“Lockstep” Written 10 years ago chronicles how to bring the world down with a pandemic | This report was produced by The Rockefeller Foundation

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Scenarios for the Future of Technology and International Development

https://youtu.be/pEpWMkOsNTw

EXCERPTS FROM THE PAPER

LOCK STEP

A world of tighter top-down government control and more authoritarian leadership, with limited innovation and growing citizen pushback

In 2012, the pandemic that the world had been anticipating for years finally hit. Unlike 2009’s H1N1, this new influenza strain — originating from wild geese — was extremely virulent and deadly. Even the most pandemic-prepared nations were quickly overwhelmed when the virus streaked around the world

“The United States’s initial policy of

“strongly discouraging” citizens from flying

proved deadly in its leniency, accelerating the

spread of the virus not just within the U.S. but

across borders. However, a few countries did

fare better — China in particular. The Chinese

government’s quick imposition and enforcement

of mandatory quarantine for all citizens, as well

as its instant and near-hermetic sealing off of

all borders”

China’s government was not the only one that took extreme measures to protect its citizens from risk and exposure. During the pandemic, national leaders around the world flexed their authority and imposed airtight rules and Restrictions, from the mandatory wearing of face masks to body-temperature checks at the entries to communal spaces like train stations and supermarkets. Even after the pandemic faded, this more authoritarian control and oversight

of citizens and their activities stuck and even intensified. In order to protect themselves from the spread of increasingly global problems — from pandemics and transnational terrorism to environmental crises and rising poverty — leaders around the world took a firmer grip on power.

At first, the notion of a more controlled world gained wide acceptance and approval. Citizens

willingly gave up some of their sovereignty — and their privacy — to more paternalistic states in exchange for greater safety and stability. Citizens were more tolerant, and even eager, for top-down direction and oversight, and national leaders had more latitude to impose order in the ways they saw fit. In developed countries, this

heightened oversight took many forms: biometric IDs for all citizens, for example, and tighter regulation of key industries whose stability was deemed vital to national interests. In many developed countries, enforced cooperation with a suite of new regulations and agreements slowly but steadily restored both order and, importantly, economic growth.

Across the developing world, however, the story was different — and much more variable. Top-down authority took different forms in different countries, hinging largely on the capacity, caliber, and intentions of their

leaders. In countries with strong and thoughtful leaders, citizens' overall economic status and quality of life increased. In India, for example, air quality drastically improved after 2016, when the government outlawed high-

emitting vehicles. In Ghana, the introduction of ambitious government programs to improve basic infrastructure and ensure the availability of clean water for all her people led to a sharp decline in water-borne diseases. But more

authoritarian leadership worked less well — and in some cases tragically — in countries run by irresponsible elites who used their increased power to pursue their own interests at the expense of their citizens.

> **There were other downsides, as the rise of virulent nationalism created new hazards:**

By 2025, people seemed to be growing weary of so much top-down control and letting leaders and authorities make Choices for them.

Wherever national interests clashed with individual interests, there was conflict. Sporadic pushback became increasingly organized and coordinated, as disaffected youth and people who had seen their status and opportunities slip away — largely in developing countries — incited civil unrest. In 2026, protestors in Nigeria brought down the government, fed up with the entrenched cronyism and corruption. Even those who liked the greater stability and predictability of this world began to grow uncomfortable and constrained by so many tight rules and by the

strictness of national boundaries. The feeling lingered that sooner or later, something would inevitably upset the neat order that the world's governments had worked so hard to establish. •

TECHNOLOGY IN LOCK STEP

While there is no way of accurately predicting what the important technological advancements will be in the future, the scenario narratives point to areas where conditions may enable or accelerate the development of certain kinds of technologies.

Thus for each scenario we offer a sense of the context for technological innovation, taking into consideration the pace, geography, and key creators. We also suggest a few technology trends and applications that could flourish in each scenario.

Technological innovation in "Lock Step" is largely driven by government and is focused on issues of national security and health and safety. Most technological improvements are created by and for developed countries, shaped by governments'

dual desire to control and to monitor their citizens. In states with poor governance, large-scale projects that fail to progress abound.

• Scanners using advanced functional magnetic resonance imaging (fMRI) technology become the norm at airports and other public areas to detect abnormal behavior that may indicate "antisocial intent."

• In the aftermath of pandemic scares, smarter packaging for food and beverages is applied first by big companies and producers in a business-to-business environment, and then adopted for individual products and consumers.

• New diagnostics are developed to detect communicable diseases. The application of health screening also changes; screening becomes a prerequisite for release from a hospital or prison, successfully slowing the spread of many diseases.

• Tele-presence technologies respond to the demand for less expensive, lower-bandwidth, sophisticated communications systems for populations whose travel is restricted.

• Driven by protectionism and national security concerns, nations create their own independent, regionally defined IT networks, mimicking China's firewalls. Governments have varying degrees of success in policing internet traffic, but these efforts nevertheless fracture the "World Wide" Web.

"WHAT IS OFTEN SURPRISING ABOUT NEW TECHNOLOGIES IS COLLATERAL DAMAGE: THE EXTENT OF THE PROBLEM THAT YOU CAN CREATE BY SOLVING ANOTHER PROBLEM IS ALWAYS A BIT OF A SURPRISE."

– Michael Free, Program for Appropriate Technology in Health (PATH)

TECHNOLOGY IN CLEVER TOGETHER

In "Clever Together," strong global cooperation on a range of issues drives technological breakthroughs that combat disease, climate change, and energy shortages. Trade and foreign direct investment spread technologies in all directions and make products cheaper for people in the developing world, thereby widening access to a range of technologies. The atmosphere of cooperation and transparency

allows states and regions to glean insights from massive datasets to vastly improve the management and allocation of financial and environmental resources.

Technology trends and applications we might see:

• Intelligent electricity, water distribution, and transportation systems develop in urban areas. In these "smart cities," internet access is seen as a basic right by the late 2010s.

• A malaria vaccine is developed and deployed broadly — saving millions of lives in the developing world.

• Advances in low-cost mind-controlled prosthetics aid the 80 percent of global amputees who live in developing countries.

• Solar power is made vastly more efficient through advances in materials, including polymers and nanoparticles. An effective combination of government subsidies and microfinance means solar is used for everything from desalination for agriculture to wi-fi networks.

• Flexible and rapid mobile payment systems drive dynamic economic growth in the developing world, while the developed world is hampered by entrenched banking interests and regulation.