Science, technology and innovation: how co-ordination at home can help the global fight against COVID-19

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Key messages

- The urgency of tackling COVID-19 has led governments in many countries to launch a number of short-notice and fast-tracked initiatives (e.g. calls for research proposals). Without proper co-ordination amongst ministries and agencies, they run the risk of duplicating efforts or missing opportunities, resulting in slower progress and economic inefficiencies.
- In the government-wide crisis response infrastructure to the pandemic, countries have different modes and levels of engagement amongst research and innovation policy makers. Beyond the provision of scientific advice, ensuring the buy-in and mobilisation of the STI community is key.
- Governments can learn from each other to improve the strategic co-ordination of different policy bodies related to COVID-19 research and innovation. For example, several have already joined up activities across STI policy silos, ranging from whole-of-government plans, to joint calls for research and innovation proposals, to integrated programmes, to joint online portals.
- Collective solutions that provide a 'one-stop shop' for the centralisation of information on funding opportunities can help ensure that appropriate conditions for collaborative research and sharing of preliminary research findings and data are in place to reap their full benefits.
- Beyond short-term policy responses to COVID-19, several ongoing mission-oriented research and innovation policies could help tackle future pandemics on a national or international scale.
- Joining forces and sharing information at the national level also eases and supports international co-operation initiatives. National co-ordination of STI policy responses can also benefit from joining forces with international research co-operation platforms and initiatives, such as those supported by the Global Research Council and the European Commission.

National STI policy co-ordination is critical, more so during a global pandemic

Governments around the world are searching for fast and effective policy responses to the COVID-19 crisis, and for effective ways to co-ordinate the flurry of research and innovation initiatives emerging from various policy areas. In the face of a public health emergency, countries have justifiably prioritised policy support to research and innovation diagnostics, treatments, vaccines and effect mitigation (including social and economic effects). Greater policy co-ordination can make these initiatives more effective.

The virtues of policy co-ordination are well known and widely accepted. Whole-of-government co-ordination mechanisms – within and across levels of government – are essential to resolving discrepancies between sectoral priorities and policies, and promote coherent and mutually supporting actions across sectors and institutions by concentrating resources towards common objectives. Yet policy co-ordination and coherence remains one of the oldest and most prevalent challenges for governments, and it has become even more difficult in the face of multi-dimensional systemic problems such as climate change, aging societies, or indeed a pandemic.

Two factors make policy co-ordination especially challenging during the COVID-19 crisis:

- **Uncertainty**: Despite a wealth of information and scientific advice, there is still no consensus on how the virus spreads and how it may be treated, and even less is known about potential vaccines. Policy makers must therefore take decisions amid changing – and at times conflicting – evidence.
- **Urgency**: When faced with an urgent need to act, as is the situation with COVID-19, decision makers across all sectors tend to take actions without sufficient consultation or exchange of information. Many research and innovation actors have reoriented some of their previously funded activities towards COVID-19, but often with little guidance from policy makers.

Yet, greater policy co-ordination within governments can enhance responses to COVID-19 by limiting the duplication of efforts, ensuring a sufficient scale of efforts, enabling a wider and more sustainable exploration of potential solutions, and by providing greater visibility to initiatives that offer funding for COVID-19. Indeed, governments could expect the following benefits from more proactive and intentional STI policy co-ordination in the context of the current crisis:

- **Reduced duplication of effort among COVID-19 initiatives**. The urgency of tackling COVID-19 has led governments in many countries to launch a number of short-notice and fast-tracked initiatives (e.g. calls for research proposals). Without proper co-ordination amongst ministries and agencies, they run the risk of duplicating efforts or missing opportunities, resulting in slower progress and economic inefficiencies.
- **Wider and more sustainable exploration of potential solutions to COVID-19**. In a context of high uncertainty regarding the potential effects of a large number of pathogens and candidate therapeutics, vaccines and diagnostics, scientific and technological efforts can converge too rapidly towards a small set of solutions that demonstrate early encouraging results, to the detriment of alternative options with possible greater potential impact (situation of premature 'dominant design').
- **Greater clarity and visibility of potential funding opportunities for initiatives addressing COVID-19**. The flurry of initiatives launched by different institutions to combat the COVID-19 pandemic hinders the legibility of the funding landscape for research and innovation performing actors. Co-ordination to centralise the information on funding opportunities allows a more efficient allocation of resources among projects, research teams and funders.
- **Consistent support across all components of the STI system**. The STI system is not only a source of potential solutions to the COVID-19 crisis, it is also deeply impacted by economic disruptions brought on by the virus. Holistic co-ordination allows a more comprehensive understanding of the

consequences of the COVID-19 crisis on all the components of STI systems and, therefore, more effective and relevant policy responses.

- **Enhanced opportunities for co-operation and exploitation of results**. Many of the funded research and innovation initiatives launched rapidly after the outbreak of the pandemic under streamlined procedures will produce results in the next two to six months. A lack of co-ordination at the national and international level on numerous initiatives launched by different institutions to combat COVID-19 could result in notably reduced co-operation and exchanges of data and results between funded projects, limited interoperability, as well as lower data quality and interpretation.
- **More efficient allocation of budgetary resources between STI priorities**. There is currently a great deal of political and societal pressure to make every effort to combat the virus, which could risk excessive, "top-down" concentration of STI budgets on COVID-19 to the detriment of planned investments in other areas (including other diseases).

As has been shown by numerous *OECD Innovation Policy Reviews*, there are several ways to achieve co-ordination of STI policies, from the most top-down strategic co-ordination led by a Cabinet office (as is the case in Japan, for example) to co-ordination at the agency level (as in Norway). There is no single best approach to these governance structures, and co-ordinating STI activities to tackle COVID-19 must be adapted to each country's specific institutional setting. This brief highlights select national efforts that countries have undertaken to better co-ordinate STI policy responses to COVID-19; it does not endeavour to address international efforts.

What countries are doing to co-ordinate STI policy responses to COVID-19

Co-ordinating STI policy with other policy fields

While many countries have rightly allowed health authorities to lead the initial response to COVID-19, various cross-sectoral mechanisms have been established to co-ordinate actions with other ministries. These bodies have different activity portfolios aimed at containing, delaying, and mitigating the virus, depending on the country's strategy and its current public health situation. Research and innovation communities support the decision-making process in these policy frameworks by providing essential scientific advice.

Following previous pandemics, the **World Health Organization** requires member states to have a governance structure and plan for addressing pandemics; **European Union** members are under a similar obligation. A whole-of-government approach, involving multi-sector and multi-partner co-ordination mechanisms, is a key pillar of the guidelines and resources developed to help countries build their national "preparedness and response" plans.

Many countries have also established specific governance structures and initiatives to co-ordinate activities within the STI system itself, particularly to reduce silos between authorities overseeing research, innovation and heath policies. These efforts vary in scope and focus, from collaborative networks and working groups, to joint calls for research or innovation proposals and integrated programmes. Some initiatives include:

- **Ireland's** National Action Plan is taking a cross-government approach to tackling COVID-19 by creating an action framework with a dedicated cross-cutting area on the capacity of the research community to support immediate decision making. Efforts include a dedicated research programme with experienced evidence synthesis centres, support for Irish researchers funded by the European Commission, and a call for funding agencies to collaborate on a rapid-response research call.
- In **South Africa**, an inter-ministerial research sub-committee has been created under the National Command Council to co-ordinate a national framework for research on COVID-19. It is tasked with mobilising funding across agencies, reprioritising research strategies and creating an enabling ethical and regulatory framework to facilitate research on the COVID-19 virus.

- **Brazil** created the MCTIC Virus Network that includes representatives of several ministries and funding agencies. It aims to help ministries integrate research and innovation efforts related to COVID-19, define relevant research priorities, and develop technologies to assist Brazil in facing emerging viruses.
- In **Canada's** Quebec province, the Fonds de Recherche du Québec (FRQ), the Ministry of Economy and Innovation, and the Ministry of Health and Healthcare formed a working group to co-ordinate their responses to COVID-19. In addition, the FRQ created the Québec COVID Network to bring together institutions engaged in COVID-19 research to prioritise actions and accelerate discoveries, notably through the promotion of interdisciplinary collaborations.

Co-ordinating COVID-19 research initiatives

Joint calls for proposals are commonly used when two or more research agencies or councils pool resources to solicit and select proposals. In many cases the partners use simplified and accelerated procedures. These joint initiatives typically cover shorter research horizons, with results expected in 3 to 12 months, and are used to support later stages of the innovation process – for example, developing and rapidly manufacturing new technologies and services for detection and treatment. Such collaboration allows for a more consistent approach to funding and allocation, avoiding duplication and potential gaps, and allowing for greater scale and scope.

Some examples of countries co-ordinating policy implementation in the COVID-19 crisis include:

- In **Austria**, the Ministry of Digitalisation and Economy and the Ministry for Climate Action, Environment, Mobility, Innovation and Technology jointly launched a call for COVID-19 to support applied research on tests, vaccines and medication against COVID-19.
- In **Ireland**, the Science Foundation Ireland, Enterprise Ireland, and IDA Ireland have collectively launched the COVID-19 Rapid Response Research and Innovation Funding Programme to support the development of innovative solutions that can have rapid demonstrable impact on the current COVID-19 crisis in the country. This integrated call is open to all public or private organisations, irrespective of their disciplines and type of project. Further to a common selection process, the funders jointly decide what institution would finance which project. Moreover, this call is co-ordinated with another joint calls by the Health Research Board and the Irish Research Council.
- The **Israel** Innovation Authority, the Ministry of Health and the Headquarters of the Digital Israel Initiative at the Ministry of Social Equality issued joint calls for proposals from Israeli technology companies on developing, testing and implementing systems, products or technological solutions to combat the COVID-19 pandemic.
- In **Italy**, the Government launched an Innovation for Italy programme managed by three ministries and the national development agency. Using a common platform to collect "calls to action", the programme invites companies, universities, and research institutions to contribute to the development and production of devices for the prevention, diagnosis and monitoring of COVID-19. Under this initiative, the government brings together their competencies and procurement power to select and acquire relevant innovative equipment, technologies and tools.
- In the **United States**, the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) public-private partnership aims to develop a co-ordinated research strategy to prioritise and speed development of the most promising treatments and vaccines. This initiative is led by the National Institutes of Health, together with other relevant US agencies, the European Medicines Agency, philanthropic organisations, and biopharmaceutical companies. Dedicated governance bodies (executive committee, working groups on specific co-ordination issues) co-ordinate the work of the initiative.

In the longer run, more comprehensive approaches will be needed to successfully tackle COVID-19 and prevent future pandemics. Countries have increasingly experimented with so-called "mission-oriented innovation policies" (MOIPs), including in the health area. This policy approach involves implementing a co-ordinated

package of research and innovation policy and regulatory measures tailored to address specific objectives in a defined timeframe. These measures span different stages of the innovation cycle, mix supply-push and demand-pull instruments, and cut across various policy fields.[1] This is the case in Japan for instance, where a newly established Moonshot R&D Program aims to solve six "Moonshot goals", including one dedicated to the development of ultra-early disease prediction and intervention by 2050. In Australia, the Genomics Health Future's Mission (GHFM) aims to save or transform the lives of more than 200 000 Australians by 2030 through genomic-based testing, diagnosis and treatment. Endowed with AUD 500 million over ten years, the GHFM co-ordinates the activities of different sectoral, federal and territorial public authorities, as well as other public and private entities in healthcare. Research studies on pathogen genomics have been funded in the past, and more recently on COVID-19.

While most MOIPs are strictly national, they would be most effective on an international scale within the context of COVID-19.

Co-ordinating efforts to communicate about funding opportunities

To complement these initiatives, governments have invested in improving the visibility of different funding opportunities. These initiatives include inventories and maps of relevant STI projects, as well as various online platforms and portals that list all relevant information on COVID-related STI activities. Better collection and dissemination of such information facilitates formal and informal co-ordination, thereby avoiding duplication, while also fostering potential co-operation between researchers. Some examples of these types of initiatives include:

- The **European Commission** has launched the European Research Area (ERA) corona platform, a one-stop shop for information on coronavirus research and innovation funding (calls, funded projects, etc.). The platform also includes a dedicated area for national activities.
- In **France**, the REACTing consortium is a multi-disciplinary collaborative network of French research institutions with the dual mission to increase research preparedness for future epidemics and co-ordinate research during epidemics. It notably monitors and encourages data sharing, promotes good practices and standardisation of data collection, and co-ordinates and brings together the French research actors on COVID-19.
- In **Italy**, The Ministry of University and Research has launched a mapping activity to collect information about all ongoing COVID-19 research projects in universities and public research institutions in order to reduce fragmentation and prevent unnecessary duplication.
- In **Luxemburg**, the Fonds national de la recherche (FNR) has partnered with leading research institutions to launch a national COVID-19 platform. The platform allows researchers to submit new project ideas, browse and discuss ongoing projects and proposals, and review the latest COVID-19 literature.
- In **Portugal**, the Foundation for Science and Technology and the Agency for Clinical Research and Biomedical Innovation partnered with public and private health authorities and scientific research institutions to develop the "Science 4 Covid-19" portal. The portal brings together ideas, publications, funding opportunities and other ongoing actions, as well as information on relevant research capacity.

[1] See OECD project on the design and implementation of Mission-oriented innovation policies.

Further reading

OECD (2020), "OECD Survey on Science and Innovation Policy Responses to Coronavirus (Covid19)", web page, OECD, Paris, https://stip.oecd.org/Covid.html.

OECD (2020), *Community platform of the OECD project on mission-oriented innovation policies to address societal challenges*, OECD, Paris, https://community.oecd.org/community/cstp/mission-oriented-policies.

OECD (2018) *Scientific Advice during Crises: Facilitating Transnational Co-operation and Exchange of Information*, OECD Publishing, Paris, https://doi.org/10.1787/9789264304413-en.

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