From moonshots to earthshots

To overcome the big crises of our time, we need a mission-oriented entrepreneurial state. The Apollo programme showed how this can work

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Covid-19 has exposed the myriad weaknesses of modern capitalism. And in many countries, past cuts to social services and public health have amplified the damage wrought by the pandemic, while other self-inflicted wounds to the state have led to inadequate policy coordination and implementation. Mass testing and tracking, production of medical equipment, and education during lockdowns have all suffered as a result.

By contrast, countries and states that have invested in their public-sector capabilities have performed much better overall. This has been most striking in the developing world, where Vietnam and the Indian state of Kerala stand out.

Instead of acting as investors of first resort, far too many governments have become passive lenders of last resort, addressing problems only after they arise. But as we should have learned during the post-2008 Great Recession, it costs far more to bail out national economies during a crisis than it does to maintain a proactive approach to public investment.

The state as investor

Too many governments failed to heed that lesson. Faced with another society-wide challenge, it is now clear that they have relinquished their proper role in shaping markets, allowing public institutions to be hollowed out through outsourcing and other false efficiencies. The retreat of the public sector has given way to the idea that entrepreneurship and wealth creation are the exclusive preserve of business – a perspective endorsed even by those who advocate 'stakeholder value.'

The original moonshot

In fact, the more we subscribe to the myth of

model offers insights and inspiration for pursuing 'earthshots' today.

private-sector superiority, the worse off we will be in the face of future crises. To 'build back better' from the current one, as US President Joe Biden's administration and many other governments have committed to do, will require renewing the public sector, not just by redesigning policy and expanding the state's organisational capabilities, but by reviving the narrative of government as a source of value creation.

As I explain in my new book *Mission Economy: A Moonshot Guide to Changing Capitalism*, landing a man on the moon required both an extremely capable public sector and a purpose-driven partnership with the private sector. Because we have dismantled these capabilities, we cannot hope to repeat earlier successes, let alone achieve ambitious targets such as those outlined in the Sustainable Development Goals (SDGs) and the Paris climate agreement.

How to replicate the Apollo programme on Earth

The Apollo programme demonstrated how a clearly defined outcome can drive organisational change at all levels, through multi-sector public-private collaboration, mission-oriented procurement contracts, and state-driven innovation and risk taking. Moreover, such ventures tend to create spillovers – software, camera phones, baby formula – that have far-reaching benefits.

The original moonshot model offers insights and inspiration for pursuing 'earthshots' today. For example, to achieve the 17 SDGs, we should transform each into several clearly defined missions that would lay the groundwork for more multisectoral, *bottom-up* innovation. A plastic-free ocean, for example, will require investment and innovation in areas as different as marine transport, biotech, chemicals, waste management, and design. That is what the Apollo programme did by sparking innovation in aeronautics, nutrition, materials science, electronics, software, and other areas.

A mission-oriented approach is not about government 'picking winners,' but about choosing directions for change – like a green transition – that require investment and innovation in many sectors. The full power of policy instruments should be used to create projects that elicit solutions from many different willing actors. NASA designed its procurement

contracts to focus on goals, while encouraging bottom-up solutions and including 'no excess profits' clauses and fixed costs, so that going to the moon involved sharing both risks and rewards. This is an important lesson for many governments that have suffered higher costs and lower quality from outsourcing.

An earthshot like a People's Vaccine

Earthshots have much in common with moonshots, but the two are not synonymous. Among their similarities, both require bold, visionary leadership from governments that have been properly equipped to 'think big and go big.'

Consider the Covid-19 vaccine. The collective spirit and outcome-driven approach to vaccine research and development last year recalled the Apollo programme. While technological breakthroughs can provide new tools, they are not necessarily solutions in themselves.

Earthshots require attention to political, regulatory, and behavioural changes. Safe and effective vaccines were created and tested in record time through public-private collaborations, with public investment proving absolutely crucial. But a disparity in vaccine acquisition between high-income and lower-income countries appeared immediately and has only deepened.

There is now a huge opportunity to pursue industrial policies beyond traditional sectoral and technological silos, and to restore mission-driven governance in the public interest.

When it comes to an earthshot like global vaccination, technological innovation is only as useful as its real-world application. 'Vaccine apartheid' – rather than a People's Vaccine – would constitute a moral and economic catastrophe. If pharmaceutical companies are serious about their stated support for the principle of stakeholder value, they should be sharing Covid-19 vaccine patents, data, and know-how through the Covid-19 Technology Access Pool, which remains unused.

A Green Renaissance for our planet

Governments, too, must truly embrace the principle of stakeholder value, which does not apply only to corporate governance. Public-private collaborations also must be governed in the public interest, and not repeat the failures associated with today's digital economy, which emerged in its current form after the state provided the technological

foundation and then neglected to regulate what was built on it. As a result, a few dominant Big Tech firms have ushered in a new age of algorithmic value extraction, benefiting the few at the expense of the many.

Technology alone will never solve social and economic problems. In applying the moonshot principle to complex challenges here on earth, policymakers must pay attention to myriad other social, political, technological, and behavioural factors, and capture a common vision across civil society, business, and public institutions.

Thus, earthshots must also involve extensive citizen engagement. Carbon neutrality, for example, must be designed with citizens where they live, such as social housing. By truly adopting an inclusive stakeholder approach, a mission can develop into a powerful civic platform and an engine of sustainable growth, as envisioned in calls for a Green New Deal, Health for All, and plans to bridge the digital divide.

These lessons could not be more relevant to the Biden administration, which will be able to tap the power of an existing entrepreneurial state comprising organisations like the Defense Advanced Research Projects Agency and the National Institutes of Health, which invests up to USD 40bn per year in drug innovation.

There is now a huge opportunity to pursue industrial policies beyond traditional sectoral and technological silos, and to restore mission-driven governance in the public interest. A modern industrial strategy aimed at a Green Renaissance, for example, would require all sectors – from artificial intelligence and transportation to agriculture and nutrition – to innovate and pivot in a new direction. President John F. Kennedy had his moonshot. Biden's mission is to bring it home.

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Mariana Mazzucato
London

Mariana Mazzucato is Professor of Economics of Innovation and Public Value and Director of the UCL Institute for Innovation and Public Purpose (IIPP). She is the author of *The Value of Everything: Making and Taking in the Global Economy*, which was shortlisted for the *Financial Times*-McKinsey Business Book of the Year Award.