

THE **FUTURE** OF **HEALTH WORK** IN **AFRICA:**

WHAT WILL IT LOOK LIKE IN 2040?

3 SCENARIOS TO HELP US PLAN

IntraHealth
INTERNATIONAL
Because Health Workers Save Lives.



THINKING ABOUT THE FUTURE IN THE ERA OF COVID-19

What good is thinking about an uncertain future?

IntraHealth researched and published *The Future of Health Work in Africa: What Will It Look Like in 2040?* months before the global coronavirus pandemic. We wanted to explore what health care—and the health workers that provide it—could look like in the coming decades, and to provide an example of how thinking strategically about various future scenarios can help governments, organizations, and individuals make choices that set them up for resilience and success.

The three scenarios we developed all consider infectious diseases, workforce issues, and globalization, along with other key forces of change. But now they have come to life in a way we weren't anticipating. How health workers might undergo training and operate on the job, and what challenges they might face at work during a major global health crisis are no longer hypothetical. They are happening in real time. And yet we still do not know how health work will change in the coming years.

The COVID-19 pandemic demonstrates that simple predictions of the future are not sufficient to prepare us for things to come. It is our hope that by studying these scenarios and embracing the practice of scenario planning in general, the global health community can build the foresight we need—for the immediate future as well as for the year 2040. With what we know now about the spread of coronavirus and how each health system has responded to the pandemic, we can talk about hypothetical future scenarios with gravitas—and an action-oriented mindset.



Polly Dunford

President & CEO, IntraHealth International

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INTRODUCTION

Africa's health work is dynamically evolving. Introduction of new diagnostic and treatment technologies, changing disease burden profiles, migration of the health workforce, and growth of for-profit healthcare providers are examples of shifts that are often discussed.

These trends and others are defining the landscape for health workforce development in sub-Saharan Africa. Despite innovations in policy, design, and execution, and the numerous initiatives underway to help countries move toward reliable, high-quality universal health coverage, many of these efforts are coming late in the game.

Too often we in the global development field find ourselves responding to changes in workforce needs, conditions, and supply only *after* they have exposed gaps in what we do. And too often, it takes years to diagnose the problem and execute the appropriate remedies. This leaves the field of workforce development in a persistent state of playing catch-up, leaving only limited time and resources for advancement.

ANTICIPATING FUTURE NEEDS

To better prepare for the inevitable surprises of the future, in spring 2019, IntraHealth International launched an initiative to research, explore, and sketch out a set of plausible futures for health work in sub-Saharan Africa, and by extension the future of health workforce development. The aim was to help the field plan **in anticipation of change** rather than at the mercy of it.

IntraHealth is publishing the results of this initiative as a way to start a sector-wide conversation about how workforce development may need to evolve over the next 20 years and to map out the types of strategies, structures, and capabilities that members of this field may need to offer.

IT IS DIFFICULT TO ANTICIPATE THE FUTURE

Consider the state of global health and development circa 2000. At that point, the United States was the unquestioned global hegemon (including over China, whose GDP was roughly one-ninth of the United States¹). Madeleine Albright called the US the “indispensable nation” as it guided a multilateral system seemingly destined for universal market democracy and globalized trade. AIDS was lessening in severity in rich countries but spreading rapidly in the Global South—Africa was home to two-thirds of all those infected.² The funding and administration for fighting communicable disease was a fraction of what it is today. “Technology” meant the Y2K bug and ill-conceived dot-com startups.

Since then, we’ve seen remarkable changes. Instead of a G8, we have a G20, and the influencers and stakeholders within the system are far more diverse. The influx of resources to fight communicable diseases from the Global Fund and the President’s Emergency Plan For AIDS Relief (PEPFAR) has defined the intervening years—and yielded underappreciated successes.

The Children’s Vaccine Initiative grew into GAVI. The Bill & Melinda Gates Foundation is now a major player in development. Pharmaceutical manufacturing has shifted to India with surprising speed and magnitude. Few saw—and even fewer predicted—the changes wrought by mobile connectivity and mHealth; Kenya’s leapfrog to banking-by-phone (M-Pesa) is globally famous, and technology is now a major driver of organizations that focus on improving human well-being. Another entirely new force, social media, has created demons of its own in the form of misinformation and coordinated violence.

Already, new shifts in demography, technology, politics, economics, and social dynamics are causing more change in the health sector. These include fast-growing African economies, global tech companies’ expanding interests in health, growing awareness of persistent gender inequity, and much more diverse influencers on and ideas about solutions for health. And as climate change endangers basic living conditions around the world, there is even greater urgency to respond in new, more dramatic ways.

Each of these shifts individually has the potential to rewrite the skills, tasks, and labor dynamics for health workers, and how they are trained.

THE INHERENT UNCERTAINTY OF THE NEXT TWO DECADES

It is tempting to try to predict what change will look like in the next 20 years. But even after factoring in the emerging social, technological, economic, environmental, and political trends, we cannot know what challenges and trade-offs lie ahead. The details of the future—the ones that matter on the ground—are still unwritten.

How important high-level questions play out will determine the exact mechanics and contingencies of health systems and thus, the conditions for the health workforce. For example:

- Between traditional donors, domestic governments, and a range of new influencers, who will shape the most critical decisions about health care policy and system design, and what trade-offs will they be willing to make?
- How strong will African governments be at managing the health labor market, either directly or indirectly?
- Who will control technology deployment and the data generated by digital health, and how will this affect how and where health care is provided?

As we explore the future, we must avoid latching onto a single prediction and using it to drive all our decisions. Instead, we must consider multiple futures. This is the role that scenario thinking plays.

USING SCENARIO THINKING TO NAVIGATE CHANGE

Scenarios are stories about the future that help us make better decisions today. These thoughtful hypotheses about how the conditions around us may change over time allow us to imagine, and then rehearse, different strategies for preparing for the future—or better yet, shaping it.

Scenarios are not singular predictions. Rather, they are vehicles to help us better understand, or even anticipate, how complexity and uncertainty could play out in very different ways—in this case, how factors influencing the health workforce in sub-Saharan Africa over the next 20 years might change.

These scenarios are based not only on current known trends, but also on the dynamics that might change these trends (sometimes referred to as “forces of change”).

Together, **a set of scenarios captures a range of future possibilities, good and bad, expected and surprising.** They require us to consider all of them as plausible worlds we might live in as we develop plans and contingent actions for our work.

HOW THE AFRICA SCENARIOS WERE DEVELOPED

To create the scenarios in this report, our team conducted in-depth interviews with diverse experts from within global health development (including workforce development) and experts from outside the health space (such as technologists, sociologists, political scientists, economists, and African futurists). The team surveyed existing secondary research on trends within the health workforce and within Africa generally.

The result is a list of “forces of change” that could meaningfully change the landscape for the health sector and workforce (see Appendix for selected list of forces). Through a series of facilitated workshops led by scenario-planning experts, these trends and

uncertainties were combined and synthesized in different formulations to sketch out a set of draft scenarios. The drafts were then reviewed by additional experts, updated based on their comments, and continuously evaluated on the following criteria:

- They **challenge** our current set of assumptions about the future.
- They **diverge** from one another, telling very different stories for how the future may unfold.
- They are **balanced**, presenting both positive and negative potential paths overall, and good and bad sides within a given scenario.
- They are **plausible** in that the logic and basis of each scenario are understandable, even if they do not seem equally likely at this moment.
- They are **relevant** to our core question about the health workforce, but not overly complex (that is, they do not attempt to address every health issue in the region).

USING THE SCENARIOS

Given the long time frame of 20 years and the many dimensions of uncertainty, acting proactively on these future scenarios will be speculative, adaptive, and multifaceted—sometimes uncomfortably so—and based on a portfolio of ideas and actions rather than a silver bullet.

This is where readers of this report come in. Scenarios are not just daydreams, they are maps for uncertain territory. If we in the health workforce development sector and beyond can develop a shared language for negotiating threats and recognizing opportunities, we can move faster and more effectively toward the futures we want in critical moments. But given the limits to what we can influence (for instance, climate change), we must also prepare contingencies that respond to scenarios we may not like.

We believe the set of scenarios in this report achieves our goal of beginning a new conversation about the future of the health workforce, the role that organizations may need to play in its development, and a shared, practical vision for what the future could look like. However, we do not assume these are the only possible stories or that they are definitive. Rather, we offer them up to the reader in the spirit of collaboration. **The aim is not to finish a conversation, but to start one.**

So as you read through the scenarios, please consider the following questions:

1. What other scenarios beyond these might emerge in the future and should be on the radars of the global health community?
2. For each scenario, what else might also be happening in the region or sector that is important and consistent with the other events and trends described?
3. What particular implications might each scenario have on a) who is doing health work, b) the nature of the work being done, c) the conditions under which work is being performed, and d) the where, what, and how for workforce development itself.
4. What actions can you and your team start taking today to prepare for the future of workforce development under these potential conditions?

THE SCENARIOS

SUMMARY FRAMEWORK

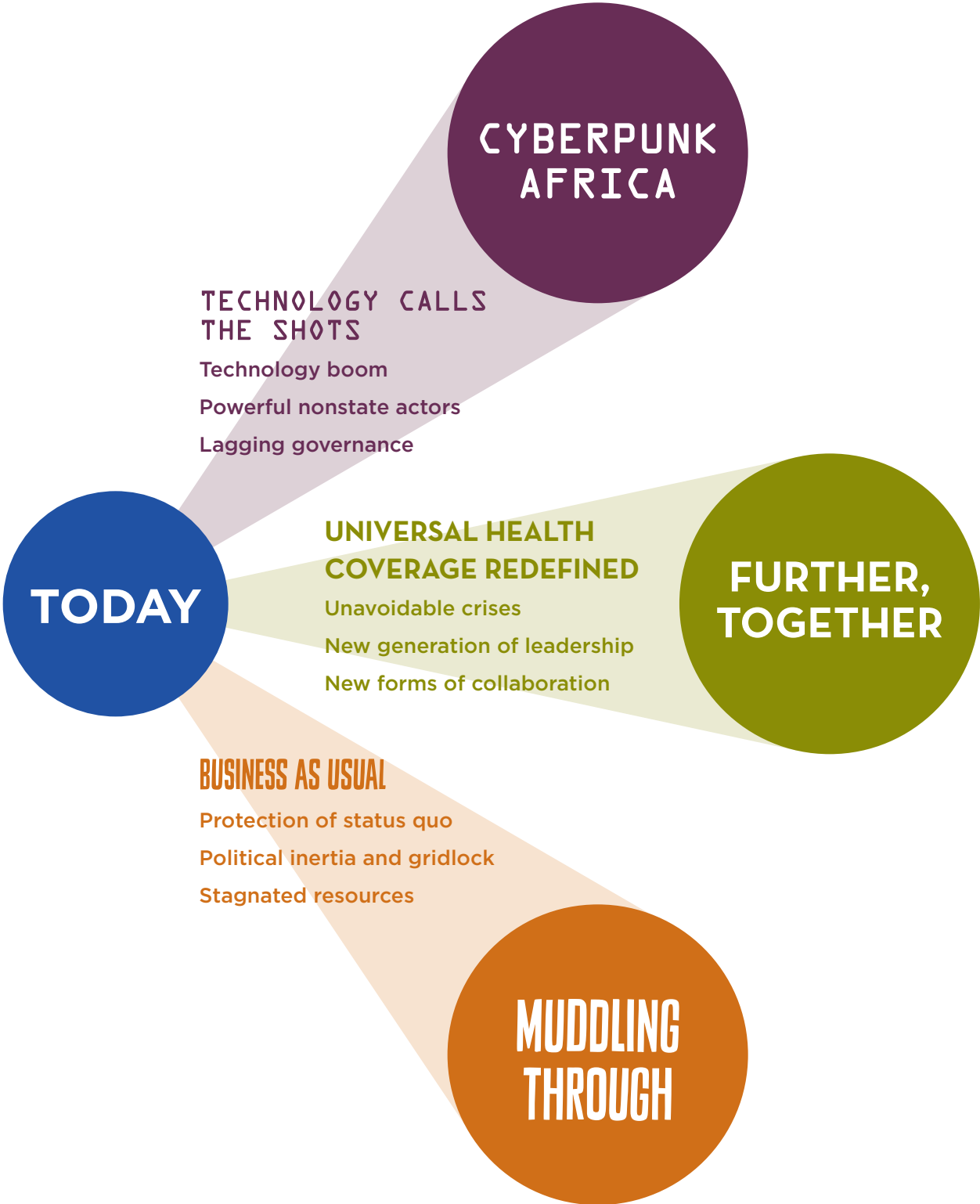
These three scenarios consider very different contexts for the health sector.

One scenario, **Cyberpunk Africa**, assumes that technology, private-sector providers, and other special interests take control, running too fast for government oversight leading to a system of rapid innovation and highly fragmented care.

Another, **Further, Together**, describes a world in which a new generation of leadership responds broadly and boldly in the face of grand societal challenges, leading to a redefinition of universal health coverage and significant reform of health system design.

Finally, **Muddling Through** posits that despite their best intentions, entrenched interested parties lean on existing structures and traditional roles, and in doing so, run into familiar challenges and limitations to health system strengthening.

POSSIBLE FUTURES FOR AFRICA'S HEALTH WORKFORCE IN 2040



CYBERPUNK AFRICA

In this scenario, weak or inconsistent governance and ineffective global institutions lead to an influx of new actors and unregulated treatments. New platforms allow for wider (and at times better) care than what was previously available, but also an explosion of unintended consequences.

THIS IS A WORLD IN WHICH...

Change intensifies, existing systems grow more obsolete, and technology is used to fill the gap. As richer countries grow more internally focused, the effectiveness of multilateralism wanes, weakening both planning and coordination of global development efforts. Traditional aid declines, and a variety of nonstate players move to fill the power vacuum. Ranging from tech giants to faith-based operations to rogue philanthropists, they have in common a desire to change everything and idiosyncratic visions for what that means. Unorthodox foundations fund what are effectively large-scale social experiments. In some countries, religious movements reshape policy, with results from ecosystem stabilization to hardliners tightly defining the scope of public

services. In others, the logic of the special enterprise zone is taken to its furthest extent, creating extraterritorial company towns that operate in a mostly self-reliant, often underregulated, fashion.

NEWS HEADLINES, 2040

Future of UN Uncertain as Key Nations Withhold Funds

African Cryptocurrency Rises as Government Announces New Remittance Taxes

Communications infrastructure and digital connectivity improve—via 5G, Free Basics,³ and other tech platform initiatives—but are not matched by improvements in legal structures and governance. Data are generally held by whatever platform collected them despite some government’s data policies, with few meaningful restrictions on marketing or targeting. Users willingly provide these data in return for cheaper services, and countries that try to exercise control often end up losing service (through company pullout or government fiat). Low- and middle-income countries become harvesting grounds for data-gathering.

Caught between growing populations, stubbornly informal economies, and demands for expanded services, national governments seek out tech fixes, not realizing the floodgates they are opening. Power and influence—in both policy and management—shift toward a mix of large corporations, nongovernmental organizations (NGOs), and local community leaders.

NEWS HEADLINES, 2040

Google Given Exclusive License to Provide High-Speed WiFi Outside the Capital

Following Blockbuster Pharma Deal Negotiation, Minister of Health Announces Early Retirement

HEALTH SYSTEMS IN THIS SCENARIO

In terms of care options, a thousand invasive flowers bloom. Health systems grow increasingly fragmented, both between and within countries. While African countries with stronger legal regimes and the ability to influence health-platform design reap significant benefits, most nations find that attaining that level of governance and bargaining power with large corporations is out of reach. Many nations face an accelerated outflow of medical talent to richer countries with aging populations.

Accompanying (and benefitting from) this fragmentation is a surging private sector, boosted by easy access to new pharmaceuticals and health tech from nearby enterprise zones. Innovation accelerates and powerful multinationals emerge. At the high end, private care is innovative, customized, and prompt, if opaque. Rumors swirl in the lower classes of elite experimentation with genetic treatments that go beyond healing into active augmentation. At the lower end, decision aids (e.g., augmented-reality overlays,

NEWS HEADLINES, 2040

New Startup Aims to 'End Maternal Mortality As We Know It'

How this Modest Storefront Became the Top-Rated Medical Clinic in Dar es Salaam on TripAdvisor

She Started a New Blood Pressure Medicine—You Won't Believe What Happens Next!

artificial intelligence [AI]-based diagnostics) allow unlicensed providers to get close to the quality level of underfunded clinics, while patients also use technology to take care more into their own hands. African startups move fast and break things in the name of democratized care. While this access is preferable to no access, medical authorities wonder if the principle of “do no harm” is possible to adhere to in situations like these.

While health literacy improves, widespread access to information also creates a new vulnerability. Misinfodemics⁴ spread and traditional authorities struggle to maintain control in a world where truth is increasingly fluid and unstable. Slick case studies of miraculous recoveries appear side-by-side with horror stories and outright scams. A combination of vaccine hesitancy and lack of focus on poorer communities opens up pockets of returning infectious disease. Wider access to drugs also leads to wider misuse and fuels an increasing level of addiction (though officials hesitate to acknowledge the depth of the problem).

Approaching 2040, the picture is stark. Fragmented and proprietary data collection makes it difficult to get objective, accurate data on health outcomes. Underserved communities have more choices than before and the wealthy are living notably longer, but for most people, the future is deeply uncertain.

NEWS HEADLINES, 2040

'My Doctor Was a Robot AND a Quack!' Lagotian Patient Tells Tales of Horror Working with Alexa Home Health Services

Crowd Gets Unruly During New Visa Issuing Round at Chinese Embassy in Nairobi

EMERGING CHALLENGES

- Highly fragmented and increased inequity in care
- More rogue technology and predator companies
- Fragmented accreditation and certification models
- More unregulated cadres
- Relentless labor migration, with potential for significant concentration within and outside Africa
- Greater information- and misinformation-overload
- Communicable disease remains a significant threat

HEALTH WORK IN THIS SCENARIO

WHO is doing the health work?

- People performing a wide variety of roles from a wide range of education levels
- Brand-new types of health workers, such as device/sensor experts, data scientists, and health integrators
- More unregulated operators and unlicensed professionals
- More remote workers operating from centralized locations (think: robotic procedures)
- Formalized “gig workers”—including older, semi-retired health workers—who provide part-time support for the most stressed health systems
- More patients who perform self-treatment

WHAT are they doing?

- Highly specialized work (if not by specialty, then by data platform)
- Using AI-assisted tools and systems to amplify their capacities
- Monitoring the performance of patient-facing, self-service interfaces
- Navigating and integrating multiple sources of data (including new types, such as genetics, social data, and device inputs), information, and points of guidance (including patient opinions)
- Frequently learning and relearning skills as diagnostic and treatment technology changes quickly
- Providing higher-quality, concierge-level care for higher-income patients, with high-end technology
- Prescribing more poorly regulated, proprietary treatments

Under what CONDITIONS?

- High level of privatization
- Highly fluid labor market with gig-economy-like sorting and channeling of workers
- More empowered, but potentially misinformed patients (digital hypochondria, misinfodemics, and vulnerable child syndrome abound)
- Lower level of official accountability, but more patient reviews and social-reputation information
- More black-box diagnostic technology, often lacking localization
- More misuse and/or abuse of medications and exotic supplements
- More problems with drug interactions and allergic reactions (fragmented systems and treatments)

What OTHER FEATURES are in play?

- Variety of nonstate actors developing health credentials or training programs
- More unregulated experimentation with new treatments
- Medical tourism on the rise, especially for middle- and higher-income populations
- Increased presence of charitable service providers for low-income and marginalized groups, or where communicable diseases are still a big threat in select regions
- Significant regional and global migration to meet the increasing demand for elder care and chronic care leaves certain areas without a viable workforce
- Quickly recruiting and training talent becomes highly valued

FURTHER, TOGETHER

In this scenario, new leadership transforms whole systems of care—beyond just optimizing treatment delivery—in an attempt to build a more resilient society, and redefines the goals of universal health coverage itself.

THIS IS A WORLD IN WHICH...

The 2020s are a put-up-or-shut-up decade. The threats we saw coming—potential disasters related to food, disease outbreaks, housing, water, and other critical areas—have hit harder and earlier than expected, thanks to climate change. A new generation of leaders is forced to talk honestly with civil society about the speed, scale, and depth of solutions required to respond, and to justify approaches that would have been a hard sell before.

Over repeated crises, priorities become clearer; previously intractable problems of organization and culture yield to a relentless focus on what works. Early, successful disaster response intensifies and transforms the state of collaboration at regional levels

(as countries develop shared protocols for action and disease management) and in communities (where interruptions of standard services require bottom-up coordination and an adaptive mindset). People become more used to wearing several hats when called on, and learn to view *health* as not just the job of hospitals and *safety* as not just the job of the government. Governments begin to reassess health care and the broader realm of care work as reliable sources of employment and economic development.

By the late 2020s, the value of preventive, nutritional, and behavioral/social measures to promote health are extremely clear to ministers of finance, particularly those tasked with financing national health insurance schemes. Because in-depth preparedness requires a cooperative civil society, they make pragmatic moves toward decentralized infrastructure (e.g., solar microgrids) and devolved governance. Corruption declines, dragged into transparency by greater scrutiny (and the heightened potential for embarrassment from above *and* below).

NEWS HEADLINES, 2040

Pan-African Green Party Shows Surprising Success at the Ballot Box

African Countries Break into Top Quintile in 2036 Corruption Perceptions Index (CPI)

Internationally, concerted action on climate change leads to a rethinking of development models and funding from wealthy countries that are looking to stave off involuntary mass migrations and geopolitical instability. Better measurements come into use for whole-system quality of life, and multisectoral efforts begin to tackle noncommunicable diseases (NCDs) and the social determinants of health. As the definitions of health change, advocates redefine their goals for universal health coverage to recognize the interconnected nature of health, wellness, and the systems surrounding patients. By 2030, the Sustainable Development Goals are replaced by a new set of measures reflecting this philosophy, which increasingly shapes conventional wisdom and policy in the following decade. Once city planners, social workers, and doctors have a common language (via the new measurements), development based on high-pollution industries declines in favor of health-in-all-policies approaches. Life isn't perfect, and new challenges emerge yearly, but most people feel satisfied that the system is working for them.

NEWS HEADLINES, 2040

Ministry of Health Transformed by Addition of New 'Department of Well-Being'

Is Social Work for You? Get the Lowdown on the Country's Fastest-Growing Job Category

HEALTH SYSTEMS IN THIS SCENARIO

Health systems in Africa reflect the changes described above. Clearer divisions exist between protocol for "normal" operating circumstances (open, innovative, human-centered) and crisis response (discipline, speed, operating in concert). Governments use

NEWS HEADLINES, 2040

New Certification Scheme for Traditional Healing Methods Approved by African Medicines Agency

'Drumming and Meditation' Breaks on the Rise in Major African Corporations

Students Learn the 3 Vs at School: Voting, Vitamins, and Vaccination

a firm hand on emergency response, but in terms of everyday health, they act more as a platform for a broader distribution of responsibilities and a greater focus on the 95% of care that happens before a client enters a clinic. In part, this begins as a way to address health worker shortages by adding, changing, and formalizing roles, and redistributing workload to the supporting workforce. (Areas where this happens see better resilience, and the practice spreads.)

Governments do what they can to share administrative burdens and bolster capacity. Ministries link up for joint studies and multicountry/regional approvals, speeding and harmonizing the treatments in a given area. While the care techniques are somewhat homogenized across countries, their delivery takes place in a highly communal context. Rather than complete decentralization, the shared standards and protocols allow for systems of distributed decision-making, and greater trust that the people on the ground will make the right call.

Recruitment and education for this new health workforce focus more on local sourcing and retention: serving local needs and human interactions, making use of fellowships and apprenticeships, but supplemented by well-designed distance learning. Credentials are portable regionally, and workers have strong in-continent mobility. Workers are respected within their communities, and if they're not, they can go elsewhere.

NEWS HEADLINES, 2040

Rural Doctors Defend Old Treatments in Light of New East African Standards

Civic Group Calls for Independent Audit of DNA Collection

EMERGING CHALLENGES

- New disease profiles from new lifestyles
- Rural-urban factionalism and accusations of favoritism
- Constant balancing act between centralized oversight (and bureaucratic creep) and local autonomy (and potential corruption)
- Long-term planning in an era of unprecedented climate events
- Challenges to democracy from a growing, increasingly data-rich security apparatus

HEALTH WORK IN THIS SCENARIO

WHO is doing the health work?

- An expanded set of health and well-being workers, including more nonprofessionals with formalized roles
- Large numbers of “enabling cadres” to support traditional medical work, with greater responsibility
- New types of health workers in new roles, such as patient advocates in complex hospital settings or humanitarian interventions
- Traditional healers who are reintegrated as extension workers/community health workers

WHAT are they doing?

- More preventive work and more crisis response
- More integrated, multisectoral approaches (e.g., environment, housing, mobility) to prevent chronic conditions
- More task-sharing (vs. just task-shifting); certain tasks are more diffused and new roles are emerging
- Placing stronger emphasis on soft skills and emotional intelligence (e.g., patient role-plays are standard) as well as intercultural competency to enable greater patient-centricity

Under what CONDITIONS?

- Technological systems and greater standardization of language improve handoffs of context (e.g., shift changes, social workers, emergency responses)
- Automation eliminates menial tasks in favor of better patient relations or getting metrics on previously opaque behavioral dimensions
- Greater emphasis on long-term retention: recruiting/training locally, support for burnout prevention, and better quality of life
- Local systems adopt more regionally developed quality and regulatory frameworks
- More education takes place in the field (e.g., through fellowships, apprenticeships)

What OTHER FEATURES are in play?

- Underserved areas are reached via bottom-up approaches from civil society (e.g., clinics run as cooperatives, microcredit unions) and broader health literacy
- Better matching of training supply and demand (surveys and field input are fed into educational systems)
- Transformative donor initiatives periodically turn problem areas (e.g., diabetes) upside-down with multisectoral support, often requiring waves of retraining
- New leaders emerge beyond traditional medical professionals and ministries of health

MUDDLING THROUGH

IN THIS SCENARIO, ECONOMIES GROW, UNIVERSAL HEALTH COVERAGE IS DECLARED, AND PROGRAMS ARE PUT IN PLACE, BUT INHERENT TENSIONS AND CONSTRAINTS LEAD TO MOMENTS OF UNDERPERFORMANCE OR DISAPPOINTMENT. REALITY ON THE GROUND IS NOT QUITE WHAT PEOPLE WERE ENVISIONING IN 2020.

Most people our team talked to would like to believe that the “official future”⁵ scenario for health work in Africa is one where a combination of recent trends and new donor initiatives slowly but surely change existing systems for the best. In this vision, a growing economy and increasing regional cooperation serve as the backbone for positive developments: better governance, smart technology adoption, more broadly available family planning, the establishment of health insurance schemes, and the participation of private-sector providers in complementary relationships. The result is universal health coverage as described in the literature and the formation of a virtuous cycle of improvement moving forward.

However, in talking further with experts, it grew apparent that many of the inherent constraints on health systems today, or the tensions between different interests and incentives, are given only polite lip service by proponents of this vision, and thus lack a clear path to resolution. It seems likely that this preferred future will not play out as envisioned. Instead, we present a more cautious, grounded story about how “more of the same, but better” could easily lead to health systems with continued shortcomings and brand-new problems to replace the old.

THIS IS A WORLD IN WHICH...

Inertia is the dominant force through most of this period. Per capita domestic spending in African nations remains constrained by slow-moving improvements in tax collection and the continuing importance of the other basic needs of a growing population, such as electricity and education. External forces—such as climate change and automation—are the subject of much conversation, but because planning an effective response requires challenging power dynamics and systems of privilege, much remains the same. Incumbent forces in this scenario remain strong enough to slow or restrict technological innovation and are hesitant to call for systemic reform. The dynamic is one of suboptimal stability, or stalemate. Technology brings change, but not the expected reduction in costs, as rollouts are caught up in bureaucratic and commercial turf wars. Systems are fragmented within countries and across the region and are rarely interoperable with each other.

NEWS HEADLINES, 2040

President to Go Unchallenged in Next Election

Putting Off Tomorrow: Sustainable Development Goals Extended to 2040

Not in Our Back Yard: Minister Rejects Regional Standards for Land Use

While some countries continue to integrate economically, much of this remains within tight subregions. An insistence on keeping things domestically controlled (and more responsive to local interests) creates resistance to larger, more economically scalable solutions to research, development, and manufacturing across a range of social sectors.

Domestically, the benefits of economic growth are funneled into meeting short-term needs, as a lack of new vision and a siloed approach to government limit larger systemic change. While leaders and pundits talk about the need for new approaches, these don't emerge on their own.

NEWS HEADLINES, 2040

Ruined in Recovery: Doctors and Patients Go Bankrupt as They Wait for Private Insurance Reimbursement

Top Health Official Disputes Diagnoses of 'Smartphone Depression' and Multiple Chemical Sensitivities

HEALTH SYSTEMS IN THIS SCENARIO

Rising standards of living and information lead expectations to rise much faster than health care systems can accommodate. Countries (supported by the global health/development community) press forward on ambitious goals, but often cut corners to meet the slated deadlines, leading to subtle rationing through red tape. Hidden inequities crop up based on knowing the right people and navigating bureaucratic loopholes. Rural areas with small populations face long commutes to care centers that

NEWS HEADLINES, 2040

Government Celebrates Gains, Promises to Have Full Universal Health Coverage within 10 Years

Vaccine Rates Up 100% in Rural Villages

Hacking the Health System: Whom to Talk To and How to Get the Care YOU Deserve!

looked closer on a map. A lack of progress toward transparency (and increasing political pressure to deliver results) encourages local officials to twist their numbers, obscuring some of the actual picture on the ground. Against this swirl, many middle- and higher-income patients opt for private health care, creating an increasingly two-track system.

Luminaries of global health approach 2040 with real successes in improving the well-being of their populations. For example, an AIDS-free generation is closer to attainability, and malaria has become a more negligible part of the disease profile. But while there is real improvement, much of it has to make it through an imperfect system. There is a nagging sense that perhaps health officials could have done more, while outsiders desperately try to ring the alarm about surging NCDs, mental health needs, drug addiction, and other priorities that cannot be tackled within a system that's already stretched to capacity by the constant rise in climate-induced migration and disease.

NEWS HEADLINES, 2040

Nairobi General Hospital Still Waiting for Updated MRI Machines While Kisumu Showcases New Clinic Featuring Gene Therapy Services

A Checklist for Everything: Doctors Complain New Burdens Cut into Time with Patients

EMERGING CHALLENGES

- Inequity persists between rural and urban areas and between countries
- Gaming of metrics leads to hidden quality issues and continued dissatisfaction
- Demands for sophisticated, high-end care exceed supply
- Protocols health workers are trained for and the realities on the ground are mismatched
- Strain on the workforce increases

HEALTH WORK IN THIS SCENARIO

WHO is doing the health work?

- Existing tiers of licensed professionals (similar to today), with some formalized community-level tiers
- High schoolers drawn by more professional pipelines into focused programs with apprenticeships and fewer years of education
- More provisionally credentialed professionals to meet short-term needs
- Mostly domestically trained workers, due to protectionist licensing strategies and strong professional associations
- Staff at proliferating speciality clinics and practices

WHAT are they doing?

- Focusing more on NCDs, but with very limited integration of mental health, nutrition, and preventive care
- Similar treatment focus as today, with more tech tools and compliance load
- Using technology in a highly regulated environment, with a lot of procedural detail required (very checklist-oriented)
- Nurses and physician assistants are doing an increasing number of basic tasks
- Delivering more variability in care on the ground, even with the same diagnosis or treatment definition/coding

Under what CONDITIONS?

- More bureaucracy that continues to burden health workers' time
- More expectations piled on professionals in the field
- Discrepancies between what is actually available on the ground and what is expected in training documents
- More professionals employed by the private sector
- Care decision-making power for the middle- and upper-class shifts to insurance companies/health maintenance organizations and pharmacy benefit managers

What OTHER FEATURES are in play?

- Public/private bifurcation, with inequities in access and quality
- Governments and patients still struggle with financing
- Pressure to hit targets pushes local officials toward optimistic, unreliable outcome-reporting
- During expansions of education, quality may drop or be more inconsistent
- Some degree of regionalization, in line with economic zoning (though not pan-African)
- Wide variety of other professional jobs for young graduates to pursue

IMPLICATIONS FOR THE HEALTH WORKFORCE ACROSS THE SCENARIOS

WHO is doing the health work?

CYBERPUNK AFRICA

- People performing a wide variety of roles from a wide range of education levels
- Brand-new types of health workers, such as device/sensor experts, data scientists, and health integrators
- More unregulated operators and unlicensed professionals
- More remote workers operating from centralized locations (think: robotic procedures)
- Formalized “gig workers”—including older, semi-retired health workers—who provide part-time support for the most stressed health systems
- More patients who perform self-treatment

FURTHER, TOGETHER

- An expanded set of health and well-being workers, including more nonprofessionals with formalized roles
- Large numbers of “enabling cadres” to support traditional medical work, with greater responsibility
- New types of health workers in new roles, such as patient advocates in complex hospital settings or humanitarian interventions
- Traditional healers who are reintegrated as extension workers/ community health workers

MUDDLING THROUGH

- Existing tiers of licensed professionals (similar to today), with some formalized community-level tiers
- High schoolers drawn by more professional pipelines into focused programs with apprenticeships and fewer years of education
- More provisionally credentialed professionals to meet short-term needs
- Mostly domestically trained workers, due to protectionist licensing strategies and strong professional associations
- Staff at proliferating speciality clinics and practices

WHAT are they doing?

CYBERPUNK AFRICA

- Highly specialized work (if not by specialty, then by data platform)
- Using AI-assisted tools and systems to amplify their capacities
- Monitoring the performance of patient-facing, self-service interfaces
- Navigating and integrating multiple sources of data (including new types, such as genetics, social data, and device inputs), information, and points of guidance (including patient opinions)
- Frequently learning and relearning skills as diagnostic and treatment technology changes quickly
- Providing higher-quality, concierge-level care for higher-income patients, with high-end technology
- Prescribing more poorly regulated, proprietary treatments

FURTHER, TOGETHER

- More preventive work and more crisis response
- More integrated, multisectoral approaches (e.g., environment, housing, mobility) to prevent chronic conditions
- More task-sharing (vs. just task-shifting); certain tasks are more diffused and new roles are emerging
- Placing stronger emphasis on soft skills and emotional intelligence (e.g., patient role-plays are standard) as well as intercultural competency to enable greater patient-centricity

MUDDLING THROUGH

- Focusing more on NCDs, but with very limited integration of mental health, nutrition, and preventive care
- Similar treatment focus as today, with more tech tools and compliance load
- Using technology in a highly regulated environment, with a lot of procedural detail required (very checklist-oriented)
- Nurses and physician assistants are doing an increasing number of basic tasks
- Delivering more variability in care on the ground, even with the same diagnosis or treatment definition/coding

Under what CONDITIONS?

CYBERPUNK AFRICA

- High level of privatization
- Highly fluid labor market with gig-economy-like sorting and channeling of workers
- More empowered, but potentially misinformed patients (digital hypochondria, misinfodemics, and vulnerable child syndrome abound)
- Lower level of official accountability, but more patient reviews and social-reputation information
- More black-box diagnostic technology, often lacking localization
- More misuse and/or abuse of medications and exotic supplements
- More problems with drug interactions and allergic reactions (fragmented systems and treatments)

FURTHER, TOGETHER

- Technological systems and greater standardization of language improve handoffs of context (e.g., shift changes, social workers, emergency responses)
- Automation eliminates menial tasks in favor of better patient relations or getting metrics on previously opaque behavioral dimensions
- Greater emphasis on long-term retention: recruiting/training locally, support for burnout prevention, and better quality of life
- Local systems adopt more regionally developed quality and regulatory frameworks
- More education takes place in the field (e.g., through fellowships, apprenticeships)

MUDDLING THROUGH

- More bureaucracy that continues to burden health workers' time
- More expectations piled on professionals in the field
- Discrepancies between what is actually available on the ground and what is expected in training documents
- More professionals employed by the private sector
- Care decision-making power for the middle- and upper-class shifts to insurance companies/health maintenance organizations and pharmacy benefit managers

What OTHER FEATURES are in play?

CYBERPUNK AFRICA

- Variety of nonstate actors developing health credentials or training programs
- More unregulated experimentation with new treatments
- Medical tourism on the rise, especially for middle- and higher-income populations
- Increased presence of charitable service providers for low-income and marginalized groups, or where communicable diseases are still a big threat in select regions
- Significant regional and global migration to meet the increasing demand for elder care and chronic care leaves certain areas without a viable workforce
- Quickly recruiting and training talent becomes highly valued

FURTHER, TOGETHER

- Underserved areas are reached via bottom-up approaches from civil society (e.g., clinics run as cooperatives, microcredit unions) and broader health literacy
- Better matching of training supply and demand (surveys and field input are fed into educational systems)
- Transformative donor initiatives periodically turn problem areas (e.g., diabetes) upside-down with multisectoral support, often requiring waves of retraining
- New leaders emerge beyond traditional medical professionals and ministries of health

MUDDLING THROUGH

- Public/private bifurcation, with inequities in access and quality
- Governments and patients still struggle with financing
- Pressure to hit targets pushes local officials toward optimistic, unreliable outcome-reporting
- During expansions of education, quality may drop or be more inconsistent
- Some degree of regionalization, in line with economic zoning (though not pan-African)
- Wide variety of other professional jobs for young graduates to pursue

INITIAL CONCLUSIONS

The goal of these scenarios is not to predict the future, but to start a dialogue about how to best prepare for it—starting today. Reality will never emerge exactly as described in these stories. Different, possibly unforeseen paths may lead to one of these end states for the health sector and workforce, or open up variations and nuances about the outcomes for health workers that are not yet captured. We may also see aspects of all of them jockeying with each other over time, or particular scenarios playing out more or less in particular subregions (depending on factors such as governance capacity, rate of technology transfer, political economy, and so on).

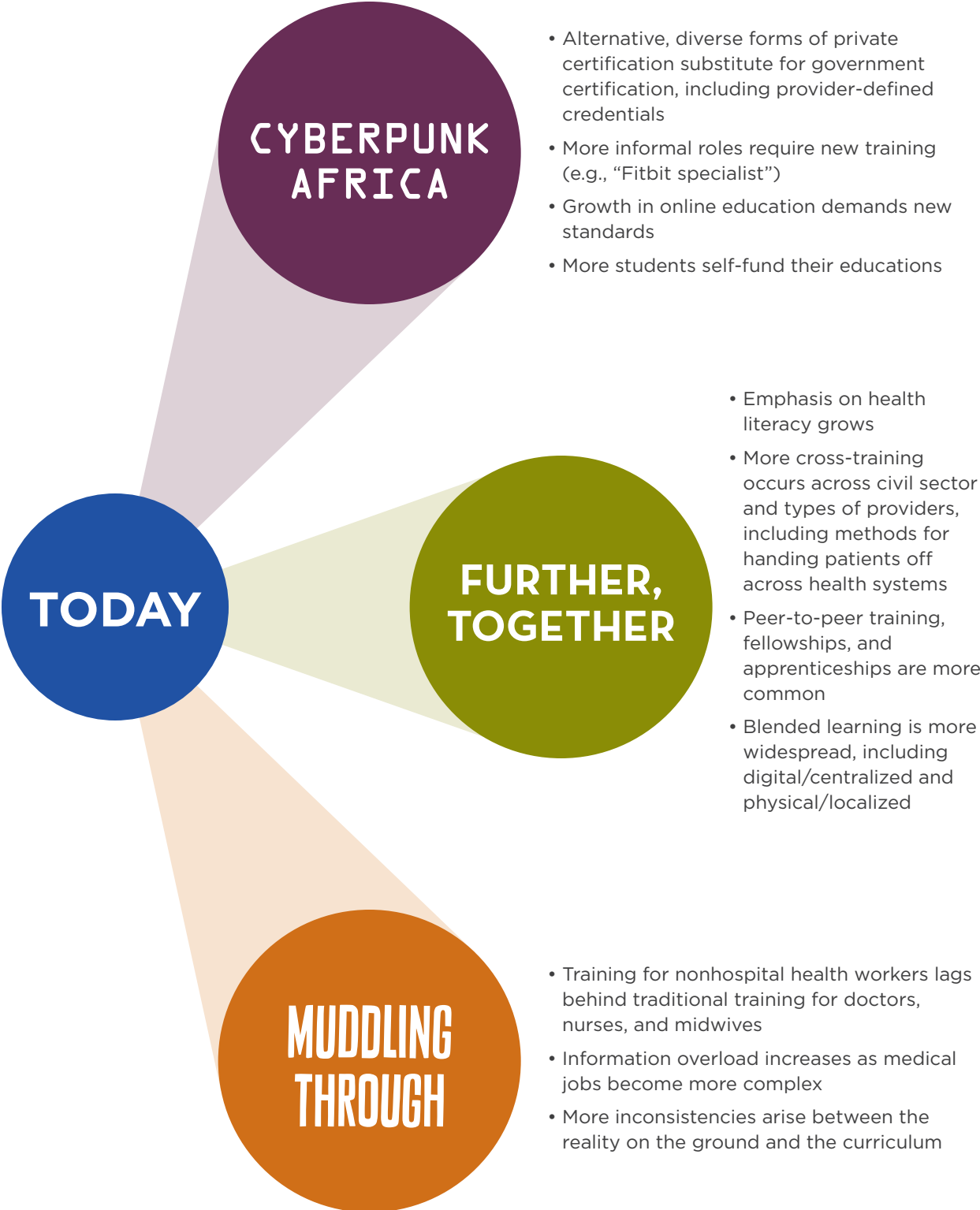
However, they all point to a consistent message: we should expect change in Africa's health sector. And therefore we should expect change in how we—supporters of health workforce development—contribute to strengthening health systems in the region.

Given the state of health work and the nature of health workforce demand that each scenario describes, our team began to envision new and different responses in terms of what, how, where, and for whom workforce development takes place. Some of the initial implications are shown in the summary graphic, “Implications for Africa's Health Workforce in 2040 Across the Scenarios.”

The next step from here is exploring and expanding the implications of each scenario for workforce development, a process in which any reader of this document should take part. We hope to discover more insights and ideas about future development approaches through conversations with our peers and to consider the full portfolio of solutions needed to face any future with confidence.

While we cannot control the course, speed, or depth of the river to come, this process at least gives us a choice about which boat we'll use to navigate it.

IMPLICATIONS FOR AFRICA'S HEALTH WORKFORCE IN 2040 ACROSS THE SCENARIOS



APPENDIX

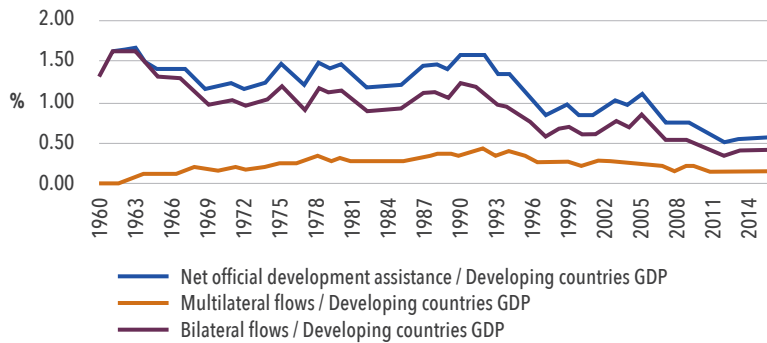
Because we tend to best understand the trends at work in our own fields, the most surprising scenarios often emerge when we explore the effects of powerful forces outside our own sector. Broad social, technological, economic, environmental, and political dynamics are capable of not only exacerbating existing tensions or pressures within a sector, but also *significantly altering the way a system works* more fundamentally, imposing new demands or constraints.

For the health workforce in Africa, we identified a number of potentially important forces that are either already causing change or are highly likely to have an impact in the next 20 years. These forces can redefine core health problems or aspirations, affect the resources available, and (equally critically) change human emotional and behavioral dynamics within the system. As the previous 20 years have shown us, we do not expect these to be linearly additive forces—any of them can combine for intensifying or cascading effects.

A selection of forces that influence our scenarios are provided in the Appendix, including those that are expected but whose speed and potential impact are still underappreciated; those that are not often discussed in terms of health, but constitute big shifts in society and work (that can have outsized influence within health too); and those that are just now hitting the radar and could lead to surprising changes our field is not even talking about.

Total traditional aid is poised to decline. Aid budgets from the standard Organisation for Economic Co-Operation and Development set are softening, while faster-growing African nations are poised to graduate (i.e., exit the eligibility window) from international health assistance mechanisms/funding schemes such as GAVI and the Global Fund. These mechanisms have historically helped fund health system improvements, but have also aided in capacity-building, technical assistance, and bulk procurement.

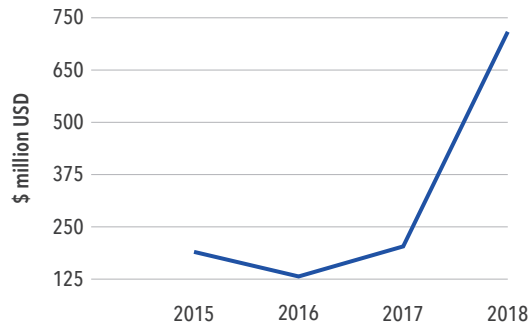
Aid flow as a share of developing countries GDP



Source: Brookings Institution/OECD; Indermit Gill “The End of Aid.” Brookings Institution blog post, January 19th, 2018

Private-sector innovation is accelerating in Africa. African startups have increased both the number of investment deals and the size of funding rounds in the last several years, quadrupling growth between 2017 and 2018.

Funding raised by African startups



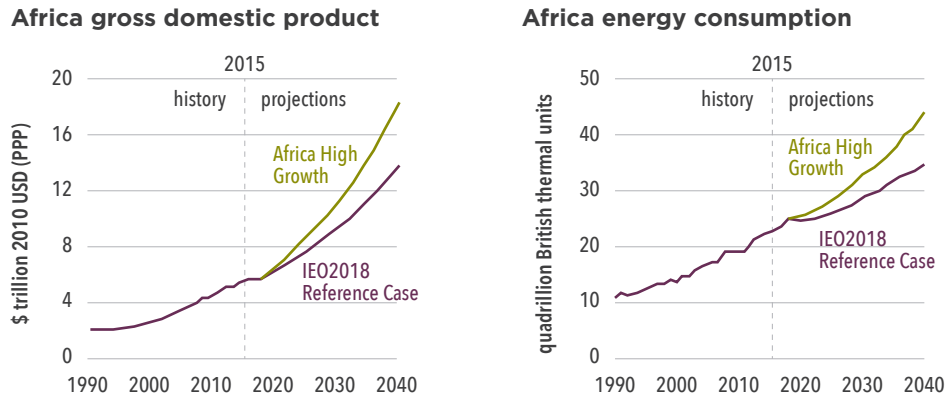
Source: Quartz. Yomi Kazeem “African Startup Funding Broke Records in 2018” Quartz, January 11th, 2019

Climate change will have an increasing impact on health and political stability.

Climate change threatens food production and nutrition access and is already creating conditions that can spread infectious disease. Over time, this leads to consequences such as migration, crises of political legitimacy, and the inability to use history-driven planning models.

Internationally coordinated climate action would greatly affect African development.

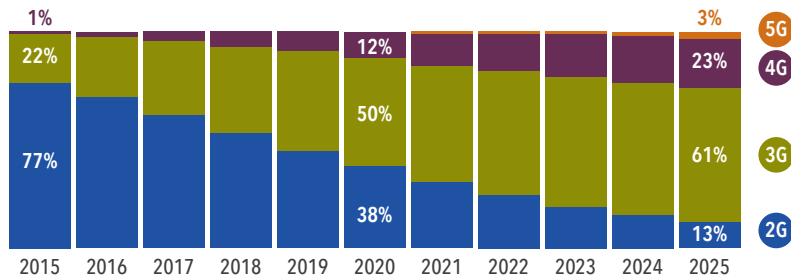
Africa currently has low emissions per capita, but the potential for high emissions growth, which makes it a key target for intervention. Effective, internationally coordinated climate action (or fearful, punitive austerity imposed by historical emitters) would greatly affect both the funding levels and aims of development in sub-Saharan Africa, yielding economies that are very different from today's.



Source: US Energy Information Administration; "Higher Economic Growth in Africa Could Lead to More Energy Use" August 19th, 2018

Digital and social connectivity is growing. Few devices are so linked to Africa as the cellphone. This technology trend is set to hit its second and third acts in the next 20 years as smartphones and mobile internet (whose users have quadrupled since the start of the decade) grow ubiquitous, and by the eventual arrival of 5G. Given that Africa has one of the largest gaps between the median age of its leaders and the median age of its population, the potential for this force to accelerate political and cultural shifts should not be ignored.

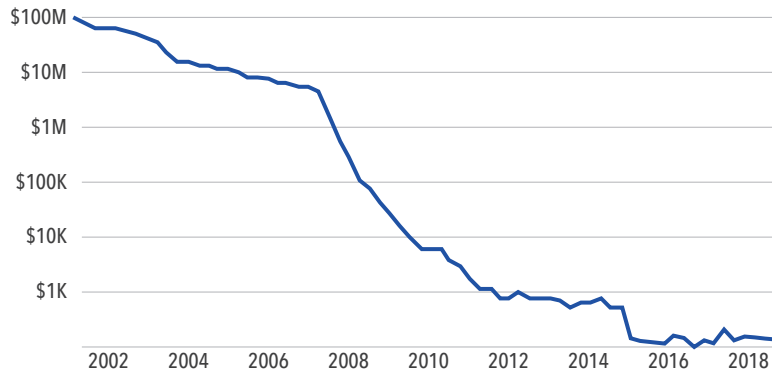
Accelerating transition to mobile broadband: percentage of connections



Source: GSMA Intelligence; GSMA "The Mobile Economy: Sub-Saharan Africa 2018"

Treatment innovation may be exponential and hard to regulate. The next 20 years could see major innovations in medicine; CRISPR (a family of DNA sequences) alone has the potential to literally rewrite the world around us. While the prospect of genetically modified superbabies faces many social and political barriers, it is widely expected that cheaper sequencing and new diagnostics will open up new pathways in medicine. When commoditized genomics is combined with electronic medical records, AI, and increasingly widespread self-tracking, the door is open to far more customized, personally relevant courses of treatment.

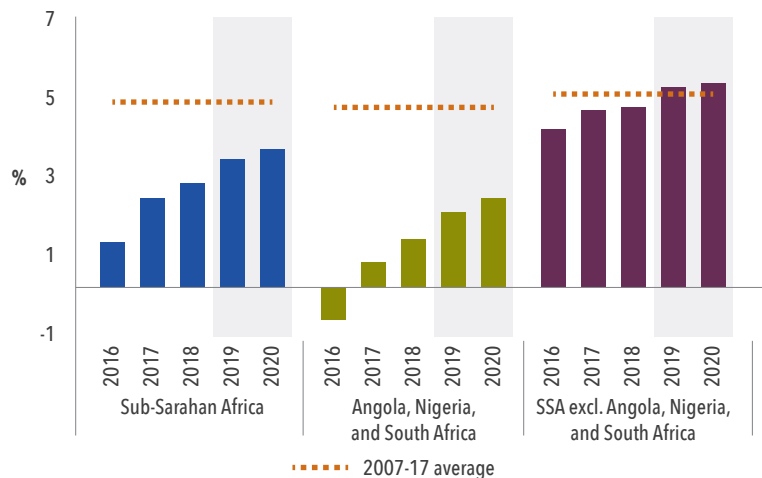
Cost per genome (\$ USD)



Source: NIH National Human Genome Research Institute, “Fact Sheet: Sequencing Costs”

Economic growth is expected to continue in the near-term. Given population, natural resources, infrastructural investments, and a gradually improving ease of doing business, we can expect a reasonable (if not spectacular) level of economic growth from functioning states in sub-Saharan Africa. Other forces, such as regional integration or technological advancement, could have further tailwind effects. The World Bank estimates that in sub-Saharan Africa alone, a successful digital transition can increase growth by nearly two percentage points per year and reduce poverty by nearly one percentage point per year.⁶

GDP growth forecasts

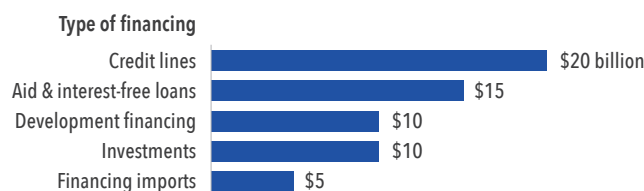


Source: World Bank, *Africa's Pulse 2019*

More development actors and influencers are diversifying and bringing their own sets of priorities. The influence of traditional multilateral institutions is weakening and giving way to new power players (e.g., disproportionately wealthy donors, China). Approaches range from direct giving and effective altruism to emerging forms of South-South collaboration, and can include philanthropic and institutional giving, social impact investment, global vertical funds, and climate finance. Players outside of domestic governments like China (whose aid tends to disproportionately go to African leaders' home regions) and entrepreneurial NGOs such as the Bill & Melinda Gates Foundation are gaining influence. If the Gates/Warren Buffett Giving Pledge becomes mainstream among billionaires, we could see significant resources directed toward all manner of idiosyncratic ends.

Sino-African engagement creates new webs of political and social influence. China's greater turn outward is best signified by the Belt and Road Initiative, a set of over 1,700 infrastructure projects with total investment topping \$900 billion. Beyond the brick-and-mortar investments in Africa (and concerns around debt traps), China is also seeking to protect its investments with increased soft power. This ranges from training police units⁷ and distributing facial recognition software⁸ to increasing the reach of aligned media⁹ and funding language study. China's diplomatic and economic relationships will create further competition with traditional Western donors in terms of the scale, philosophy, and quid-pro-quo of investments.

China pledged \$60 billion USD to Africa in 2018



Source: ATLAS, "China pledged \$60 billion to Africa in 2018"

Global governance and policing cooperation will continue their general decline.

Unless addressed in a coordinated manner by strong actors within the system, a lack of oversight and enforcement further enables widespread tax evasion (à la the Panama Papers¹⁰), corruption, and rent-seeking around the world, limiting the resources available to nation-states and likely shifting more of the burden of oversight to local stakeholders/civil societies. While data are hard to come by, a council of ministers determined that Africa loses more than \$50 billion yearly in illicit financial outflows.¹¹

"Global graying" will shape the economics of health care. Longevity is increasing, and the elderly are also increasing their relative share of the population. Between 2015 and 2030, the number of people in the world aged 60 years or over is projected to grow by 56%, from 901 million to 1.4 billion, a trend that is particularly strong across the global North. When combined with medical talent outflows, this puts pressure on the domestic supply of health workers in Africa. And while Africa is comparatively young, its elderly

population has doubled since 1990 and will likely triple by 2050, triggering demand for new kinds of services and care that are not currently emphasized.

Increasing automation threatens new classes of employment. Low-cost computing and advances in machine learning/AI are expected to drive significant adoption of automation technology—improving productivity and cost structures, but also potentially displacing traditional jobs, especially white-collar knowledge work. The World Economic Forum estimates that nearly half of current jobs in African countries are at risk.¹²

New governance paradigms are required for data access, security, and ethics. New data systems underpin assumptions about improved quality and efficiency of health care, but with newly emerging stories about misuse, we are just beginning to understand the questions about how data should be used and by whom across multiple sectors. Right now, approximately 22 out of 54 African countries have passed data-protection laws, but enforcement is uncertain and consumer awareness of rights is low. Among African companies, 62% have no plans in place for dealing with data breaches,¹³ and health care is one of the most common sectors targeted by malicious actors.

Decentralized energy infrastructure is improving and getting cheaper. Vast areas of Africa didn't have to build costly landline systems, and they may end up similarly leapfrogging in terms of energy generation and distribution.¹⁴ Onsite solar can provide more reliable power than crumbling grids, and is often less expensive as well.

Educational realignment is expanding. The standard four-year university degree is already being displaced in parts of the world and causing a rethinking of primary and secondary education. Lifelong learning increasingly seems to be in the cards: online education continues to expand, while observers predict a growth of more granular microcredentials to allow a broader range of qualified workers.

NCD rates may grow faster than anticipated. While rates of noncommunicable diseases have typically been expected to grow alongside the broader demographic transition, NCDs have the potential to increase at rates faster than health systems can handle. Changing lifestyles and diets (particularly from highly processed, calorie-rich, nutrient-poor foods) are already driving a rapid growth in diabetes, while environmental and substance abuse risks create other conditions for disproportionate growth in other NCDs. According to the World Health Organization, by 2030, NCD-related deaths in Africa “are projected to exceed deaths due to communicable, maternal, perinatal, and nutritional diseases combined.”¹⁵

There is no clear path to remedying the current health workforce shortage in the near term. Health systems in Africa are already working under a deficit between need (the ideal number of health workers) and demand (the system's ability to create health work jobs). Over time, this gap will either impose stark limits on health systems or force a complete rethinking of their design.

END NOTES

¹The World Bank. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=CN-US>

²Joint United Nations Programme on HIV/AIDS (UNAIDS). 1999. AIDS epidemic update: December 1999. <https://www.ncbi.nlm.nih.gov/pubmed/12322486>

³Free Basics by Facebook (originally Internet.org) is a partnership with mobile phone providers in low- and middle-income countries to provide free access to a limited set of sites and services serving news, employment, health, education, and local information. Critics have argued that Facebook's initiatives are self-serving and contrary to net neutrality. Regardless of intent, it has muddied conceptual waters in less-connected areas: in 2015, 65% of Nigerians agreed with the statement that "Facebook is the Internet" compared with only 5% in the US.

⁴Gyenes, Nat, and Xiao Mina."How Misinfodemics Spread Disease." *The Atlantic*, August 30, 2018. <https://www.theatlantic.com/technology/archive/2018/08/how-misinfodemics-spread-disease/568921/>

⁵ Official futures are sets of assumptions about what the world will be like, shared among a large group, but often unstated. Similar to the Overton window, they demarcate what can and cannot be discussed productively in group settings.

⁶Calderon, Cesar, Gerard Kambou, Vidjan Korman, Megumi Kubota, and Catalina Cantu Canales. 2019. Africa's Pulse, No. 19, April 2019: An Analysis of Issues Shaping Africa's Economic Future. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/31499>

⁷Zheng, Jin and Christine Lagat. "Feature: Kenya's railway police officers look forward to training stint in China." *Zinhua*, February 10, 2020. http://www.xinhuanet.com/english/2018-05/26/c_137208252.htm

⁸Arthur Gagwa. "Exporting Repression? China's Artificial Intelligence Push into Africa." *Council on Foreign Relations*, December 17, 2018. <https://www.cfr.org/blog/exporting-repression-chinas-artificial-intelligence-push-africa>

⁹Abdi Latif Dahir. "China wants to use the power of global media to dispel Belt and Road debt risks." *Quartz Africa*, April 25, 2019. <https://qz.com/africa/1604677/china-is-using-african-media-to-back-belt-and-road-initiative/>

- ¹⁰ International Consortium of Investigative Journalists. The Panama Papers: Exposing the Rogue Offshore Finance Industry (webpage): <https://www.icij.org/investigations/panama-papers/>
- ¹¹ African Union Commission/United Nations Economic Commission for Africa Conference of Ministers of Finance, Planning and Economic Development. Report of the High Level Panel on Illicit Financial Flows from Africa. https://www.uneca.org/sites/default/files/PublicationFiles/iff_main_report_26feb_en.pdf
- ¹² World Economic Forum (WEF) (2017), “The Future of Jobs and Skills in Africa: Preparing the Region for the Fourth Industrial Revolution” (Geneva:World Economic Forum)
- ¹³ US-Africa Cybersecurity Group. “Companies in Africa Can't Afford to Turn a Blind Eye to Cyber Security.” Blog post, October 30, 2017. <https://www.usafcg.com/2017/10/30/companies-africa-cant-afford-turn-blind-eye-cyber-security/>
- ¹⁴ Bloomberg NEF. “Price and Need for Reliable Electricity Power are Spurring Solar Sales to African Businesses.” Blog post, January 24, 2019. <https://about.bnef.com/blog/price-need-reliable-electricity-power-spurring-solar-sales-african-businesses/>
- ¹⁵ The World Health Organization Regional Office Africa. Noncommunicable diseases (webpage): <https://www.afro.who.int/health-topics/noncommunicable-diseases>



6340 Quadrangle Drive, Suite 200
Chapel Hill, NC 27517
Tel: (919) 313-9100

1100 17th Street NW, Suite 600
Washington, DC 20036
Tel: (202) 407-9473

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