



The Case for a New International Accord on Diffusing Innovations and Building Technological Capacity

By Christine Oughton

Summary

To overcome major global challenges such as COVID-19, rising inequality, and the climate crisis, serious efforts are needed to build innovation and technological capacity, quickly diffuse technological know-how, and extensively expand productive capacity in low and middle-income countries. In short, a new international accord on innovation diffusion and technological capacity should be created. Such an accord could lay the groundwork for a more equitable COVID-19 recovery, leveling the global economic playing field and supporting Africa's technological industrial revolution. Recent research on innovation systems in low, middle, and high-income countries shows how it can be done.¹

Thematic Context

Innovation and technical progress have long been held out as antidotes to inequality. Given time, so the theory goes, technologies will diffuse throughout society, catalyzing economic development and promoting convergence in real living standards across countries. So why are we still waiting for technological progress to deliver economic equality? The hard fact is that innovation and technology diffusion are not easy. They are easier in *use*—for example, consumers buying and using mobile phones—than in *production*. But *use* without *production* capability fosters inequality. And therein lies the problem.

COVID-19 has shone a much-needed light on two fundamental economic dilemmas that plague knowledge production and diffusion: the *tragedy of the commons* and the *patents paradox*. If not well managed, these two problems curtail economic development and impose significant costs on society.

In the case of vaccine technology, the fortunes of all countries are interdependent as no single country is protected until *all* countries are protected. Widespread and equitable distribution of vaccines is necessary. Uneven distribution—where the UK, for example, has enough doses on pre-order to vaccinate everyone 10 times over, while other countries have close to zero—will not solve the global public health crisis. Moreover, the virus is mutating, and vaccines will almost certainly have to be modified—and possibly administered to everyone, every year.

Innovation's Contribution

Harnessing innovation is the only way to tackle today's biggest threats. Climate breakdown, zoonotic pandemics, and extreme inequality will not right themselves. Now more than ever, the technology—and the understanding on innovation diffusion—is available to transform societies for the better, but the *tragedy of the commons* gets in the way. For example, it is in humanity's collective interests to drastically cut pollution and carbon emissions to address global warming. But self-interested firms,

investors, and countries have an incentive to dodge accountability for the negative externalities of their economic activities and avoid the higher costs associated with transitioning to clean industrial production, effective recycling models, and low-carbon economies. This explains why there has been much talk, but little action.

The tragedy of the commons also applies to economic expansion that encroaches on the natural world, forcing animals and humans to live in closer proximity, increasing the risk of zoonotic diseases that jump across species.² The private profits from such activity do not reflect the social and economic costs of the rising risks of pandemics, which are now measured in millions of lives and trillions of dollars. In the case of climate, measuring the loss of life attributed to emissions is harder, but estimates show significant losses, with the highest burden falling on low-income and low-polluting countries.

How do we resolve the tragedy of the commons? Two things are critical. The first is to “govern the commons”³ in order to reduce or eliminate economic activity that damages common resources. The second is to diffuse innovations, such as zero carbon technologies and vaccines. This step requires a new international accord to build technological capabilities and vaccine production capacity in middle and low-income countries.

However, in the case of vaccines, the *paradox of patents*⁴—whereby to induce investment in innovation, it is necessary to prevent its diffusion—becomes a factor. By slowing down diffusion, patents undermine vaccine effectiveness. There is a compelling case to automatically waive patents for vaccines whose efficacy depends on a swift and comprehensive global rollout. Moreover, much of the investment in vaccine development comes from public funding and recent research shows that, given the costs of the pandemic, it is in the economic interests of rich countries to ensure vaccine diffusion to low-income countries.⁵ Failure to achieve rapid vaccine diffusion will simply prolong the pandemic-induced global recession, making rich countries poorer. But waiving patent fees and licensing technology is not enough. Without the technological capabilities and know-how to produce vaccines in low and middle-income countries, demand will continue to outstrip supply.

Recommendations

To successfully transfer technology and strengthen the global vaccine production capacity, a concerted effort is needed. It will not only help resolve the COVID-19 crisis but will also provide a blueprint for other global emergencies, most notably, climate breakdown. Steps to take include:

- **Waive patent fees and license technology for production** in low and middle-income countries. International Patent Law should be amended so license fees are automatically waived for anti-viral vaccines during a pandemic. There are few patents that would meet these criteria, so it would be easy to implement, and the waiver could be triggered whenever the WHO declares a pandemic.
- **Strike a new international accord**—led by the UN, World Bank and IMF in partnership with universities, research-intensive companies, trade associations and other organizations—to build technological capabilities in low and middle-income countries. This will ensure demand can be met for emerging technological solutions through expanding global productive capacity. Deepening international knowledge and technology transfer networks will speed up the rate of international innovation diffusion. To achieve this quickly, existing networks can be built upon—for example, the alliance between the African Research Universities Alliance (ARUA) and the Guild of European Research Intensive Universities,⁶ and existing international transfer models, such as the ERASMUS Scheme and the nascent Turing Scheme.

- **Catalyze public and private sector investment in innovation and diffusion and in technology transfer**, particularly in low-income countries. The development of vaccines shows just how high the economic and social returns on investment in research and development can be. Rich countries could also spur investment in by agreeing to cancel \$1 of debt for every \$1 invested in innovation capacity building in middle and low-income countries.
- **Step up efforts to govern the commons.** There are hopeful signs in the work of COVAX, GAVI and ACT, but resolving urgent global challenges requires redoubling efforts—and reimagining global institutions, most notably the UN World Health Organization and the Framework Convention on Climate Change.

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About the Series

Policy experts and researchers from the [African Center for Economic Transformation \(ACET\)](#) and the [Development and Economic Growth Research Programme \(DEGRP\)](#), in partnership with [ODI](#), explore the critical role of innovation in Africa's recovery from COVID-19. Essays identify areas in which innovation can contribute to effective responses and offer high-level policy recommendations.

Endnotes

1. Christine Oughton, Mikel Landabaso, and Kevin Morgan, "The Regional Innovation Paradox: Innovation Policy and Industrial Policy" (Journal of Technology Transfer, Volume 27–Issue 1, 2002); Bjorn T. Asheim, Helen Lawton Smith, and Christine Oughton, (2011) "[Regional Innovation Systems: Theory, Empirics and Policy](#)" (Regional Studies, Volume 45–Issue7, 2011).
2. Jane Goodall speaking at the UNESCO webinar on Great Apes and COVID-19 on June 3, 2020. Available online at: <https://en.unesco.org/news/great-apes-loss-biodiversity-and-covid-19-throwback-race-knowledge>.
3. Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press, 1990).
4. Joan Robinson, *The Accumulation of Capital* (Palgrave Macmillan Edition, 1956).
5. Cem Cakmakli et al, [The Economic Case for Global Vaccinations: An Epidemiological Model with International Production Networks](#) (NBER Working Paper 28395, April 2021).
6. "[Confronting our Common Challenges: a new Approach to Strengthening Africa's Research, Innovation and Higher Education Capacity](#)" (The Guild of European Research-Intensive Universities and African Research Universities Alliance, July 2020).

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