Knowledge Transfer Centres launched several projects regarding COVID-19, which can be seen on their respective websites:

- Knowledge Transfer Centre South:

https://www.wtz-sued.at/

- Knowledge Transfer Centre East:

https://www.wtz-ost.at/

Austrian National Contact Point for Knowledge Transfer and Intellectual Property

The Austrian National Contact Point for Knowledge Transfer and Intellectual Property (NCP-IP) has set up a page with COVID relevant activities regarding IPR and Knowledge Transfer.

https://www.ncp-ip.at/en/more-initiatives/covid-aktivitaeten-im-bereich-ipr-und-wissenstransfer/

- **BE**

Interactive platform for centralization of health initiatives related to COVID-19

In the region of Wallonia, the BioWin cluster (active in the field of health biotechnology and medical technologies) developed an interactive platform for centralization of health initiatives related to COVID-19 around 6 urgent themes: manufacturing, supply and recycling of masks for companies; development and repair of ventilators; development and manufacturing of hydroalcoholic gels; development and manufacturing of new diagnostic approaches; development of new treatments and; new sources of funding.

https://www.biowin.org/en/news/covid-19-join-biowins-cooperation-platform

- **CH**

Pan-European Privacy-Preserving Proximity Tracing (PEPP-PT) project

An application for detecting contact with a virus carrier.

"EPFL researchers are involved in a European project bringing together 130 partners from eight countries: the Pan-European Privacy-Preserving Proximity Tracing (PEPP-PT) project. This project aims to trace contacts with a person infected by the virus thanks to an application on a smartphone, installed voluntarily and whose data is anonymised. It is being carried out at EPFL by assistant professor Carmela Troncoso, by professors Marcel Salathé, Jean-Pierre Hubaux, James Larus and by the Vice-President for Information Systems at EPFL, Edouard Bugnion. Based on Bluetooth technology, the application developed will enable everyone to be informed if they come into contact with a carrier of the virus."

https://drive.google.com/file/d/1C8iU0uMaK7E33y60-zb7-FjH8QWB4tZs/view

- **FR**

Covido Ergo Sum: anti-fake news Youtube Videos (in French)

A group of six students from the Faculty of Medicine Lyon-Est of Claude Bernard Lyon 1 University managed to combine an educational project with public utility. In a series of Youtube videos, they manage to explain how research for new therapeutics works in times of crisis and the main issues at stake.

https://www.youtube.com/watch?time_continue=1&v=CKVsezhqwQI&feature=emb_logo

Free access to regulatory and ISO standards in the fight against the pandemic

"AFNOR Editions, ISO and the European Committee for Standardization (CEN) give free access to standards useful in the fight against Covid-19. These are standards intended for manufacturers defining the specifications and test methods for medical masks, respiratory protection devices, individual eye protection and protective clothing."

https://www.boutique.afnor.org/COVID-19

- **IE**

Health Research Board (HRB)

The Health Research Board (HRB) is the lead agency for health research in Ireland. It is encouraging its researchers to use the HRB Open Research publication platform, which follows best international practice and allows researchers to rapidly publish their research outputs in an open and accessible way.

More information on the HRB Open Research platform can be found at https://hrbopenresearch.org/.

The HRB have committed to making all of their COVID-19 and coronavirus-related publications, and the available data supporting them, immediately accessible in PubMed Central (PMC) and to license it in ways that facilitate reuse. The HRB have also called on researchers, journals and funders to ensure that research findings and data relevant to this outbreak are shared rapidly and openly to inform the public health response and help save lives.

Irish National Forum for the Enhancement of Teaching and Learning in Higher Education

The Irish National Forum for the Enhancement of Teaching and Learning in Higher Education have introduced measures to facilitate collaborative research sharing and to support on-going teaching and learning in Irish higher education. An online community space has been established for National Forum Associates to allow for the sharing of insights, resources, lessons, tips, etc.

More information on this can be found at https://www.teachingandlearning.ie/collaborative-resource-sharing/.

- **IT**

Survey of projects related to Covid-19 supported by Research Infrastructures (national and national nodes/hub of ESFRI RI) and EOSC-viable

The survey has been carried out on input of the Italian members of the ESFRI delegation and the EOSC Governing board and managed by the ICDI (Italian Computing and Data Infrastructure) Collaboration.

https://icdi.workplace.garr.it

Collection of a broad-spectrum initiatives and free resources for citizens, related to innovative ways of supporting the crisis

The initiative is supported by the Ministry for Technological Innovation and Digitalisation (MID - https://innovazione.gov.it/).

www.solidarietàdigitale.agid.gov.it

- **NL**

National Platform Open Science (NPOS) Project "Opening up COVID-19 crisis related resources"

The NPOS, together with various partners (such as VSNU, NOW, GoFAIR/SURF, UKB), is setting up a network in the Netherlands to support research and education on aspects of the Covid-19 crisis. On 25 March a webpage was launched on www.openaccess.nl with 3 sections:

1. Guidance on how to make COVID-19 related research outputs openly available as quickly as possible;
2. Guidance on how to find (open) COVID-19 related research information. University libraries in the Netherlands are currently putting together research outputs from different Dutch universities;
3. Guidance on how to contribute to enrich COVID-19 related research information.

The website also contains references to international initiatives.

The NPOS is also looking into guidance on data sharing, and collective action towards -or together with- publishers to ensure that as many relevant resources and good practices as possible can be shared.

This project takes place in the context of the broader NPOS-project "Accelerate Open Science" that aims at stimulating initiatives to enhance open science in the Netherlands.

Project website:

- Dutch version launched on 25/3/2020
- English version will be launched shortly

https://www.openaccess.nl/nl/open-access-voor-covid-19-en-gerelateerd-onderzoek

General NPOS-website with a reference to the project:

https://www.accelerateopenscience.nl/uncategorized/opening-up-covid-19-crisis-related-resources/

NPOS-project “Accelerate Open Science”:
https://www.openscience.nl/projecten/project-h-accelerate-open-science-stimuleren-van-initiatieven-ter-bevordering-van-open

NL signatories to the International pledge “Sharing research data and findings relevant to the novel coronavirus (COVID-19) outbreak”

For the Netherlands NWO and ZonMW signed this pledge (31/1/2020)
https://wellcome.ac.uk/press-release/sharing-research-data-and-findings-relevant-novel-coronavirus-covid-19-outbreak
https://www.nwo.nl/en/news-and-events/news/2020/01/nwo-and-zonmw-open-access-joins-the-battle-against-coronavirus.html
https://www.zonmw.nl/nl/actueel/nieuws/detail/item/nwo-en-zonmw-open-access-in-strijd-tegen-coronavirus/

Virus Outbreak Data Network (VODAN)

GO FAIR started with support of RDA, CODATA and WDS and with funding of ZonMw (national research funder for health research) and the Philips Foundation, the VODAN-initiative (as an Implementation Network of GO FAIR) in order to share COVID-19 and SARS related research data. The initiative makes it possible to share real time data and will work with localised FAIR Data Points.
These points are stations for trains (virtual machines) that can visit the data locally. As the personal data of patients never leaves the underlying database of the local institution, GDPR issues are largely accommodated and in this way data can be ‘shared’ or rather ‘visited’ without violating any patient rights.
This global initiative has many partners from all over the world, including the US and China. Also the Dutch initiative Health-RI is connected.

Currently RDA, GO FAIR, CODATA and WDS joined in the Data Together Alliance and are preparing the following actions:
https://www.go-fair.org/wp-content/uploads/2020/03/Data-Together-COVID-19-Statement-FINAL.pdf
SURF is currently working on setting up a `Data Point’ for VODAN.
https://www.go-fair.org/implementation-networks/overview/vodan/
https://www.zonmw.nl/nl/actueel/nieuws/detail/item/start-datanetwerk-coronavirus/
https://www.go-fair.org/wp-content/uploads/2020/03/Data-Together-COVID-19-Statement-FINAL.pdf

ZonMW Call of around € 4mln from the ZonMw research programme on infectious diseases

The call is in addition to the VODAN-initiative. It contains a reference to the international pledge by the Wellcome Trust. It started around 25 March 2020

On 6 specific topics:

- Following a cohort of people that recovered from COVID-19 to answer several questions in relation to the course of the disease, such as herd immunity, long term prognosis, cross reactivity and repeated infection.
- Research into the carriership, disease burden and the transition from and to children.
- Hospital epidemiology, in support of infection prevention measures.
- Trial(s) for the development of medication for COVID-19-patients, with a preference for immunity targets.
- Virus evolution, mapping the spread and transmission by means of sequencing.
- Social-scientific research into the question how long social isolation can be endured and what could be the consequences (and which support is required for the elderly).

https://www.zonmw.nl/en/research-and-results/infectious-diseases-and-antimicrobial-resistance/

NWO taskforce

A small NWO taskforce is currently working on, amongst others:
- contributing to the open accessibility of Covid-data and publications (in addition to what NWO is doing already);
- reflecting on the situation after the crisis
No website information available yet.

Health-RI COVID-19 data support programme

with partners: BBMRI-NL, ELIXIR-NL, DTL, TraIT, PHT, ELSI servicedesk, and others

- Background

The battle against Covid-19 is heavily data dependent. Finding the right data sets, curating them where necessary, making them accessible to researchers, linking - data from many different sources and making rich data sets reusable often is nontrivial. Currently, research actions are taking place locally across the world, and several initiatives have started to connect these data in a federated network of data resources on COVID-related research and care data. Health-RI, the Dutch national infrastructure for personalized health research aims to facilitate this process for investigators by connecting communities of researchers with communities of data experts, biobankers and research IT-ers, etc. and by providing investigators with data services and tools.

- Aim

Health-RI launches the NL Covid-19 Research Data Support Infrastructure initiative. This will support the Covid-19 investigators/health care professionals with tools and services to speed up their research in order to help overcome the pandemic and its health consequences.

Health-RI actively connects to the Virus Outbreak Data Network (VODAN) initiative that receives worldwide connections. By doing so Health-RI supports the globally making FAIR of clinical and research data regarding COVID-19 and related viral infections in order to be able support large scale AI-analyses in the development and exchange of knowledge and solutions. Health-RI also offers a link to other international and European initiatives, such as EOSC Life.

- Tools and services

• Finding: Catalogue: a national inventory of collections of data, images and samples (cohorts, biobanks, studies, registries, etc.). This could provide a kind of "national phone book" of available initiatives that can also be used for COVID-19 related initiatives.
• Access to data in the above mentioned collections: Podium: a "webshop" system that enables access taking into account op quality and privacy.
• Interoperability: ideally and if possible PHT principles are applied to consult an analyse the distributed data. Next to that, currently a lot of data are not yet `mature' enough for this and more traditional paths will be needed tof or the linking of data. Health-RI has a lot of expertise in this field.
• Sharing of radiology images: there is a solid pipeline for the de-identification of DICOM-images and for making these available for research (CTP en XNAT)
• Access to electronic data capture tools for multicenter studies
• ELSI service desk for questions on ethical and legal aspects, surely also important for the use of health care data for research.

https://www.health-ri.nl/

RDA (Research Data Alliance)

Participation in the RDA COVID-19 Working Group, o.a. through DANS (Data Archiving and Networked Services) and other Dutch research organisations.

https://www.rd-alliance.org/groups/rda-covid19

- **SI**

Slovenian Central technological Library (CTK) of the University of Ljubljana

Information about the initiatives of the **Slovenian Central technological Library (CTK) of the University of Ljubljana** (http://www.ctk.uni-lj.si/english.html). There are two sets of information (A and B) as follows:

- **CORONA VIRUS INFO AND CITIZEN SCIENCE PROJECT**

On http://koronavirus.ctk.uni-lj.si/, the CTK prepared information on coronavirus SARS-CoV-2 (COVID-19). The purpose of the site is to provide general information on epidemic topics. The five main sections of the website provide users with one-stop information:

1. **Information on CTK operations**

In the Information on CTK operation section, we inform users about how to access electronic and print material, now that the library is closed and operating to a very limited extent only. We are constantly updating data on current lending and interlibrary loan options. Here, users also can find information about the weekly online meetings with the CTK.

2. **Citizen science**

In the Citizen Science section, we inform users about a collaborative open science project involving researchers from several universities and the Central Technical Library of the University of Ljubljana (https://covid.si/en/). A team of scientists has started a project where the general public can participate in the fight against the corona virus. The purpose of the project is to analyse molecular compounds and to help find a cure for corona virus.

Volunteers can participate in this project by contributing the information they receive by reading articles, finding information on the World Wide Web, participating in forums, social networks, from their own experience. Experienced volunteers (researchers and students of biochemistry, chemistry, pharmacy etc.) can participate in strategy development, assist in the technical implementation of the project (prepare targets - protein structures for molecular anchoring, suggest ligands, process virtual anchoring results, etc.). Other interested volunteers who want to help by donating their computer time, can get one or more targets and a set of anchoring ligands from the CTK and send the results back to the server.

3. **Free resources at the time of the epidemic**

The Free Resources during the Epidemic section on https://docs.google.com/spreadsheets/d/1LUYMbIrvVBm5kU_IcTNGPUufoVwtKiy9lbiVqyi-now/edit#gid=0 provides an overview of freely accessible electronic resources during the epidemic. These are corona virus-related resources and other resources provided by publishers during the corona virus outbreak, either in addition to subscribed content or as trials to contents that we do not have regular access to.

4. **Up-to-date information and useful information about the coronavirus**

The Up-to-date information and useful information about the corona virus section provides information on how to prevent the spread of infection and how to deal with an infection.

5. **Video presentations**

The Video presentations section provides presentations and lectures on the corana virus topic.

- **CLINICAL KEY (Elsevier)**

Between 6th April and 4th June, 2020, Slovenian hospitals have free access to Clinical Key (https://www.elsevier.com/solutions/clinicalkey). Clinical Key supports healthcare professionals and students as well as pharmacists with the latest evidence across specialties in a variety of formats, including full-text reference books and journals, monographs, drug information, videos, practice guidelines, clinical calculators and more. Clinical Key provides to healthcare staff e-resources for their work. It also includes evidence cases of patient treatments, which helps the users to find the right answers at the right time.

Slovenian COVID-19 Data Portal

The COVID-19 pandemic highlighted the need for the widest possible collaboration between researchers and therefore the need for open research data, open research publications and open software. Slovenia actively joined the initiative of EMBL EBI and the European Commission the European COVID-19 Data Platform (www.covid19dataportal.org/) and initiate the Slovenian COVID-19 Data Portal (https://covid19dataportal.si/). Setting up, management and maintenance of the Slovenian portal requires the participation of the wider Slovenian research community. The Slovenian COVID-19 Data Portal provides information, instructions, tools and services for researchers who would like to use the Slovenian and European research infrastructure and submit FAIR research data to the European COVID-19 Data Portal. The national COVID-19 Data Platform also integrate research results on COVID-19 at the national level. The national initiative brings together the wider research community and also connects it with citizen science initiatives.

- **ES**

Citizens for low-cost respirators

In regard to open innovation, there is a citizen movement to develop low-cost breathers/respirators with 3D printing. This news is quite old and in Spanish, if you are interested I can look for more: https://www.agenciasinc.es/Noticias/Una-plataforma-ciudadana-desarrollara-respiradores-de-bajo-coste-en-la-crisis-del-COVID-19. There are also many initiatives to develop masks, but the innovation is much lower here.

Ministry of research action on COVID-19

- Spanish Ministry of research is developing an open science exercise of transparency through a webpage with the research groups working on COVID (in Spanish): http://www.ciencia.gob.es/portal/site/MICINN/menuitem.26172fcf4eb029fa6ec7da6901432ea0/?vgnextoid=32ea8640bf1f0710VgnVCM1000001d04140aRCRD
- This repository is part of this broader communication initiative at the Ministry: http://www.ciencia.gob.es/portal/site/MICINN/menuitem.7eeac5cd345b4f34f09dfd1001432ea0/?vgnextoid=c7d1f84d1c3d0710VgnVCM1000001d04140aRCRD

- **UK**

Diamond protease and fragment data

The Diamond Light Source is a synchrotron facility that notably investigates protein structures and properties. During the coronavirus pandemic, data have been generated on protein targets and fragments, all of which have been made publicly available.

https://www.diamond.ac.uk/covid-19/for-scientists/Main-protease-structure-and-XChem.html

- **USA**

Folding@home service

It is a distributed computing project for simulating protein dynamics, including the process of protein folding and the movements of proteins implicated in a variety of diseases. It brings together citizen scientists who volunteer to run simulations of protein dynamics on their personal computers. Insights from this data are helping scientists to better understand biology, and providing new opportunities for developing therapeutics.

https://foldingathome.org/2020/02/27/foldinghome-takes-up-the-fight-against-covid-19-2019-ncov/

MIT Open Source Ventilators

MIT like other universities has launched a competition for the best open-source ventilator design. Aim is to contribute to alleviate hospital shortages.

http://news.mit.edu/2020/ventilator-covid-deployment-open-source-low-cost-0326

National Center for Advancing Translational Sciences (NCATS)

The National Center for Advancing Translational Sciences (NCATS) has generated datasets created from the screening of SARS-CoV-2-related assays against FDA-approved drugs and anti-infectious agents.

https://ncats.nih.gov/

II. Open Science and Open Innovation initiatives focusing or involving SSH research

1. Publication

1.1. Journals and e-books

1.2. Preprints and discovery platforms

- **PsyArXiv**

A free preprint service for the psychological sciences
Maintained by The Society for the Improvement of Psychological Science

A lot of preprints that relate to COVID-19, like among many others:
Van Bavel et al. (2020) Using social and behavioural science to support COVID-19 pandemic response PsyArcht Preprints (https://psyarxiv.com/y38m9)
https://psyarxiv.com/

- **ScienceOPEN** (DE)

ScienceOpen is a discovery platform with interactive features for scholars to enhance their research in the open, make an impact, and receive credit for it.
"On ScienceOpen we have begun to gather publisher collections of coronavirus literature together with a daily update of new preprints and articles in this super collection to highlight the carefully vetted publications produced by some of the world's top academic publishers.
The ScienceOpen platform allows you to search within this growing resource, filter by preprint or open access, sort by date, citation number or Altmetric score. Researchers can share with one click, recommend or review articles to help us all improve this growing body of knowledge."
https://www.scienceopen.com/collection/Coronavirus

- **SocArXiv**

SocArXiv, open archive of the social sciences, provides a free, non-profit, open access platform for social scientists to upload working papers, preprints, and published papers, with the option to link data and code.

A lot of preprints relate to COVID-19.

https://osf.io/preprints/socarxiv

1.3. Open repositories and hubs of COVID-19 literature, including (but not necessarily limited to) Open Access outputs

- **COVID-19 - Social Science Research Tracker** (USA)

Maintained by J. Nathan Matias (Cornell University, Communication) and Alex Leavitt (Facebook Research, Health Integrity).

"Social scientists have an important role during a pandemic. We can do this much better through cooperation. This international list tracks new research about COVID 19, including published findings, pre-prints, projects underway, and projects at least at proposal stage."

https://github.com/natematias/covid-19-social-science-research

- **COVID19 - Social Science Research** (DE)

Curated by Flávio Azevedo - University of Jena (IfKW).

https://docs.google.com/document/d/1Ehuw_W8aYPThH33um_mLLZ9dKx4W0LXIxxX2-g9pjH4/edit#

- **EGENIS Reading list on COVID-19**

Curated by EGENIS, the centre for study of life sciences at Exeter University (http://socialsciences.exeter.ac.uk/sociology/research/sts/egenis/), with a special focus on the sociological responses/implications of the epidemic. With a diversity of resources beyond scholarly outputs. Reading lists are chosen according to the direction of discussion.

http://socialsciences.exeter.ac.uk/sociology/research/sts/egenis/coronavirus/

- **The Guild reading list** (EU)

Humanities research which is relevant in pandemic times. A reading list of research made by researchers from The Guild, a European network of research universities.

https://www.the-guild.eu/news/2020/humanities-in-pandemic-times.html

- **INED (Institut national d'études démographiques)** (FR)

Health Crisis and Containment: The Contribution of Demography and Population Sciences
INED's researchers and research engineers are working to provide answers to questions that relate to a broad scope of COVID-19 related issues. The website provides access to research projects that relate to demography, economics, history, geography, sociology, anthropology, statistics, biology and epidemiology. This is to be considered as a first inventory of the research conducted at INED on regard to the pandemic.
https://www.ined.fr/fr/ressources-methodes/etat-de-la-recherche/covid-19/

- **ISIDORE selection of papers** (FR)

A selection of recent SSH research on the effect of coronaviruses and more broadly epidemics on human societies.
Isidore is a platform and a search engine allowing research and access to digital and digitized data from research in the humanities and social sciences developed by the Huma-Num infrastructure.
https://tinyurl.com/rwmks6n

- **Inventory of social science research by the French network of Maison des Sciences Humaines (MSH, Houses of Human Sciences)** (FR)

The House of Human Sciences of Paris-Saclay is committed, in coherence with the orientations of the CNRS and the national network of the MSH, to contribute to the inventory of social science activities on the Covid 19 pandemic and containment, as well as to encourage reflection on their social, economic and spatial impacts.
http://msh-paris-saclay.fr/shs-face-au-covid-19/

- **Open tours inside Museum (in Italian)** (IT)

- **OPERAS Beyond Covid-19** (FR)

Beyond Covid-19 is an open access reference library of humanities and social sciences research to support the better understanding of the major changes that societies around the world are experiencing as a result of the Covid-19 pandemic.
Beyond Covid-19 accumulates reading notes which summarize in an accessible way the content of selected publications and further establish their relevance in the current context. The open access reference library is complemented by a Zotero library where bibliographic references of selected publications are stored.
https://operas.hypotheses.org/4084

- **Salone del libro di Torino (www.salonelibro.it)** (IT)

The event is open with free access to the books

- ***Science as Culture* STS resources on coronavirus**

Curated by *Science as Culture* Journal (https://www.tandfonline.com/toc/csac20/current)
https://docs.google.com/spreadsheets/d/1TJjIKBw1OQ21xxRvT4XkOBiSWg6m-eu-/edit#gid=1003933674

- **The Social Science in Humanitarian Action Platform (UK)**

"The platform aims to establish networks of social scientists with regional and subject expertise to rapidly provide insight, analysis and advice, tailored to demand and in accessible forms, to better design and implement the social and communication dimensions of emergency responses."
It includes a website to consolidate open access resources.
Links are also provided to other resource portals and relevant networks.
https://www.socialscienceinaction.org/update-novel-covid-19-outbreak/

- **The Syllabus (**https://the-syllabus.com/**) essential reading on COVID-19**

A special Covid-19 daily newsletter with a diverse list of articles, podcasts and videos, selected from tens of thousands of international sources – including but not restricted to academic articles - available in six languages.
https://the-syllabus.com/coronavirus-readings/

- **World Pandemic Research Network (WPRN)**

The World Pandemic Research Network (WPRN) maintains a searchable global directory of the scientific resources available on the societal and human impacts of the Covid-19 pandemic.
WPRN presents itself as "the first global, real-time directory of research & research resources on the societal and human impacts of the Covid-19 pandemic, supported by scientific societies, networks and institutions worldwide.
https://wprn.org

- **Jochem Zuijderwijk (Centre for Science and Technology Studies of Leiden University)'s list of references beyond biomedical and epidemiological expertise**

https://leidenmadtrics.nl/articles/broadening-the-perspective-on-covid-19

1.4.Blogging

1.4.1. Individual blogs

- **Paul Jorion** (anthropology, cognitive sciences) (BE)

Paul Jorion (born 22 July 1946 in Brussels) is by training an anthropologist, sociologist with a special interest in the cognitive sciences. He has also written seven books on capitalist economics.
https://www.pauljorion.com/blog/tag/coronavirus/

- **Olivier Klein** (social psychology) (BE) (in French)

http://nous-et-les-autres.blogspot.com/

- **Brigitte Nerlich** (science communication) (UK)

Brigitte Nerlich is Emeritus Professor of Science, Language and Society at the University of Nottingham. The blog posts collected here were initially written as part of the Making Science Public project, funded by the Leverhulme Trust. Some posts also dealt with topics related to projects funded by the ESRC, EPSRC, BBSRC and AHRC. Most of these projects are finished now, but Brigitte is continuing to write blog posts on matters relating to current development in science and science communication.
https://wakelet.com/wake/201b93ed-5f55-46c0-9148-26cb11c4c812

1.4.2. Collective blogs

- **Carta Academica (collective of academics, mostly but not exclusively from the SSH, that wish to engage more in public debates)** (BE)

Collaboration with *Le Soir* (quality newspaper in Belgium) to publish chronicles in Open Access and organize public (on line) debates, notably about social, psychological and economical consequences of the pandemic.

- **Collective blog from Belgian sociologists about the impact of COVID-19 on society** (BE)

https://blogs.mediapart.fr/plis/blog/170420/documenter-les-plis-de-covid-19-quelques-notes-propos-du-coronavirus?utm_source=facebook&utm_medium=social&utm_campaign=Sharing&xtor=CS3-66&fbclid=IwAR2w-6roxM5b_VjIW2lvOH-LnLJSTUN2T0KbRLNuaEXrwP7bvhfhW0mLerk

- **CRIA (PT)** (in Portuguese)

CONFINARIA - Etnografias em Tempos de Pandemia is a proposal of CRIA's Science Communication that consists of a collective blog where reflections and experiences about the times lived in the context of a pandemic caused by COVID-19 are shared, and that will serve for future memory and retrospective appreciation of these exceptional times.

The Centro em Rede de Investigação em Antropologia (CRIA) is an inter-university unit that has existed since 2007 as an R&D unit of FCT and was rated Very Good in the international evaluations of R&D Units in 2007 and 2013.

https://confinaria.hypotheses.org/

- **The New Teach311 + COVID-19 Collective**

Teach311 + COVID-19 is a collective of educators, researchers, artists, students and survivors spanning disciplinary and linguistic boundaries who study and teach about disasters. Our collaborative process encourages empathetic inquiry into the past, and shares those stories for the future.

https://www.teach311.org/

1.5.Policy initiatives

2. Other European or international level initiatives

- **CESSDA and CLARIN ERICs**

  Through their involvement in the H2020 project SSHOC those 2 ERIC Research Infrastructures also have ongoing COVID-19 activities.

- **CESSDA**

  Work on updating the thesauri and ontologies with COVID (related) terminology - this offers all service providers a consistent way for describing the data.

  Within CESSDA a special envoy, Helena Laaksone, coordinates on (other) COVID-19 activities.

  CESSDA in contact with EOSC-Life/Elixir (Niklas Blomberg) to seek cooperation on COVID-19 data (if the INFRAEOSC-03 proposal gets granted).

  In the EOSC Executive Board Workplan CESSDA gives an example on how to build the social science part of the COVID-platform (and to connect with the EMBL one).

ESSurvey, SHARE and other European data surveys, and CESSDA have submitted an EC proposal to set up a survey design platform that would be COVID-proof (and also be much more efficient in general).

- **CoAct! project**

  The CoAct! project (funded in SwafS Citizen science call) is a project focused on Citizen Social Science, that is, methodologies of Citizen Science applied to SSH (Citizen Social Science as a participatory research co-designed and directly driven by citizen group that shares a social concern). In this project, the methodology is applied to Mental Health Care, Youth employment, Environmental Justice and Gender Equality, not specifically COVID issues (it is older than that). But methodology could be scalable.
  https://cordis.europa.eu/project/id/873048

- **European Covid-19 Data Platform and Portal**

  European COVID-19 Data Platform (see above) intends to link omics and clinical data with relevant SSH data.

- **European University Institute (EUI) Covid-19 Knowledge Hub**

  "The COVID-19 SSH Data Portal is intended to aggregate information, in the form of rich metadata description, about past, current and future datasets produced by the SSH research communities and provide in a first instance basic services like unified search and discovery, thematic browsing, and direct links to the repository landing pages where datasets can be accessed and/or downloaded.

  One of the key services that the project intends to develop is the ability to merge datasets from several sources; in keeping with the open-access nature of the portal, both the original data and the source code for the programmes that carry out the merger would be available for download so that researchers can inspect the algorithm used for the merger and make modifications if desired."
  https://covid19.eui.eu/About-the-Data-Portal

- **SHARE and ESSurvey ERIC**

  Work in progress to integrate COVID-19 related modules into the current and coming waves of the SHARE (Survey of Health, Ageing and Retirement in Europe: http://www.share-project.org/home0.html) and ESSurvey ERIC surveys.

- **UNESCO SSH answer to Covid-19 Crisis (27 April 2020)**
  For UNESCO, this COVID crisis is also social because it intensifies pre-existing inequalities. This crisis requires new social knowledge that will enable States to better understand the underlying causes and thus adjust their policy responses.
  UNESCO wishes to reaffirm its role as a laboratory of ideas and to support States in their responses by focusing its responses in the social and human sciences (SHS) on four areas: producing SHS knowledge; thinking about the world afterwards; combating discrimination and strengthening the ethical dimension of science.
  In addition, UNESCO wants to mobilize youth in the search for solutions through the "Youth are Researchers" Citizen Science initiative. The project will collect and consolidate knowledge and data on, by and with young people around a series of key issues related to the COVID-19 crisis (e.g. inequality and discrimination). The project will examine the impact of the crisis on young people (especially young women - out of school or unemployed as a result of the crisis), and how they affect or trigger resilience. The project - developed in collaboration with UNESCO Chairs (from the Universities of Galway - Ireland and Penn State - USA) - will provide a basis for skills development and virtual mobilization of young people for data collection and analysis. The initiative will build on the #YouthOfUNESCO storytelling campaign entitled MY COVID-19 STORY which invites young people to tell their experiences in the context of COVID-19.

3. Other national level initiatives

- **AT**

COVID-19 Social Data Austria

A spreadsheet of Austrian social science research on the coronavirus pandemic (work in progress)
https://t.co/WmwWSpndUe?amp=1

Everybody for Everybody

IST Austria starts Corona Diary as Citizen Science Project. The Institute of Science and Technology Austria (IST Austria) is initiating an interdisciplinary Citizen Science project to collate and analyze data on social interactions during the Corona crisis.
https://ist.ac.at/en/news/ist-austria-starts-corona-diary-as-citizen-science-project/

https://openinnovation.gv.at/portfolio/uni-innsbruck-hyve-crowd-crowd-contest-angenehmes-und-sicheres-reisen-in-zeiten-von-corona/

University of Innsbruck Austrian Tourism Industry (AU)

University of Innsbruck to find solutions for the Austrian tourism industry to deal with the new Covid-19 situation.

https://openinnovation.gv.at/portfolio/uni-innsbruck-hyve-crowd-crowd-contest-angenehmes-und-sicheres-reisen-in-zeiten-von-corona/

https://corona.zukunft-tirols.at/contest/151/contribution

- **BE**

SSH researchers' recommendations on societal exit from lockdown

A collective of Belgian (both from Wallonia and Flanders) SSH researchers has drafted an openly accessible collection of academic and critical/reflexive original papers on the topic of the COVID-19, specially targeted at policy makers.

https://07323a85-0336-4ddc-87e4-29e3b506f20c.filesusr.com/ugd/860626_731e3350ec1b4fcca4e9a3faedeca133.pdf

- **DE**

The SSH community in Germany is eager to contribute to the public debate on Covid-19 from different perspectives: psychological, sociological, historical, data driven…

Here are some links to respective websites:

- https://www.gesis.org/gesis-panel/coronavirus-outbreak/call-for-fast-track
- https://www.econbiz.de/eb/en/news/research-in-times-of-corona/
- https://www.wzb.eu/en/research/corona-und-die-folgen
- https://www.ratswd.de/themen/corona-calls
- https://blog.prif.org/reihen/corona-krisen/
- https://dynamore-project.eu/?fbclid=IwAR1iy61UuU4U-lSD7_MX44Zh1I3f73ppnXcDObBEfaYocdTrpz2juu8YJlQ

- **ES**

Monitoring of psychological impact of COVID-19

Project for real-time monitoring of the psychological impact of the coronavirus crisis on the Spanish population

http://www.covidaffect.info/

- **NL**

SSH COVID-19 portal

The SSH COVID-19 portal aims to organize SSH expertise from Dutch universities through a public platform. This portal provides fast and direct access to academic experts.

https://ssh-covid19.nl/

- **UK**

Epidemic Response Anthropology Platform (ERAP)

The Epidemic Response Anthropology Platform (ERAP) is a resource to support a humane and effective response to epidemics.

"Our aim is to promote evidence on the social dimensions of epidemics in different contexts and to improve the way this evidence is used in response planning. We work with, and build, networks of anthropologists and other social scientists with regional or subject expertise and connect them to policy makers, scientists and humanitarian response workers involved in responding to outbreaks."

"ERAP is a partnership between the Institute of Development Studies and the London School of Hygiene & Tropical Medicine. It is supported by the UK Public Health Rapid Support Team which is funded by the UK Government."

https://www.epidemicresponse.net/