



United Nations
Global Compact

BUILDING SUSTAINABLE AND RESILIENT HEALTHCARE INFRASTRUCTURE IN BRI COUNTRIES TO ACCELERATE THE SUSTAINABLE DEVELOPMENT GOALS

Opportunities and Recommendations for Business
to Leverage Technological Innovation and Enhance Collaboration to
Close Healthcare Gaps

with knowledge partner

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Acronyms and Abbreviations

AI	Artificial Intelligence
BRI	Belt and Road Initiative
CDSS	Clinical Decision Support System
CMNN	Communicable, Maternal, Neonatal and Nutritional Deficiencies
DRG	Diagnosis Related Group
EMR	Electronic Medical Records
FWA	Fraud, Waste and Abuse
HALE	Healthy Life Expectancy
HAQ	Healthcare Access and Quality
HIS	Hospital Information System
ICT	Information and Communications Technology
MOOC	Massive Open Online Courses
NCD	Non-communicable Diseases
PPP	Public-Private Partnership
RWD	Real World Data
SDG	Sustainable Development Goal
WHO	World Health Organization

Foreword



Strengthening Infrastructure for a Healthier Future

The impact of COVID-19 is all too clear to all of us living through it. The pandemic has disrupted everything from our daily routines, mental health and overall well-being to the operations of businesses and supply chains worldwide.

Sadly, this crisis is far from over, and everyone — governments, businesses, civil society, non-governmental organizations and individual citizens — must keep doing whatever we can to stop the spread of the coronavirus. We have a collective responsibility to mitigate the harm inflicted by the pandemic, especially in poor and vulnerable communities that are suffering disproportionately.

But even as we cope with the crisis, it can teach us important lessons for a more sustainable future. Indeed, learning those lessons is critically important. Based on this hard-won knowledge, we can take the transformational steps needed to protect ourselves, our businesses and our planet from future pandemics and other serious threats.

As the following white paper explains in depth, COVID-19 has cast a glaring spotlight on the urgent need to build more sustainable and resilient healthcare infrastructure around the world. That means strengthening the crucial building blocks of healthcare defined by the World Health Organization, from service delivery to technology to governance.

While healthcare infrastructure is a concern everywhere, the greatest needs are in developing countries, including the many countries engaged in the Belt and Road Initiative. First proposed by Chinese President Xi Jinping, this ambitious model of international cooperation has already begun to strengthen infrastructure in transportation, energy and other sectors. Today, spurred on by the pandemic, we can bridge global gaps in healthcare infrastructure by leveraging the Initiative's existing projects — as well as plans that are still on the drawing board.

In the process, we will address intolerable health inequities and advance the Sustainable Development Goals more broadly, so that no one is left behind.

The business community can play a critical role in improving healthcare infrastructure. Most significantly, this effort gives companies a chance to make tangible contributions towards realizing the SDGs. It also offers unique opportunities for them to grow into new markets by providing desperately needed innovations in technology, services and products — all in a responsible manner aligned with the Ten Principles that guide the work of the UN Global Compact.

Like any truly impactful objective, building sustainable and resilient healthcare infrastructure will require dynamic, effective collaboration and robust financing. To pave the way for the world we all want tomorrow, businesses have to make the right investments today. This white paper features multiple examples and case studies showing how businesses can work together, invest responsibly and deliver solutions to pressing healthcare challenges while advancing their own long-term success.

This is the first white paper produced by the recently launched UN Global Compact *Action Platform on Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs*. It provides a starting point for strategic discussion and dialogue, and a solid foundation for action in the years ahead. I look forward to working with companies, Governments and all stakeholders to build a healthier and more sustainable future. If we succeed, generations to come will remember our current difficulties as a distant crisis that was, nevertheless, a turning point for global progress.



A handwritten signature in black ink that reads "Sanda Ojiambo".

Sanda Ojiambo

CEO & Executive Director
UN Global Compact



Executive Summary

This is the Decade of Action to deliver the Sustainable Development Goals (SDGs, also known as the Global Goals). Sustainable solutions to all the world's biggest challenges will be necessary — ranging from poverty and climate change, to inequalities and closing the finance gap. In particular, recent events have drawn everyone's attention to Goal 3: Good Health and Well-being — the primary goal of any sustainable and resilient healthcare system.

By 2019, major progress had been made in improving the health of millions of people. But the rate of improvement has slowed and will not be enough to meet most of the Goal 3 targets, especially as COVID-19 pandemic threatens health outcomes already achieved.

The pandemic has devastated people's lives as well as their physical and mental health and has had a negative impact on social well-being. It served as a wake-up call, raising the importance of building a sustainable and resilient healthcare infrastructure, not only to be able to respond to the immediate pandemic, but also to ensure attainment of Goal 3.

As the first white paper published by the United Nations Global Compact Action Platform on Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs, this paper will focus mainly on healthcare infrastructure; other sectors will be discussed in subsequent publications.

Global collaboration is key to the success of the Global Goals and sustainable and resilient healthcare infrastructure. Collaboration has been crucial in the global response to COVID-19: Stakeholders from different sectors and countries have shared information and best practices, coordinated medical supplies, engaged in joint R&D for vaccines and medicines and supported each other to face the challenges brought by the pandemic. This collaboration should be strengthened as no single country can win the battle against COVID-19 alone.

The Belt and Road Initiative (BRI) is one important development investment initiative that aims to promote collaboration. Proposed by Chinese President Xi Jinping in 2013, BRI involves many countries in promoting infrastructure connectivity, economic growth and financial integration, policy coordination, trade and people-to-people exchanges. It has the potential to be leveraged effectively to strengthen healthcare systems, as it has had an extensive impact and has achieved success through collaboration in other areas of infrastructure. Therefore, BRI offers an opportunity to advance towards achieving the Global Goals through business participation in alignment with ten principles of UN Global Compact.

Business and technology play vital roles in advancing the Global Goals and building a sustainable and resilient healthcare system. The business sector can take an active role in multi-stakeholder initiatives and collaborations such as BRI. By taking part, businesses can benefit commercially as well as contribute to the greater good. Technology — especially digital

technology — has transformed the way business is done in healthcare and will help fulfill economic goals and promote the Global Goals further.

The UN Global Compact has established several Action Platforms to support better multi-stakeholder collaboration. In particular, businesses can leverage the recently launched Action Platform on Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs.

The SDGs are closely linked to the building of a sustainable and resilient healthcare system. This paper offers guidance as to how businesses in the healthcare sector could link SDGs to their own business practices. This linkage can take place in two categories:

- **Goal 3: Good Health and Well-being is the overarching goal of a sustainable and resilient healthcare infrastructure.**
- **Some SDGs and principles are driven by one or several of the six building blocks of healthcare defined by the World Health Organization.** These include service delivery; the health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance.

There are still significant challenges in building a sustainable and resilient healthcare system, but when businesses consider their full range of impact and take a [principles-based approach](#) to the Global Goals, they will see opportunities for growth and innovation based on some of the world's greatest needs. This paper will describe these **challenges and opportunities and provide examples by discussing two possible scenarios** as well as give examples of leveraging technology and collaborations against the challenges caused by COVID-19. The final sections of the paper will outline the key success factors and actions that businesses can take to generate commercial success while advancing the implementation of the Global Goals, based on the Ten Principles on human rights, labour, environment and anti-corruption, which guide the work of the UN Global Compact.

The launch of the Action Platform on Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs and this white paper marks the 75th anniversary of the UN and 20th anniversary of the UN Global Compact.



1. The Decade of Action for the SDGs and Importance of Building Sustainable and Resilient Healthcare Infrastructure

This is the Decade of Action to deliver the SDGs. Today, progress is being made in many aspects, but overall, action to meet these Global Goals is not yet advancing at the speed or scale required — 2020 needs to be the start of a decade of ambitious action in order to deliver the Global Goals by 2030. Sustainable solutions to all the world's biggest challenges will be necessary — ranging from poverty and gender issues to climate change, inequality and closing the finance gap.

In particular, recent events have drawn attention to Goal 3: Good Health and Well-being.

By 2019, the international community had taken major strides in improving the health of millions of people by increasing life expectancy, reducing maternal and child mortality, and fighting some of the world's leading communicable diseases. However, progress has stalled or is not happening fast enough to address major diseases such as malaria and tuberculosis. Meanwhile, at least half the global population still lacks access to essential health services, and many suffer undue financial hardship, potentially pushing them into extreme poverty.

In 2020, progress in many health areas continues, but the rate of improvement will not be sufficient to meet most of the Goal 3 targets. The COVID-19 pandemic is devastating health systems globally and threatens health outcomes already achieved.

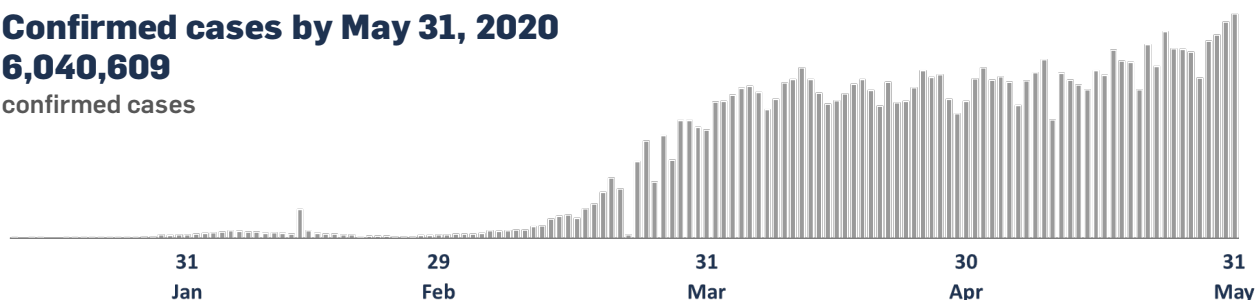
The global spread of the novel coronavirus that causes COVID-19 has left virtually no one untouched. It has devastated people's lives as well as their physical and mental health and has had a negative impact on social well-being. Families and communities have been hit, causing increased stress on mental health. Global trade and supply chains have been disrupted by the lockdown as small businesses shut down and millions of people have been forced into unemployment, threatening the financial stability of business and economies. The pandemic has also deepened inequalities, especially across vulnerable and marginalized groups such as racial and ethnic minorities, the sick, the elderly, women, children and the poor.

Worst of all, there is no sign of this pandemic getting under control in the foreseeable future, and we are living in a "new normal" marked by dynamic and rapid changes. **COVID-19 has served as a wake-up call:** It is alerting the global community to the urgency of building a sustainable and resilient healthcare system, not only to tackle the current pandemic and prepare for similar crises to come, **but also, ultimately, to ensure attainment of Goal 3 for future generations.**

Confirmed cases by May 31, 2020

6,040,609

confirmed cases



Deaths by May 31, 2020

370,657

deaths

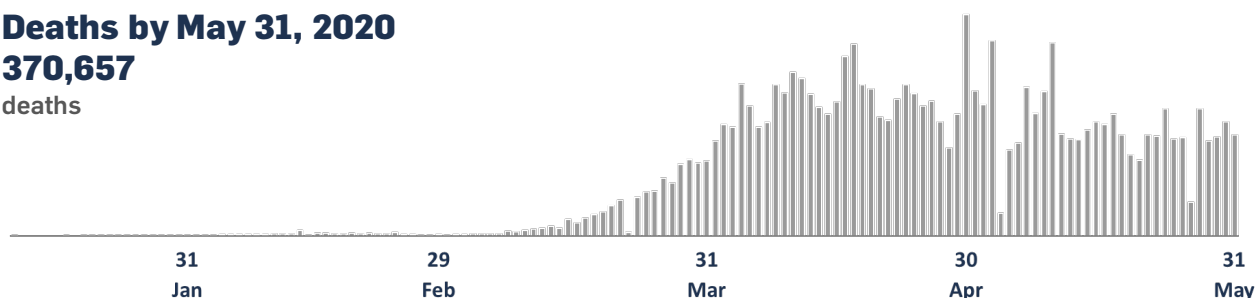


Figure 1. COVID-19 confirmed cases and deaths, WHO¹

Defining a sustainable and resilient healthcare system

The first step in building sustainable and resilient healthcare infrastructure is to understand what sustainable development and resilience are — as these terms are too often misunderstood — and why they are important.

Sustainable development is development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs (a notion first proposed in the Brundtland Report in 1987 and later explained by the UN). Sustainable companies are those that are (1) doing business responsibly by aligning their strategies and operations with the Ten Principles on human rights, labour, environment and anti-corruption; and (2) taking strategic actions to advance broader societal goals, such as the SDGs, with an emphasis on collaboration and innovation.²

Resilience is the capacity of a social-ecological system to cope with a hazardous event or disturbance, responding or reorganizing in ways that maintain its essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.³ Such a system should have five key characteristics: It should be aware, diverse, self-regulating, integrated and adaptive.⁴

1. WHO, WHO Coronavirus Disease (COVID-19) Dashboard, <https://covid19.who.int/>.

2. UN Global Compact, <https://www.unglobalcompact.org/what-is-gc/mission>.

3. WHO, Operational framework for building climate resilient health systems, 2015.

4. Margaret E Kruk, Michael Myers, S Tornorlah Varpilah, Bernice T Dahn, What is a resilient health system? Lessons from Ebola, *Lancet* 2015; 385: 1910–12, May 2015.

Therefore, a sustainable and resilient health system:

- Can forecast, cope with and manage health risks; recover from and adapt to unexpected shocks; and ensure universal healthcare access with no one left behind, for both present and future generations.
- Ensures that the Ten Principles are considered in all actions and interventions and that the SDGs are advanced.

Once the definition of such a system is clarified, its significance can also be understood and accepted: It helps people prepare for ever-increasing health challenges, to prevent future setbacks and losses in health achievements gained and to contribute to the foundation for sustainable development with equal access to healthcare services and improved health and well-being.



Building blocks to achieve a sustainable and resilient healthcare system

To achieve a sustainable and resilient healthcare system, we look to the six building blocks of a healthcare system identified by the World Health Organization (WHO).



Figure 2. The six building blocks of healthcare systems as defined by WHO

- 1. Service delivery**
- 2. Health workforce**
- 3. Information**
- 4. Medical products, vaccines and technologies**
- 5. Financing**
- 6. Leadership and governance⁵**

These building blocks offer clear guidance on how to achieve the following goals: Improving health and health equity; acting in ways that are responsive, financially fair and make the best or most efficient use of available resources; achieving greater access to and coverage for effective health interventions; and not compromising efforts to ensure provider quality and safety.

Measuring a sustainable and resilient healthcare system

Proper measurement of a healthcare system's performance is also crucial. Dr. Margaret Chan, former Director-General of WHO, once said:

“The best measure of a health system's performance is its impact on health outcomes.”⁶

If we place sustainable and resilient healthcare system as an ultimate goal, then the outcomes to be measured should be based on quality, access and cost, the Iron Triangle of Health Care first introduced by William Kissick in 1994:⁷

5. WHO, Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action, WHO Document Production Services, Geneva, Switzerland, 2007.

6. WHO, Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action, WHO Document Production Services, Geneva, Switzerland, 2007.

7. William Kissick, Medicine's Dilemmas: Infinite Needs Versus Finite Resources, New Haven and New London, 1994.

- **Quality** – a broad range of high-quality healthcare benefits (programmes, interventions, goods and services) to which individuals are entitled.
- **Access** – universal and equitable access to healthcare for all citizens.
- **Cost** – protection against untoward financial and social consequences of taking up health care: of particular interest is protection against catastrophic expenditure and poverty.

Supporting a sustainable and resilient healthcare system

A sustainable and resilient healthcare system is supported not only by the building blocks within the health sector, but also by a comprehensive ecosystem including infrastructure in other sectors, such as energy, construction, transportation, manufacturing and agriculture. For example, reliable energy supply infrastructure is important to allow healthcare facilities to operate normally, and cold-chain transportation capabilities are essential for vaccine distribution. **This paper mainly focuses on healthcare infrastructure and the healthcare ecosystem. Other sectors will be discussed in following publications of the Action Platform.**

A word on the climate-health nexus

As noted by the Board member, Sanofi (it is a UN Global Compact participant), Lise Kingo:

“To create a future where everyone thrives, we need to do more than treat the symptoms of disease. We need to get ahead of the curve and take preventive action against the harmful impacts on the health of the planet and people, recognizing that business-as-usual approaches will not be enough.”⁸

8. UN Global Compact – Business Leadership Brief for Healthy Planet, Healthy People.

We may beat the current pandemic, but without global efforts to hold global temperature rise to within 1.5°C above pre-industrial levels and reaching net-zero emissions before 2050,⁹ COVID-19 remains a preview of what is to come. We have evidence-based connections between health and climate change; as warmer temperatures prevail, so do threats to human and planetary health.¹⁰ Without climate action, infectious agents will continue to cause negative health effects, including heat-related illnesses, under-five child mortality, cardiopulmonary illness, vector-borne illnesses, malnutrition, and behavioural and mental health issues. As extreme weather events increase in frequency and intensity, so do health needs and the economic costs of addressing those needs.

Through the Business Ambition for Climate and Health Action Platform, the UN Global Compact and its partners are reinforcing the message that we need to tackle climate in order to reduce health vulnerability. In order to do that, we aim to put a human face to the climate crisis by prioritizing human rights and mobilizing the private sector to take responsible and ambitious business action to drive climate-nature-health resilience.

The task of strengthening healthcare systems and moving toward the SDGs does not end with COVID-19 — it is merely a preparation for challenges yet to come.

At the 73rd World Health Assembly on 20 May 2020, WHO called on all member states to strengthen their health systems sustainably.¹¹

9. UN Global Compact News – Over 150 global corporations urge world leaders for net-zero recovery from COVID-19.

10. UN Global Compact – Business Leadership Brief For Healthy Planet, Healthy People.

11. WHO, Seventy Third World Health Assembly, Agenda item 3, COVID-19 Response, 19 May 2020.

2. Enablers for Building a Sustainable Healthcare System

Global collaboration is urgent and the key to success in advancing the Global Goals and building sustainable and resilient healthcare infrastructure. In such a moment of crisis, initiatives like BRI have an especially important role to play in promoting solidarity and collaboration. And in this collaboration, business and technology are vital.



2.1. Global Collaboration Is Urgent and the Key to Success in Advancing the SDGs and Building Sustainable and Resilient Healthcare Infrastructure

In the past few years, collaboration across different social segments has achieved significant progress. Increasingly, companies are becoming aware that they must work in solidarity and collaborate with multiple stakeholders, including other businesses, Governments, civil society organizations, academia, investors and local communities. They must also co-invest in solutions to shared systemic challenges. COVID-19 has underscored the interdependent and interconnected nature of our world, highlighting the importance of collaboration to address global challenges such as healthcare.

Global collaboration is also the key to achieving the Global Goals.



Goal 17: Partnerships for the Goals specifically highlights the importance of global collaboration, citing the need to: “Strengthen the means of implementation and revitalize the global partnership for sustainable development.”

The Global Goals can only be achieved with strong global partnerships and cooperation. Successfully achieving the 2030 Agenda requires inclusive partnerships at the global, regional, national and local levels, built upon principles and values and upon a shared vision and shared goals that place people and the planet at the centre. Each Country, organization and individual has a responsibility to promote global collaboration within our own capacity leveraging our own comparative advantages.

Strong international cooperation is needed now more than ever to build sustainable and resilient healthcare infrastructure, providing countries with the means to recover from the pandemic, build back better and achieve the SDGs. The challenges posed by both the current and projected future crises cannot be solved by any single country, but rather require joint efforts and active collaboration.

At the 73rd World Health Assembly on 18 May 2020, UN Secretary-General António Guterres stated:

“Either we stand together, or we fall apart.”

In his opening speech at the Assembly, President Xi Jinping of China called on

“All of us to come together and work as one.... Let’s work together to build a global community of health for all!”

Many efforts have been made to strengthen global collaboration in the battle against COVID-19. In response to the pandemic, countries have shared information and best practices, coordinated medical supplies and engaged in joint R&D for vaccines and medicines. Stakeholders across different sectors and from different countries have supported each other to face the challenges posed by the pandemic. Still, challenges remain in reaching the most vulnerable populations with effective support.

There is still a lot of potential to strengthen collaboration as no single country can win the battle against the pandemic alone. Operating under multilateral initiatives that aim to promote collaboration, companies can leverage **BRI** to build sustainable and resilient infrastructure and fill the gap for private sector investment. The Initiative has achieved some initial impact and success through collaboration in other areas of infrastructure. Therefore, it offers an opportunity for business to operate responsibly aligned with ten principles of Global Compact to accelerate the achievement of the SDGs.

Background on BRI and its importance to the SDGs

In 2013, Chinese President Xi Jinping announced BRI, a vision for strengthened economic cooperation through five pillars: Policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds between China and other countries.

In his remarks at the Second Belt and Road Forum for International Cooperation in 2019, UN Secretary-General António Guterres emphasized that the five pillars of BRI “are intrinsically linked to the 17 Sustainable Development Goals.” He also remarked that: “The world will benefit from a Belt and Road Initiative that accelerates efforts to achieve the Sustainable Development Goals.”

It has been estimated that the Initiative has the potential to connect countries accounting for more than 60 per cent of the global population, 30 per cent of global GDP, 40 per cent of global

trade and more than 50 per cent of people living under the extreme poverty line.¹² Considering its scale and scope, BRI has significant potential to further the delivery of the SDGs, or if not managed well, impede progress.

Pathways for BRI to accelerate achievement of the SDGs

For BRI to fulfil its potential as a positive contributor to the achievement of the 2030 Agenda for Sustainable Development, it is important for its efforts to be managed well. BRI investments must not only produce economic growth, but also generate inclusive and sustainable social and economic development, thereby acting as an accelerator for achievement of the SDGs.

During the Second Belt and Road Forum for International Cooperation in April 2019, over 35 Heads of State issued a joint communique where they “call on all market players in the Belt and Road cooperation to fulfill their corporate social responsibility and follow the principles of the UN Global Compact.” This statement reflected an endorsement of the Ten Principles of the UN Global Compact as an international norm to advance corporate sustainability under the BRI framework.

No.18. In the interest of sustainability, we support improving cooperation in project preparation and implementation, to promote projects that are investable, bankable, economically viable and environment-friendly. We call on all market players in the Belt and Road cooperation to fulfill their corporate social responsibility and follow the principles of UN Global Compact.

Health Silk Road to tackle challenges in collaboration

BRI projects are mainly focused on sectors such as energy, transportation, manufacturing and construction, where the government/public sector plays an indispensable leading role. The healthcare sector was not immediately prioritized.

However, the Health Silk Road, a concept that President Xi first proposed under the overarching BRI framework, has been strengthened by international collaboration in the past three years — including a high-level Memorandum of Understanding between WHO and China on BRI and Health, agreed in January 2017. The Health Silk Road has a new meaning and mission

12. The World Bank Group, <https://www.worldbank.org/en/topic/regional-integration/brief/belt-and-road-initiative>.

amidst the global COVID-19 pandemic: To build a global community of health for all and make concerted efforts to protect the life and health of people in all countries.

The key question, now and going forward, is twofold: What role can BRI play in promoting healthcare infrastructure, and how can we maximize the health benefits of other infrastructure investments?

In this moment of crisis, global solidarity is not only a moral imperative, it is in everyone's interest. Many developing countries lack the fiscal strength and domestic resources **(including human resources, capacity and institutions)** required to access and fund adequate COVID-19 response and recovery measures. International cooperation and external aid are crucial in addressing the impact of the pandemic and in steering future investments into building a more sustainable and resilient healthcare infrastructure. BRI could be one of the international multi-lateral platforms for collaboration to address the consequences of the crisis and identify future opportunities in its midst. Business can play an important role in joining Governments, international organizations and other stakeholders to contribute to the global response to crises at such scale and advance concrete, evidence-based, equitable solutions both in the short term and long term.



2.2. Business and Technology Play Vital Roles

Business is at the forefront of the implementation of the Global Goals

Various stakeholders play different roles in building sustainable and resilient healthcare. While Governments, with their convening power, lead strategic planning and major decision-making efforts to deliver universal healthcare coverage, the business sector can also contribute.

Companies can align their efforts with Government strategy and planning, taking an active role in multi-stakeholder initiatives and collaborations that help implement the strategies — and thereby increasing the sustainability and resilience of healthcare systems. As the Blueprint for Business Leadership on the SDGs by the UN Global Compact points out, **businesses can “build on core responsible business practices to understand, monitor, mitigate and remediate negative impacts on health.** Leading companies can leverage their expertise, resources and knowledge, and their vital role in product, process and business model innovation for the benefit of global health.”¹³

The business sector can benefit from the participation of companies in achieving the Global Goals and from collaboration among stakeholders

Leadership and participation can yield significant returns for companies as **vast opportunities lie in building sustainable and resilient healthcare infrastructure,** which can be leveraged through technology and collaboration. Businesses can:

- Access and create new markets for their products responsibly, and create business benefits.
- **Adopt sustainability practices that gain favour from consumers and investors,** who are better informed than ever before and want businesses to take responsibility for global issues.

13. UN Global Compact, Blueprint for Business Leadership on The SDGs: A Principles-based Approach.

During the current critical period in combating the global pandemic, it is especially important for companies to shoulder greater social responsibility and demonstrate empathy.

As the Harvard Business Review has pointed out: “How a CEO or company showed up in 2020 will be a new and powerful yardstick by which they are measured.”¹⁴

In addition, such participation and collaboration can contribute to the global economy and global well-being

As the pandemic continues to spread, the risks of a global recession and drops in financial markets are significant. Fast recovery hinges upon the continuity of businesses and livelihoods. The global efforts taken by WHO, Governments and health authorities alone are not enough. All companies can take collective action to stem the COVID-19 outbreak and stand together to facilitate business continuity. They should leverage technology in responsible manner, to ensure the immediate provision of affordable essential supplies, commodities, utilities and services and help to build a better-prepared and more resilient healthcare system that is sustainable in the long term.

Why technology?

Technology has transformed the way business is done in the healthcare sector, empowering every building block, from service delivery to financing. It can help maximize economic gains as well as accelerate achievement of the SDGs more effectively and on a larger scale. In this paper, technology is used in its broad definition. Applications of technology include, but are not limited to, digital technology tools; end-to-end provision of pharmaceutical products and medical devices from R&D to manufacturing and then to storage and distribution; innovation in health facilities and clinic infrastructure, such as green clinics based on solar power; and innovative payment and insurance technology. The emphasis here, however, is on digital and advanced technology.

14. Paul Polman, Raj Sisodia, and Kip Tindell, What Good Business Looks Like, 2020, <https://hbr.org/2020/05/what-good-business-looks-like?ab=hero-subleft-3>.

3. Priorities and Opportunities for Businesses to Build Sustainable and Resilient Healthcare Infrastructure in BRI Countries by Leveraging Technology

This chapter examines the healthcare system in BRI countries through the lens of health system outcomes (access, quality and cost) and the six building blocks for healthcare systems identified by WHO.



3.1. Understanding Healthcare Challenges for Countries Based on the HAQ Index

Over the past few decades, healthcare outcomes have steadily improved across the world, but a closer look reveals that there are still significant gaps between countries. We need to identify **performance characteristics, development priorities and major challenges** to analyse the **potential opportunities available for different countries**.

The Healthcare Access and Quality (HAQ) Index¹⁵ was developed by the renowned medical journal, The Lancet, drawing from the Global Burden of Diseases, Injuries, and Risk Factors Study. This white paper adopts **the HAQ Index** as an indicator of a country's or territory's healthcare outcome to categorize the countries and conduct further analysis. The countries can be evenly divided into two groups by their HAQ index.

- **High HAQ countries:** This group has a high HAQ index. It comprises mostly developed countries and fast-growing developing countries.
- **Low HAQ countries:** This group has a low HAQ index. It comprises mostly developing countries.

Each of the two groups shows distinct performance results in healthcare access, quality and cost.

15. Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: A systematic analysis from the Global Burden of Disease Study 2016, The Lancet, May 2018, [http://dx.doi.org/10.1016/S0140-6736\(18\)30994-2](http://dx.doi.org/10.1016/S0140-6736(18)30994-2).

The HAQ Index uses an overall score of 0 to 100 to measure personal healthcare access and quality by region. The index is constructed by analyzing deaths from 32 causes from which death should not occur in the presence of effective care. The 32 causes are inclusive and comprehensive, covering a wide range of healthcare service areas, including vaccine-preventable diseases; infectious diseases and maternal and child health; and non-communicable diseases, including cancers, cardiovascular diseases, diabetes, etc.

The index is considered a proper indicator for the analytical purpose of this white paper. Its data source is reliable and authoritative, construction process is rigorous and comprehensive and results are insightful and widely acknowledged. Developed by Global Burden of Disease 2016 Healthcare Access and Quality Collaborators, the HAQ Index and the findings were published in Lancet in 2018.

Selected performance indicators		Low-HAQ	High-HAQ
Quality			
Healthy life expectancy (HALE) at birth		58.1	68.4
Healthy life expectancy (HALE) at age 60		13.4	16.9
Mortality rate-total (per 100,000 population)		689.7	799.3
Mortality rate-communicable, maternal, neonatal, and nutritional deficiencies (CMNN) (per 100,000 population)		247.8	43.2
Mortality rate-non-communicable diseases (NCD) (per 100,000 population)		381.4	700.5
Mortality rate-injuries (per 100,000 population)		60.6	55.6
Access (per 10,000 population)			
Hospital beds		16.7	49.0
Doctors		7.6	32.9
Nursing and midwifery		22.9	76.2
Cost			
Current health expenditure (CHE) per capita in USD \$		146.8	1897.3
Out-of-pocket (OOP) expenditure as % of CHE		38.8	28.0
CHE as % gross domestic product (GDP)		5.5	6.6

Table 1. Healthcare system performance (195 countries and territories)¹⁶

16. The Global Health Observatory, WHO, 2017, <https://www.who.int/data/gho>.

- **Quality:** There is a significant gap in HALE both at birth and at age 60. Overall, High HAQ countries have a higher mortality than Low HAQ countries, which can partly be explained by the aging population in High HAQ countries. The mortality rate of CMNN in Low HAQ countries is strikingly higher than High HAQ countries, while the mortality rate of NCD shows the opposite.
- **Access:** Health services access is constrained in Low HAQ countries by the relatively low hospital beds to population ratio and the small size of the health workforce. The gap in the density of doctors is more evident than in other indicators.
- **Cost:** A significant discrepancy between the two types of countries can be noted. The CHE per capita of High HAQ countries is more than 10 times that of Low HAQ countries. The gap can mainly be attributed to the difference in levels of economic development. The percentage of OOP expenditure in Low HAQ countries is much higher than High HAQ countries, indicating that financial protection needs to be strengthened; however, the discrepancy also invites reflections on cost-efficiency issues in High HAQ countries.

Major disease burden and healthcare development priorities

By analysing the percentage of each cause of death — CMNN, NCD and injuries — for each country and comparing them against the global average, we can see how the major cause of deaths for each type of country differ.

- **High HAQ countries:** NCD, index larger than 1 (higher than the global average).
- **Low HAQ countries:** CMNN, index closer to 2 (nearly twice the global average), though unable to avoid mortality by NCD (lower than the global average).

Analysis of death causes by HAQ (195 countries and territories)

Index-cause of death

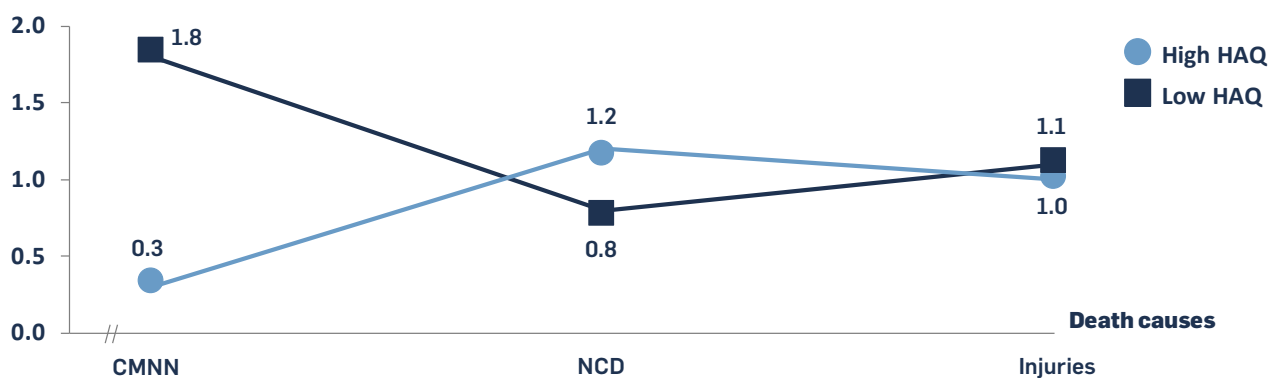


Figure 3. Analysis of causes of death by HAQ (195 countries and territories)¹⁷

17. Institute for Health Metrics and Evaluation (IHME), Global Health Data Exchange (GHDx), Global Burden of Disease Study 2017 (GBD 2017), <http://ghdx.healthdata.org/gbd-results-tool>.

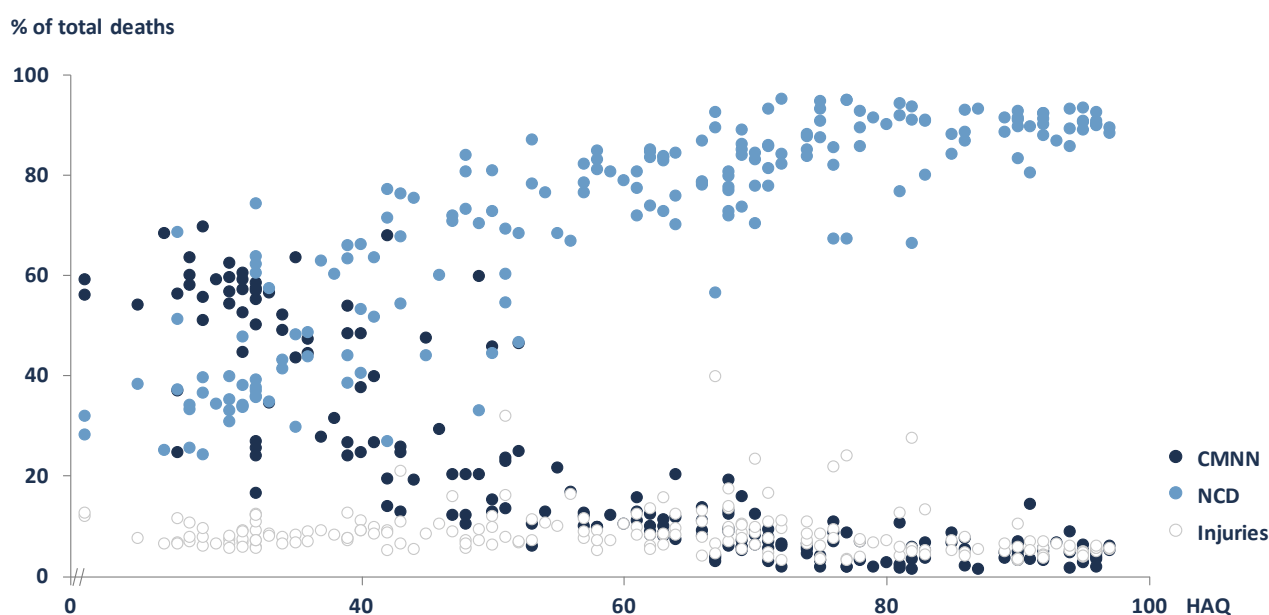


Figure 4. Analysis of causes of death (195 countries and territories)

Key priorities and challenges for High/Low HAQ countries

With such diverse disease burden patterns, and given their different stages of socioeconomic development, the two groups of countries face different priorities in improving healthcare outcomes and developing sustainable and resilient healthcare systems. Throughout history, there has been a clear shift in the disease burden from CMNN to non-communicable diseases, with technology advancements in prevention and treatment of CMNN diseases as well as socioeconomic progress. For **Low HAQ countries, the urgent priority should be to eradicate CMNN diseases**, which are the “low-hanging fruit” to achieve better healthcare outcomes, while **for High HAQ countries, dealing with aging populations and NCDs is more critical**.

The two groups of countries face different key challenges as they pursue sustainable and resilient healthcare systems **due to their different levels of current development and future priorities**. Low HAQ countries, still striving to improve access to primary healthcare and combating CMNN, are paying significant attention to **basic service delivery and building primary healthcare systems**. High HAQ countries, which have mostly passed the initial development stage, are trying to improve efficiency and control costs in dealing with NCDs and ensure that the right decisions are made in facing challenges.

Nevertheless, High HAQ and Low HAQ countries face shared challenges, which become evident in tackling crises such as COVID-19. The shared challenges will be discussed later in this chapter.

HAQ index				
Low HAQ countries		Major disease burden: CMNN	High HAQ countries	Major disease burden: NCD
Provider	Service delivery	<ul style="list-style-type: none">• Insufficient primary care resources (hospitals, beds, etc.)• Inequity in access to resources, e.g. remote areas• Lack of channels to increase health awareness		<ul style="list-style-type: none">• Inefficient service delivery and high healthcare cost• Inefficient patient education & disease management• Lack of effective & convenient chronic disease management• Limited resources for severe and age-related disease
	Health workforce	<ul style="list-style-type: none">• Incapable and uninformed doctors• Insufficient healthcare personnel for communicable disease prevention and primary care		<ul style="list-style-type: none">• Lack of knowledge and low adoption of best practices• Incompetent and inefficient to deliver accurate diagnosis and high-end surgeries• Lack of workforce for long-term management and rehabilitation
	Information	<ul style="list-style-type: none">• Poor infrastructure to support ICT adoption• Lack of efficient disease control data management• Lack of the general population health information system		<ul style="list-style-type: none">• Unintegrated system and information silos• Suboptimal diagnosis and treatment pathway knowledge• Suboptimal use of data and information collected
Supplier	Medical products, vaccines and technologies	<ul style="list-style-type: none">• Low access to immunization and treatments for preventable diseases• Low access to affordable basic medicine/medical consumables/equipment		<ul style="list-style-type: none">• Lack of innovative and precision treatments for severe and rare diseases• High cost and low efficiency in R&D• High sales and marketing cost
Payer	Financing	<ul style="list-style-type: none">• Underinvestment in healthcare development• Low financial protection coverage• High out-of-pocket burden for individuals		<ul style="list-style-type: none">• Unsustainable healthcare expense growth• Limited insurance product options to meet diversified demand• Inefficient claim and expense management
Gov't	Leadership/ Governance	<ul style="list-style-type: none">• Immature healthcare policy and regulatory framework• Inadequate public health and primary care services, including CDC, maternal and neonatal care etc.		<ul style="list-style-type: none">• Insufficient coalition across government ministries, with the private sector and communities, and collaboration with partners• Suboptimal accountability and decision making

Table 2. Major challenges for different types of countries

As shown in Table 2, different types of countries face different major challenges with regard to the six building blocks of healthcare systems identified by WHO.

In High HAQ countries with NCD causes as the major disease burden

- **Provider challenges:** Basic healthcare service delivery is characterized by low efficiency and high costs as a large, irreplaceable workforce is required while collaboration between stakeholders is still suboptimal, communication is ineffective and inefficient, and data- and information-sharing is not fully transparent; and premium services are limited and expensive, especially for chronic diseases and severe diseases.
- **Supplier challenges:** Innovation is not fast enough to match increasingly diverse patient needs as R&D often comes at a high cost.
- **Payer challenges:** Health expenditure burdens on both the Government and individuals are growing rapidly due to inefficient resource allocation and use; and demand is increasingly diversified with emerging severe diseases and expensive solutions.
- **Governance challenges:** Lack of collaboration and coalition-building and need for accountability and decision-making.

In Low HAQ countries with CMNN causes as the major disease burden

- **Provider challenges:** Low-quality or inadequate services and resources (e.g., hospitals, beds, workforce) and inequity of access to resources, especially for people in remote

areas with poor infrastructure (transportation, energy supplies, cell phone and internet coverage); this results in slow adoption of information and communications technology; and lack of data and information collection and sharing mechanisms.

- **Supplier challenges:** Low-quality, insufficient and often unaffordable immunizations and treatments; and access issues caused by primitive distribution networks and harsh transportation and storage conditions.
- **Payer challenges:** Insufficient financial protection and limited funding and investment, leading to high healthcare burden for individuals.
- **Governance challenges:** Lack of robust health policy and regulatory systems and primary healthcare systems (e.g. for disease control, maternal and neonatal care).

Global challenge for everyone

With much being said about the different priorities and challenges for the two archetypes, the new reality of the COVID-19 pandemic rings an alarm for every citizen of the world. When such a crisis emerges, no one is exempt from its influence, rich or poor, young or old. It reveals the astonishing fact that even the most advanced countries with the best-funded and most mature healthcare systems have been struck by the pandemic, with little precaution or preparation.

Conversely, High HAQ countries have prepared for the impact of non-communicable diseases, which have gained more attention than communicable diseases seen as long-conquered, forgotten diseases that have been buried in human history. Citizens have suffered and sacrificed in the event of the pandemic due to this. Nevertheless, the pandemic has also acted as a test bed for the long-term preparedness of countries and their healthcare infrastructure, and it highlights the significance and necessity of building a sustainable and resilient healthcare system for the future. If we do not manage climate change well, similar and even more complex challenges will emerge in the future, and every country should be fully prepared.

3.2. Opportunities for Businesses to Leverage Technology — Especially Digital Technology — for Sustainable and Resilient Healthcare Infrastructure

With the goal of building a sustainable and resilient healthcare system, abundant opportunities exist for the business sector to empower each building block through technology — especially digital technology — and collaboration. This section will begin by focusing on the first five of six building blocks of healthcare systems identified by WHO, from service delivery to financing. This discussion will also introduce detailed opportunities for the business sector and provide case examples of businesses that are capturing these opportunities. Then, we will offer examples of technologies and collaborations that have emerged during the COVID-19 pandemic in the hope of inspiring businesses to step up and help face this unprecedented challenge.

It is worth noting here that BRI countries comprise both Low HAQ and High HAQ nations, so the business opportunities that follow are organized under those two categories.

Disclaimer: The case examples provided in this section are purely based on technology perspectives and are offered for learning purposes. The inclusion of company names does not constitute an endorsement of individual companies by the UN Global Compact.



Detailed opportunities for the business sector in High HAQ countries

The opportunities in High HAQ countries are mainly in improving the efficiency, service quality and convenience of healthcare as well as innovation for advanced treatments and personalized experiences.

WHO Health System Building Blocks		Clinical competency		Patient journey			
		R&D	Education	Awareness & prevention	Consultation & referral	Diagnosis and treatment	Follow up & long-term care
Provider	Service delivery	<ul style="list-style-type: none">• Social listening technology to capture healthcare needs		<ul style="list-style-type: none">• Multi-channel wellness and prevention info• Mental health management tool	<ul style="list-style-type: none">• AI-based e-triage	<ul style="list-style-type: none">• Online diagnosis & prescription	<ul style="list-style-type: none">• Online disease / health mgmt. tool
	Health workforce		<ul style="list-style-type: none">• Distant learning (MOOC)• E-knowledge bank• VR based training			<ul style="list-style-type: none">• Clinical Decision Support System (CDSS)• VR surgery/surgery robot• Unmanned service robot	<ul style="list-style-type: none">• Long-term patient mgmt. tool
	Information	<ul style="list-style-type: none">• RWD for clinical pathway design and DRGs			<ul style="list-style-type: none">• Electronic medical record (EMR)• Regional health info platform		<ul style="list-style-type: none">• Info sharing platform and communities
Supplier	Medical products, vaccines and technologies	<ul style="list-style-type: none">• Research support• R&D innovation with RWD• New technology for personal protective equipment	<ul style="list-style-type: none">• E-detailing	<ul style="list-style-type: none">• Prevention and health monitoring devices		<ul style="list-style-type: none">• Innovative medicine• Biotech solutions• E-commerce/online drug purchase• AI imaging	<ul style="list-style-type: none">• Remote patient monitoring devices• Rehabilitation solutions• Low carbon infrastructure
Payer	Financing	<ul style="list-style-type: none">• AI-enabled payment standard and product design• E-platform as sales channel• Automated underwriting and claim management solutions• Fraud, Waste and Abuse (FWA) solution					

Table 3. Major technology and collaboration-enabled opportunities – High-HAQ countries

1. Service delivery

- **Social listening technology to capture healthcare needs:** People have diversified and personalized healthcare demands, but it would be costly and inefficient to identify them manually on a large scale. Thus, in High HAQ countries with a large volume of data from different sources, new technology such as social listening can be leveraged to distil customer insights efficiently and precisely and design appropriate products and content, **thereby improving the quality and efficiency of patient education, disease management and medical product R&D.**

Case example:

DXY leverages AI and big data to capture and analyse multichannel information, such as posts on social media, and distil insights and preferences for product and content generation and distribution channels.¹⁸

- **Multichannel wellness and prevention information:** Articles and data on health information can come from multiple channels, especially social media and mobile devices, in High HAQ countries. Topics may include guidance on lifestyle and public education as well as updates on relevant healthcare issues such as COVID-19. These channels can efficiently help **improve awareness and prevention** by encouraging healthier lifestyles and proactive steps to improve personal health.

Case example:

Tencent Medipedia aims to spread disease prevention information and wellness-related content. During the COVID-19 pandemic, it has provided a large amount of information to help the public understand the new virus quickly and receive useful prevention tips.¹⁹

- **Mental health management tool:** An online tool or mobile app can support mental health management (e.g. management of depression). The tool can collect and analyse patient information to encourage mental disease prevention through early identification. It would also provide personalized treatment and management plans, such as setting and monitoring personal development goals and medication reminders.
- **AI-based e-triage:** An online tool or mobile app can increase the efficiency of consultations and referrals and control the cost of service delivery with automatic responses to basic medical inquiries and AI-based doctor referrals. Patients can use digital platforms for consultation and receive direct responses to basic questions — or receive a recommendation to make an appointment with a doctor based on triage. This helps to increase efficiency and improve the patient experience by avoiding wasted doctor resources and unnecessary offline visits.
- **Online diagnosis and prescriptions:** Patients can use this tool to receive a diagnosis by first communicating with doctors and pharmacies, then getting an e-prescription and medicine delivered to their homes. This approach can raise efficiency and improve patient diagnosis and treatment, especially for patients with chronic and age-related diseases.

18. DXY, <http://www.dxy.cn/pages/about.html>.

19. Tencent Holdings Ltd., <https://www.tencent.com/en-us/responsibility/combat-covid-19-medipedia.html>.

Case example:

PingAn Good Doctor provides 24/7 online consultations, diagnosis, prescriptions, drug purchasing and delivery services in China. The convenient online visit service is supported by advanced AI technology. By mid-2019, the platform had accumulated some 300 million registered users in China.²⁰

- **Online disease/health management tool:** Web or mobile apps for patients can track their personal health, such as blood glucose level tracking for diabetes patients, reproductive health tracking for women and fitness management. This can improve the quality and efficiency of follow-up services and long-term care.

2. Health workforce

- **Distance learning (massive open online courses):** High-quality online courses offer the health workforce a convenient channel to access knowledge-sharing and best practices. This improves health education, helping health workers enhance their own capabilities and quickly master new treatments for unfamiliar diseases or new diseases (e.g. COVID-19).
- **E-knowledge bank:** An online knowledge bank for the health workforce with top medical research, advanced treatments and all types of healthcare knowledge resources can provide better medical education for self-learning and target searching.

Case example:

Elsevier e-Library has provided an online platform for many countries to make it easier to access and use medical and health science textbooks, effectively improving the capabilities of the health workforce with minimum cost.²¹

- **Virtual reality-based training:** VR training programmes offer the health workforce an advanced education programme with simulations of different scenarios from an immersive, first-person perspective to meet various training needs. This can improve the post-training performance of the health workforce.

20. Ping An Good Doctor, <https://www.jk.cn/aboutUs>.

21. Elsevier, <https://www.elsevier.com/solutions/eLibrary>.

- **Clinical decision support system (CDSS):** With an advanced big data model and knowledge bank, this tool can generate case-specific diagnosis advice by analyzing multiple types of patient data to support doctors in decision making — and to deliver more accurate diagnoses.

Case example:



Baidu partnered with Neusoft in 2019 on developing an AI-based CDSS to help hospitals in China improve the accuracy and efficiency of diagnoses. The product has been used in many medical institutions in China and exported to some less developed countries to improve local service quality.²²

- **VR surgery/surgery robots:** With surgery robots and VR, complicated surgeries can be carried out under remote guidance from experienced experts, increasing patients' accessibility to higher-quality healthcare services as well as providing learning opportunities for less experienced doctors.
- **Service robots:** Such robots can be used for smart medical supply deliveries in hospitals and elder-care centres to reduce the burden of nurses and nursing assistants, thus improving operating efficiency and patient experience in terms of treatment and long-term care. Using robots could also reduce the risk of infection among the health workforce by eliminating unnecessary contact in contagious wards.

Case example:

Service robots have been used in many hospitals in China over several years to improve operating efficiency and reduce the burden on nurses delivering medical supplies throughout a hospital. With the outbreak of COVID-19 in Wuhan, robots also helped to carry meals for doctors and patients and carried out other emergency tasks in hospitals.

- **Long-term patient management tool:** An electronic tool can connect doctors and nurses with patients for intelligent, long-term health management, thus creating a communication channel to improve the efficiency of patient management in long-term care.

22. Baidu, <https://01.baidu.com/news8.html>.

3. Information

- **Real World Data (RWD) for clinical pathway design:** RWD platforms with high-quality patient data can be used for R&D support to optimize clinical pathways for different diseases, improving the efficiency and efficacy of treatments as well as hospital management.
- **Electronic medical records:** Such records enable providers to track patient data and medical treatment efficiently over time, allowing them to quickly monitor patients' health status. This would improve the quality of care and the patient experience from consultation to treatment.
- **Regional health information platform:** An integrated information and data platform connecting hospitals and other key stakeholders (e.g. payers) within a region can support information sharing throughout the process, from consultation to treatment. This improves the quality of services, workforce capabilities and the overall efficiency of the regional healthcare system.
- **Information sharing platforms in communities:** A tool for patients to communicate with each other and share their treatment experiences and lessons learned can help improve the outcome of long-term disease and health management.

A word on data privacy

Protecting personal information, and communicating how it is kept and shared, requires continuous improvements to inspire confidence in information systems and for their efficient use. In its draft global digital strategy, WHO emphasizes that health data is to be classified as sensitive personal data/personally identifiable information that requires a high security standard. Therefore, it stresses the need for a strong legal and regulatory base to protect the privacy, confidentiality, integrity and availability of data and the processing of personal health data — as well as the need to address cybersecurity, trust building, accountability and governance, ethics, equity, capacity building and literacy.²³

23. Global Strategy on Digital Health, WHO, https://www.who.int/health-topics/digital-health#tab=tab_1.

4. Medical products, vaccines and technologies

- **Research support:** Technology can support pharmaceutical companies during the R&D process to increase efficiency and reduce costs, especially for innovative medicines. Services could include drug discovery, preclinical research and clinical trial support. For example, big data could support the design and operation of clinical trials, including data collection and data analysis.
- **R&D innovation with Real World Data:** R&D innovation of medical products, vaccines and technologies empowered by RWD can inspire medical scientists to come up with new medical research ideas and drug innovations. This helps improve research and the efficiency of drug development as well as the success rate of drugs using disease models and networks.

Case example:



Roche has been leveraging Flatiron's RWD analysis to support innovations and speed up product approvals. The firm has also been able to pay greater attention to region-specific needs to expand local impact.²⁴

- **New technology for personal protective equipment.**

Case example:

The demand for personal protective equipment (PPE), which are made of PP plastic non-woven fabric, has been in short supply since the outbreak of COVID-19. In such case, Winner Medical developed cotton spunlaced non-woven protective materials and applied them to medical face masks, surgical gowns, etc. Such innovation not only solved the supply problem of raw materials, but also improved the comfort of PPE. It would also provide a more environmentally friendly choice for the healthcare industry in the long run.

- **E-detailing:** As a channel to communicate medical information to doctors without requiring traditional face-to-face visits, e-detailing uses electronic interactive media, such as targeted emails, online product presentations and online seminars. It increases the efficiency of doctor education on new medicines.

24. Hoffmann-La Roche AG, <https://www.roche.com/careers/our-locations/asia/philippines/blogs/meet-carlbee.htm>.

Case example:

Viseven offers e-detailing and remote detailing services that allow physicians to interact with representatives via stable VoIP and make presentations from both desktop and mobile devices while reps can use scripts for convenience. The service increases the efficiency of communications while lowering the number of sales representatives required, thereby reducing costs.²⁵

- **Injury prevention and health-monitoring devices:** Such devices, mainly for the elderly population, include fall-prevention, sleep-monitoring and wearable health-tracking devices. They can help prevent age-related injuries.
- **Innovative medicines:** The development of new and innovative medicines creates more treatment options for patients and improves quality of life. Such innovations include treatments for cancer and chronic diseases such as COPD.
- **Biotech solutions:** The adoption and application of biotechnology creates more treatment options for severe diseases to promote human health. These solutions include T-cell therapies for cancer, non-invasive prenatal testing, preimplantation genetic testing on embryos for genetic disorders and tissue repair using acellular biomaterials (e.g. dural repair patches).
- **E-commerce/online drug purchase:** Online drug purchase platforms, which give patients the option to buy drugs at home with fast delivery, can improve the patient experience of disease treatment.
- **AI imaging:** This technology can help doctors make quick diagnoses wherever they are located. Patients can upload scans and receive quick AI-enabled results, improving the efficiency and accuracy of diagnoses.
- **Remote patient-monitoring devices:** These devices allow providers to track and access patients' health data from a different location, conduct real-time assessments and adjust treatment plans — without requiring the patients to stay in the hospital or visit regularly. This can improve the quality of long-term care and offer greater convenience, especially for older and disabled patients.
- **Rehabilitation solutions:** Rehabilitation robots, gait recognition systems and other automatically operated systems can be used in patient rehabilitation to improve physical functioning, intelligently adjust treatment plans and effectively improve patients' follow-up care outcomes and experience.

25. Viseven company, <https://viseven.com/company>.

■ Low carbon Infrastructure

Case example:



BROAD Group in China delivered a negative pressure isolation hospital to Seoul National University Hospital of Korea in 23 days during the COVID-19 to support the local population in combating the virus. The hospital was 100% prefabricated in an intelligent factory at Hunan and assembled in South Korea. It was specifically developed to fight the pandemic with stainless steel BCore slab and fresh air system to ensure safety of medical staff and to avoid cross-infection.

5. Financing

- **AI-enabled payment standards and product design:** Insurance products can be designed using actuarial model-building based on clinical pathways and guidelines. This allows for personalized pricing with AI-enabled payment standards based on RWD and outcome evidence — thus providing more insurance product options to meet diverse demands.

Case example:

CXA Group in Singapore has developed an online platform for companies to offer employee health insurance based on each individual's preferences and budget. Employees are offered options based on information they provide and receive personalized health plans to encourage a healthy lifestyle.²⁶

- **Electronic sales platforms:** An online insurance purchase platform can help customers understand various insurance products and purchase products based on their needs. Data directly collected on the e-platform allows a wider range of insurance products to be sold with increased coverage.
- **Automated underwriting and claim management systems:** Powered by AI, these systems can offer customers automated insurance underwriting services based on evaluation of personal data as well as a faster claim payment process.

26. CXA Group, <https://www.cxagroup.com/>.

- **Fraud, Waster and Abuse (FWA) solutions:** An AI-powered analysis system can predict hidden patterns in insurance and claim data to identify high-potential claims while providing analytical tools to payers. These tools can aid the identification and investigation of suspicious claims prior to payment. FWA technologies are important to control the unsustainable growth of healthcare expenditure.



Detailed opportunities for the business sector in Low HAQ countries

The opportunities in Low HAQ countries are mainly in improving access to resources, disease prevention, service quality and affordability.

		Clinical competency		Patient journey			
WHO Health System Building Blocks		R&D	Education	Awareness & prevention	Consultation & referral	Diagnosis and treatment	Follow up & long-term care
Provider	Service delivery			<ul style="list-style-type: none">Multi channel wellness and prevention infoMental health protectionAffordable and simple health checkup	<ul style="list-style-type: none">Remote consultationAffordable green clinic		<ul style="list-style-type: none">Online disease/ health mgmt. tool
	Health workforce		<ul style="list-style-type: none">Distant learning programsE-knowledge bank			<ul style="list-style-type: none">Clinical Decision Support System (CDSS)	
	Information	<ul style="list-style-type: none">Infrastructure to support ICT adoptionPublic health research		<ul style="list-style-type: none">Notifiable disease report and info sharing system	<ul style="list-style-type: none">Hospital information system (HIS)		
Supplier	Medical products, vaccines and technologies	<ul style="list-style-type: none">Research support		<ul style="list-style-type: none">Qualified vaccinesVaccine storage & transportationPharmaceutical supply management		<ul style="list-style-type: none">Cost-effective and easy-operating testingAI imaging and reportingAffordable medicine	
Payer	Financing	<ul style="list-style-type: none">Technology enabled affordable and wide coverage solutionsFund & payment tracking platformFlexible financing solutions for medical devices					

Table 4. Major opportunities enabled by technology and collaborations – Low HAQ countries

1. Service delivery

- **Multichannel wellness and prevention information:** Articles on wellness and health information can be published on multiple channels in Low HAQ countries where such information is often published on social media, on television, in newspapers, etc. Topics can include guidance on preventing local diseases, public education and instructions on receiving treatment. This information can help raise public awareness and alleviate inequality of access.

Case example:

GiftedMom has developed a mobile health platform in Central Africa which provides pregnant women in underserved and disconnected communities with educational content and tips on pregnancy. The platform aims to improve the wellness of both mothers and newborn babies.²⁷

27. GiftedMom, <http://www.giftedmom.org/>.

- **Mental health protection:** Platforms and solutions can be designed to protect the mental health of vulnerable populations, especially children, from potential mental violence and to prevent harmful mental health conditions.

Case example:



Safaricom has developed a free app, the Guardian Application, to help protect the mental health of children. The app allows parents to choose who can call their children and prevents children from seeing harmful messages or installing apps on their smartphones — which protects them from possible abuse, cyberbullying or other form of online mental violence.²⁸

- **Affordable and simple health checkups:** Such low-cost health check services can take advantage of device and testing innovations to conduct early screening and diagnosis for large populations, especially to prevent large-scale infection of communicable diseases.

Case example:

Matibabu is developing a tool to diagnose malaria without a blood sample. It clips on a finger and is intended to detect Plasmodium, a malaria-causing parasite, in red blood cells by shining a red beam of light on the skin. The product is still undergoing clinical trials and is expected to be used in Uganda, Kenya and other African countries if trials are successful.²⁹

- **Remote consultation:** This approach provides patients in rural areas with access to healthcare specialists and resources via call centres and mobile devices. Remote consultation enables patients to ask for direct consultations with doctors or search for topics based on their needs, thereby improving access to primary care in less developed or rural areas where healthcare resources are limited.

28. UN Global Compact, Take Action, Case Example, Safaricom's App Keeping Kenyan Children Safe, <https://www.unglobalcompact.org/take-action/action/case-example/102>.

29. Matibabu, <https://www.matibabu.io/>.

Case example:

Hello Doctor is an app in South Africa that offers affordable and personalized healthcare services, including distribution of essential healthcare information, symptom checking, access to advice from doctors and doctor call-backs. With the app, patients can access high-quality healthcare even if health facilities are not available locally.³⁰

- **Affordable green clinics:** Clinics can be powered by renewable energy (e.g. solar power) in less developed countries where infrastructure readiness is insufficient to support regular clinics. Green clinics provide basic healthcare services from consultation to treatment, increasing primary care capacity and reducing inequity of resources.

Case example:

Poly Solar Technologies has developed solar-powered green clinics for communities in Africa where the basic infrastructure (e.g. stable electrical and water systems) is not sufficient to support regular clinics for local people. The green clinics offer the local population more accurate diagnoses and better treatment.

- **Online disease/health management tools:** Web or mobile apps allow patients to track their personal health progress and receive personalized health advice on managing health conditions, thereby improving their health awareness and long-term health outcomes.

Case example:

Baobab Circle has delivered mobile health condition self-management solutions—with personalized health tips, health progress tracking and reporting and doctor communication services — in many African and Middle Eastern countries. The company partners with local telecommunications network providers to help improve health outcomes in local communities.³¹

30. Hello Doctor, <https://www.hellodoctor.co.za/>.

31. Baobab Circle, <https://www.baobabcircle.com/>.

2. Health workforce

- Distant learning programmes: High-quality online education programmes can allow the health workforce in rural areas to access essential knowledge that would otherwise be out of reach. Distant learning helps to **train healthcare personnel for communicable disease prevention and primary care** and **shares the latest medical research with qualified doctors**.

Case example:



In 2019, Philips partnered with PURE (a non-profit organization dedicated to enhancing ultrasound education and use in the developing world) to develop an intercontinental tele-ultrasound programme linking specialists around the globe with physicians in Rwanda. The programme provides expert training and mentorship in ultrasound imaging to health workers in Rwanda, improving the country's front-line primary and emergency care system.³²

- **E-knowledge bank:** An online knowledge bank with top medical research, advanced treatments and healthcare knowledge resources can provide the health workforce with the latest authoritative medical information for self-learning and target searching. The development of e-knowledge banks in Low HAQ countries can come from international collaboration on developing platforms with a focus on local diseases.
- **Clinical decision support systems:** With an advanced big data model and knowledge bank, these systems generate case-specific diagnosis advice from analysis of multiple items of patient data. This can improve the decision-making capabilities of doctors in rural areas and less developed regions and thereby, raise the accuracy of diagnosis and treatment.

3. Information

- **Infrastructure to support** Information and Communications Technology (ICT) adoption: Development of local infrastructure to support ICT initiatives can also support sustainable and resilient healthcare systems.

32. Royal Dutch Philips Electronics Ltd., Company news, Philips teams up with PURE on pioneering tele-ultrasound program linking specialists around the globe with physicians in Rwanda, 19 Sep 2019, <https://www.philips.com/a-w/about/news/archive/standard/news/press/2019/20190919-philips-teams-up-with-pure-on-pioneering-tele-ultrasound-program-linking-specialists-around-the-globe-with-physicians-in-rwanda.html>.

Case example:



Huawei has been providing smart-network energy solutions and services in many countries to support the establishment of ICT infrastructure. For example, the company has partnered with Phanes Group (Dubai, UAE) to deliver UAE's first medium-voltage rooftop connection solar project, which will allow the region to adopt more ICT initiatives in the future.³³

- **Public health research:** Such research collects basic public health information to study local epidemic trends, identify the most challenging disease burdens and optimize planning and resource allocation.
- **Notifiable disease reporting and information-sharing systems:** Data collection and sharing platforms can connect information and data from local health institutes. These platforms can then support local governments' disease control centres in monitoring local disease trends, identifying priority objectives and developing appropriate prevention measures.
- **Hospital information systems (HIS):** Hospitals in some of Low HAQ countries still do not have effective and affordable HIS, which can collect and manage all of the hospital's information to raise management and operation efficiency, from patient consultation to treatment.

4. Medical products, vaccines and technologies

- **Research support:** Such support can help pharmaceutical and medical device companies reduce R&D costs and improve efficiency, thus providing more affordable solutions and improving access.
- **Qualified vaccines:** Many vaccines that developed countries have been using for years are still not available in some developing countries due to high costs. The development of vaccine technologies can accelerate development of innovative vaccines and cost-effective manufacturing — providing affordable and qualified vaccines for disease prevention in more countries.

33. PR Newswire, News, Huawei and Phanes Group Power the Largest Distributed Solar Project in the UAE, 24 Oct 2019, <https://www.prnewswire.com/in/news-releases/huawei-and-phanes-group-power-the-largest-distributed-solar-project-in-the-uae-847606101.html>.

Case example:

The Serum Institute of India has been working on providing affordable and qualified vaccines to some low- and middle-income countries, including countries in Africa. For example, it recently provided the paediatric pneumococcal vaccine for USD \$2 per dose, while similar vaccines in Pan American Health Organization (PAHO) countries cost USD \$12.85 to USD \$14.50 per dose. Lower costs effectively reduce barriers to access this lifesaving vaccine for children in low- and middle-income countries.³⁴

- **Vaccine storage and transportation:** Issues with storage and transportation have led to low accessibility and high vaccine costs in some countries. Technology can be leveraged to develop innovative storage and transportation solutions, mitigating such issues and increasing coverage of vaccines for disease prevention in these countries.

Case example:

Aucma cooperated with the Bill & Melinda Gates Foundation and partnered with Global Good in 2013 to develop a special container for vaccine storage and transportation in Africa, which brought effective vaccines to local children in areas that lacked necessary infrastructure. In 2015, the company collaborated with Global Good again to develop another cold-chain transportation fridge and received a WHO Performance, Quality and Safety certificate. Both products are now widely used in many developing countries, including Afghanistan, Ethiopia, Nigeria and Turkey.³⁵

- **Cost-effective and easy testing solutions:** In some developing countries, diseases have spread widely among the population and are hard to control due to complicated and expensive testing and diagnosis procedures. Technology can support the development of cost-effective, easy-to-use rapid testing solutions to improve diagnosis and disease control.

34. Serum Institute of India Pvt.Ltd, Company news, A new pneumococcal vaccine is here! Why this matters, 20 Dec 2019, https://www.seruminstitute.com/news_pneumococcal_vaccine.php.

35. Aucma Co., Ltd., Company news, 22 Jan 2019, <http://www.aucma.com.cn/news-detail-1806>.

Case example:

Atomo Diagnostics has developed an innovative rapid diagnostic test platform to simplify blood-based rapid testing procedures and enhance test performance. The rapid and easy-to-use tests can be used in challenging and resource-poor regions. The company has also engaged with the Global Health Investment Fund to develop at-home and point-of-care HIV tests.³⁶

- **AI imaging and reporting: AI technology** can support automated diagnosis with lower knowledge requirements for users. AI systems allow people with limited skills to provide qualified diagnoses in emergencies and situations where more experienced professionals are not available.

Case example:

Integration Xperts (iX) in Pakistan has partnered with Aga Khan University to develop an AI algorithm for MRIs that requires only a moderate amount of procedural expertise and reduces overall costs. The algorithm enables quicker diagnosis and appropriate management in resource-constrained countries such as Pakistan.³⁷

- **Affordable medicines:** Advancements in technology and manufacturing allow the development of affordable medicines so that more people can have access to necessary treatments.

Case example:

Sinopharm has partnered with local companies in many countries, including Vietnam, to provide affordable, locally manufactured medicines. This has improved the well-being of local communities and boosted local employment.³⁸ In June, 2020, Sinopharm partnered with Ministry of Health and Prevention of the United Arab Emirates (UAE) in conducting phase III clinical study of COVID-19 inactivated vaccine and the company stated that it is committed to ensuring vaccine accessibility and affordability in developing countries.

36. Atomo Diagnostics, Improving access to point of care diagnostics, <https://atomodiagnostics.com/global-health-vision/>.

37. The Aga Khan University, School news, Researchers to use AI algorithm to reduce thalassemia deaths, 2 Sep 2019, https://www.aku.edu/news/Pages/News_Details.aspx?nid=NEWS-001917.

38. China National Pharmaceutical Group Co., Ltd., <http://www.sinopharm.com/en/1398.html>.

- **Pharmaceutical supply management:** Supply chain management solutions for automated pharmaceutical supply distribution, with seamless information exchange, can improve the coverage and efficiency of the overall healthcare system from prevention to treatment. These solutions could improve supply management in rural areas where effective inventory management — securing sufficient stock while minimizing cost — is essential in meeting the healthcare needs of local populations on time.

Case example:

Women have limited access to contraceptives in Kenya partly due to supply issues. In response to this issue, the German Society for International Cooperation facilitated a collaboration between Virtual City and local stakeholders to provide a mobile inventory management system in Kenya. The system was successfully piloted in two rural districts where it improved management of local family-planning supply chains.³⁹

5. Financing

- **Technology-enabled affordable and wide coverage solutions:** Technology allows innovative insurance products to meet specific customer needs, providing affordable solutions to increase insurance coverage.

Case example:

In 2019, ZhongAn helped Grab develop a digital insurance platform with tailor-made products for Southeast Asian customers. For example, the joint venture launched a critical illness microinsurance product in Malaysia as an affordable and easy-to-access insurance option for drivers.⁴⁰

- **Fund and payment tracking platforms:** In some less developed regions, local funding for health services and medicines is largely reliant on donations. Transparent payment tracking platforms support efficient and equal resource allocation and reduces out-of-pocket costs for patients in these regions.

39. African Development Bank Group, Innovative e-Health Solutions in Africa Award, 9 Jun 2014, <https://www.afdb.org/en/documents/document/innovative-e-health-solutions-in-africa-award-48731>.

40. ZhongAn Technologies (International) Group Limited., company news, 20 Dec 2019, <https://www.zhongan.io/article/130>.

Case example:

In 2019, Blockchain Charity Foundation launched the Pinkcare Token project to sponsor feminine hygiene products for young women in underdeveloped regions who cannot afford them. The Foundation leveraged blockchain technology and transformed the traditional charitable giving approach, making donations fully transparent and accountable. This not only improved the efficiency of aid, but also reduced intermediary costs to maximize value and impact.⁴¹

- **Flexible financing solutions for medical devices:** In some developing countries, diseases spread widely among the population and patients die due to a lack of facilities to treat their conditions — because local hospitals cannot afford the medical devices necessary for treatment. Innovative solutions such as machine leasing can equip these countries with more devices to improve patients' survival and quality of life.

Case example:

Sandor Medicaid cooperated with the Directorate General of the Health Services of Bangladesh using a long-term leasing contract to provide cost-effective medical devices for dialysis or kidney transplants. The Public-Private Partnership project provided local patients with affordable services which improved quality of life and saved lives.⁴²

41. Binance Charity, Featured Projects, Pink Care Token Project for Period Poverty - Helping Women In Need of Better Feminine Care, <https://www.binance.charity/period-poverty>.

42. UNECE International PPP Centre of Excellence, People-first PPP Case Studies, PPPs in Health, Hemodialysis Centre at NIKDU, Bangladesh, <https://www.uneceppp-icoe.org/people-first-ppps-case-studies/ppps-in-health/hemodialysis-centre-at-nikdu-bangladesh/>.

Emerging technologies and collaborations to fight COVID-19

While the spread of the COVID-19 pandemic continues to present a global challenge and human suffering on a vast scale, it has also revealed unprecedented opportunities for technology solutions and collaboration among countries — including BRI countries. Various technologies and collaborations have emerged in the different stages of the COVID-19 response.

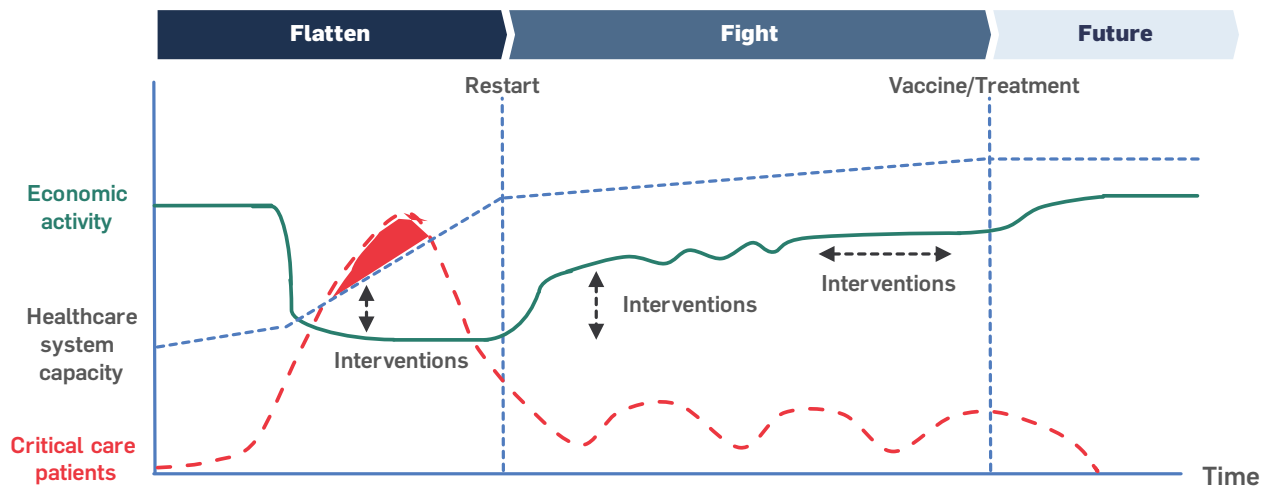


Figure 5. Three stages of COVID-19 – basic shape of the pandemic journey⁴³

In the “flatten” phase of the pandemic, countries or cities lock down to flatten the exponential growth curve of the virus. Major challenges and opportunities in this phase emerged when the virus first started to spread. Insufficient medical resources to meet the sudden increase in demand meant that patients were unable to receive timely treatment. In addition, the lack of rapid tests and methods of diagnosis made it impossible for Governments and hospitals to identify patients for early treatment without generating an excessive burden on the healthcare system. A few examples of technologies and collaborations that emerged to face the challenges in this phase include:

- **Global logistics fast track for medical supplies:** At the beginning phase of COVID-19 outbreak in China, Cainiao Smart Logistics Network teamed up with industry partners in other countries, such as DB Schenker (Germany), PCA Express (Australia) and CJ Logistics (Republic of Korea), to launch its Green Channel — a global logistics initiative to expedite the delivery of medical aid to areas in China hit by the coronavirus. Chinese logistics companies were responsible for domestic transportation while overseas logistics companies were responsible for cross-border transportation.⁴⁴

43. BCG publication, COVID-19: Win the Fight, Win the Future, 16 Apr 2020, <https://www.bcg.com/publications/2020/covid-scenario-planning-winning-the-future-series.aspx>.

44. The Paper news, 1 Feb 2020, https://www.thepaper.cn/newsDetail_forward_5691009.

- **Rapid throat swab diagnostic kits for coronavirus testing:** The Beijing Genomics Institute in China developed a rapid COVID-19 test kit solution that was distributed to more than 70 countries around the world. The company also built a robot nucleic acid testing lab in five days and has been helping other countries, such as Brunei, Serbia and the United Arab Emirates, to build similar laboratories for coronavirus testing.⁴⁵
- **COVID-19 triage tool to help users self-assess their coronavirus risk category:** Created by Wellvis in Nigeria, this tool indicates users' risk category based on information about their symptoms and exposure history. It also offers remote medical advice or refers patients to nearby healthcare facilities based on their results.⁴⁶
- **Online consultations to encourage home quarantine and social distancing:** Many tech companies were already been providing online doctor consultation services in various countries before COVID-19, and the technology has taken on new applications during the pandemic to encourage home quarantine and social distancing. For example, Baidu has launched free online services, including medical and psychological consultations in English, for global users.

In the “fight” phase of the pandemic, a geographic area “restarts” its economy while maintaining a low rate of infection — although it still runs the risk of having to implement further lockdowns. Major challenges and opportunities in this phase focus on the tracking of the population and virus migration to capture the small amount of infected cases and prevent a second wave of extensive infection. In this phase, the development of cures and vaccines is the key in moving to the next phase. A few examples of technologies and collaborations that have emerged to face the challenges in this phase include:

- **Governments leveraging big data analysis to track population movement:** During the COVID-19 pandemic, Governments in many countries have leveraged technology and big data analysis to track movement of the infected population in support of decision-making on interventions. Yet at the same time, Governments are also collaborating with data providers to ensure that the use of private information can be balanced, allowing both effective information-sharing and appropriate privacy protection. For example, in the Republic of Korea, the Government used a big data platform to track the movement of everyone who tested positive for COVID-19 with data obtained from cellphone records, credit card receipts and other private data sources.⁴⁷ This measure proved to be effective as the country brought the outbreak to heel in a matter of weeks, yet it also raised privacy concerns. On 9 March 2020, the country's National Human Rights Commission issued a recommendation suggesting that the disclosure of certain details

45. South China Morning Post, China, Chinese lab helps Serbia boost Covid-19 testing capacity, 13 May 2020, <https://www.scmp.com/news/china/diplomacy/article/3084273/chinese-lab-helps-serbia-boost-covid-19-testing-capacity>.

46. World Economic Forum, Agenda, Here's how Africans are using tech to combat the coronavirus pandemic, 5 Apr 2020, <https://www.weforum.org/agenda/2020/04/africa-technology-coronavirus-covid19-innovation-mobile-tech-pandemic>.

47. BCG Publication, Learning from COVID Transforming Health Systems, 5 May 2020, <https://www.bcg.com/publications/2020/learning-from-covid-transforming-health-systems.aspx>.

of private information was unnecessary.⁴⁸ In response, the Korea Centers for Disease Control and Prevention (KCDC) issued a guideline on 14 March stating that personally identifiable information should be protected and excluded from disclosure.⁴⁹

- **Multinational partnership of pharmaceutical companies for treatment and vaccine development:** Pharmaceutical companies from different countries have proactively come together to accelerate the development of treatments and vaccines for COVID-19. For example, CanSino Biologics (China) and Precision NanoSystems (Canada) announced a collaboration on mRNA lipid nanoparticle vaccine development; AbCellera (Canada) and Lilly (United States) announced a collaboration on the development of an antibody therapy treatment; Vir Biotechnology (United States) & WuXi Biologics (China) formed a partnership for human monoclonal antibodies treatment development; and Clover Biopharmaceuticals (China) and GSK (United Kingdom) formed a partnership to develop a protein-based vaccine.⁵⁰
- **Collaborative WHO initiative for vaccine development.** In April 2020, a Research and Development Blueprint was activated as part of WHO's response to the outbreak to accelerate the development of diagnostics, vaccines and therapeutics for the novel coronavirus. Under coordination of WHO, a group of experts with diverse backgrounds is working towards the development of vaccines against COVID-19.⁵¹

The “future” phase of the pandemic begins only after a vaccine or highly effective treatment has been developed and deployed. As the pandemic passes, economic and social activities return to normal. Still, actions to improve the epidemic prevention and control system are needed to prepare for the future. Even though no country or territory has yet reached this phase of the pandemic, some opportunities can be anticipated. A few examples include:

- **Big data early detection systems:** As digitalization penetrates all industries, natural language processing and machine learning can support early detection of future epidemics based on big data analysis with data collected from multiple channels. For example, medical data from electronic medical records, health data from personal wearable devices, population trend data from global flight patterns and potential epidemic trends from Government reports could all be utilized.

48. National Human Rights Commission of Korea, Press release, NHRCK Chairperson's Statement on Excessive Disclosure of Private Information of COVID-19 Patients, 9 Mar 2020, <https://www.humanrights.go.kr/site/program/board/basicboard/view?menuid=002002001&boardtypeid=7003&boardid=7605315>.

49. Korea Centers for Disease Control and Prevention, Press release, Updates on COVID-19 in Korea (as of 14 March), 14 Mar 2020, https://www.cdc.go.kr/board/board.es?mid=a30402000000&bid=0030&act=view&list_no=366553&tag=&nPage=16.

50. Pharmaceutical-technology news, COVID-19: Pharmaceutical companies and agencies that partnered for coronavirus vaccine development, 30 Mar 2020, <https://www.pharmaceutical-technology.com/features/covid-19-pharmaceutical-company-partnerships-for-coronavirus-vaccines-development/>.

51. WHO news, Public statement for collaboration on COVID-19 vaccine development, 13 Apr 2020, <https://www.who.int/news-room/detail/13-04-2020-public-statement-for-collaboration-on-covid-19-vaccine-development>.

- **Remote treatment and telemedicine mechanisms:** When a novel virus is first identified, healthcare providers can become infected easily if they treat patients without wearing proper protective gear. Adopting effective remote treatment in the early stage of an epidemic could avoid large-scale infections in the health workforce while improvements in robotics and AI technologies are required to make diagnoses and treatments effective.



4. Recommendations for Businesses to Leverage the Opportunities in Healthcare for Sustainable Development when Participating in BRI Infrastructure Projects



4.1. Embedding the Ten Principles and Accelerating SDG Implementation with Sustainable and Resilient Healthcare Infrastructure

It is important that businesses leverage opportunities in healthcare systems to ensure sustainable development when participating in BRI infrastructure projects. The UN Global Compact considers businesses to be sustainable when they are:

1

Doing business responsibly through aligning their strategies and operations with Ten Principles on human rights, labour, environment and anti-corruption;

2

Taking strategic actions to advance broader societal goals, such as the SDGs, with an emphasis on collaboration and innovation.

Businesses embedding the Ten Principles of the UN Global Compact

Corporate sustainability starts with a company's value system and a principles-based approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption. Responsible businesses enact the same values and principles wherever they have a presence, and know that good practices in one area do not offset harm in another. By incorporating the Ten Principles of the UN Global Compact into strategies, policies and procedures, and establishing a culture of integrity, businesses leveraging healthcare opportunities not only uphold their basic responsibilities to people and planet, but also set the stage for long-term success.

The Ten Principles of the UN Global Compact, which follow below, are derived from the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.



Human Rights

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. make sure that they are not complicit in human rights abuses.



Labour

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour; and
6. the elimination of discrimination in respect of employment and occupation.



Environment

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.



Anti-Corruption

10. Businesses should work against corruption in all its forms, including extortion and bribery.



SUSTAINABLE DEVELOPMENT GOALS



Businesses accelerating SDG implementation

Businesses investing in and building healthcare infrastructure through the use of technology have enormous opportunities to advance the SDGs, which the UN General Assembly set forth in 2015 as a “blueprint to achieve a better and more sustainable future for all” by the target year 2030.

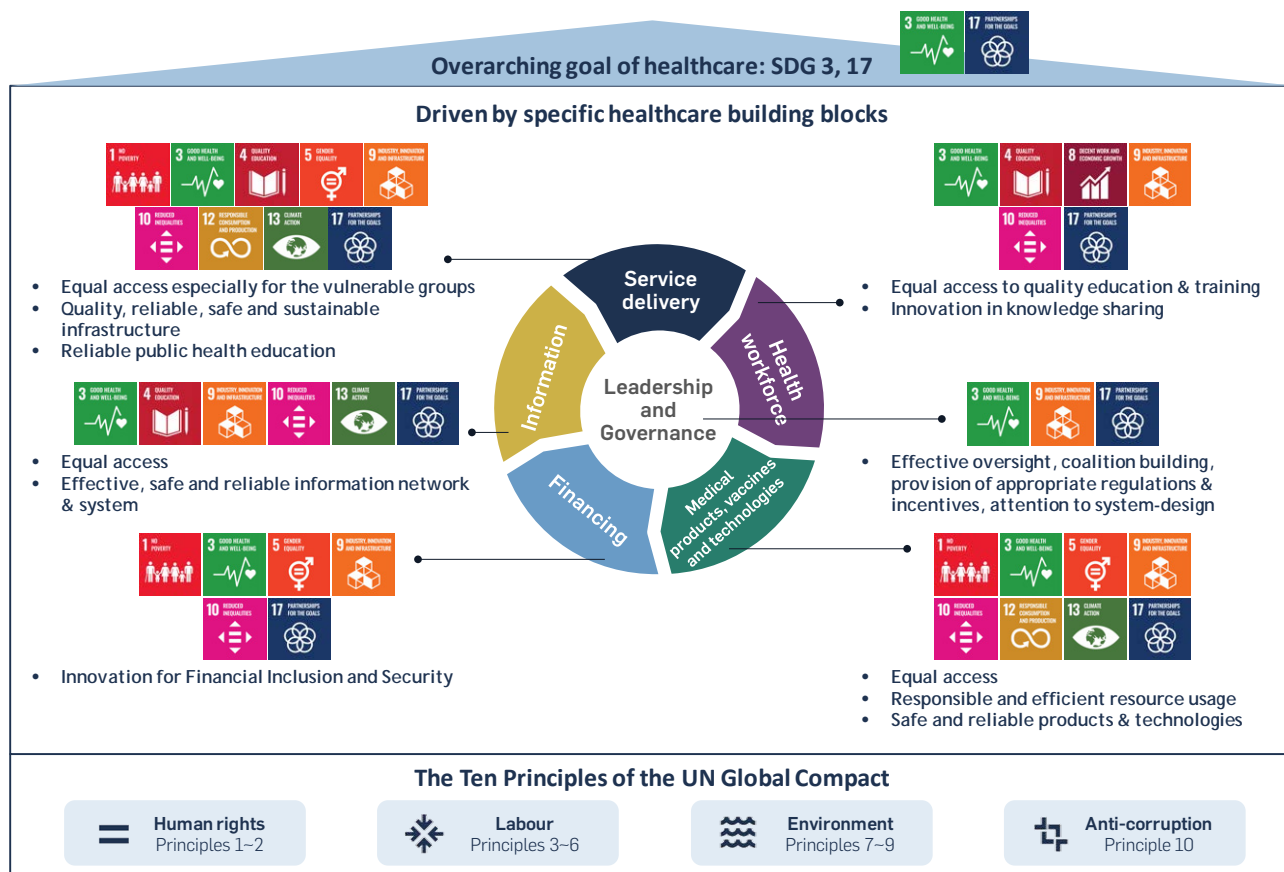


Figure 6. How businesses can contribute to building sustainable and resilient healthcare infrastructure — and accelerate implementation of the SDGs — per the healthcare building blocks of WHO

The primary goal of sustainable and resilient healthcare infrastructure is embedded in Goal 3 and Goal 17, which aim, respectively, to ensure healthy lives and promote well-being for all; and strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development. Goal 3: Good Health and Well-Being, in particular, also contributes to sustainable development more broadly. Building sustainable and resilient healthcare systems not only directly improves global health, but also supports progress towards other Global Goals — especially the goals on poverty, education, gender equality and reduced inequality.

Both Goal 3 and Goal 17 are also closely related to each of the six building blocks of healthcare suggested by WHO. In fact, all 17 of the **Global Goals are driven by one or several of the six building blocks**. It is important to understand the links between the healthcare building blocks and the SDGs in order to maximize positive impact. Here is an overview of those links and their relevance to the business sector.

1.

Service delivery

Good health services should be able to deliver effective, safe and high-quality health interventions to individuals and populations who need them, whenever and wherever they are needed, with minimum waste of resources. A sustainable and resilient healthcare system should also be able to prepare for and manage emergencies as well as mitigate future risks.



The business sector can:

- Leverage technology initiatives to connect healthcare services in urban and rural areas or developed and less developed regions, close service delivery gaps and provide access for vulnerable groups (e.g. women and children or the poor) — thus increasing access and moving closer to universal health coverage;
- Improve the quality, reliability and safety of local infrastructure to provide more people with high-quality healthcare services and promote well-being for all;
- Provide reliable public health education, such as disease prevention information and tips, through digital platforms and e-channels to improve public health awareness.

2.

Health workforce

A well-performing health workforce works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given the available resources and circumstances. It is a workforce with sufficient numbers and an appropriate mix of staff who are fairly distributed, competent, responsive and productive. A sustainable and resilient healthcare system should also identify, prevent and manage health risks and invest in organizational capacity to work flexibly and effectively.



The business sector can:

- Leverage technology and multi-industry/region collaborations to provide equal access to quality education and training, and continuous professional development, for the health workforce in areas with limited resources to improve healthcare quality and coverage;
- Develop innovations in knowledge-sharing to allow timely and accurate sharing among health workforce and provide the most suitable and advanced treatment for patients.

3.

Information

A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance and health status. A sustainable and resilient healthcare system should also strengthen disease surveillance as well as the research that is required to continue to make progress against persistent and emerging health threats.



The business sector can:

- Secure equal access to essential healthcare data and information to promote the improvement of the overall healthcare system;
- Support the development of an effective and transparent healthcare information network and system, such as building a Real World Data platform to advance and improve services.



4.

Medical products, vaccines and technologies

A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness as well as their scientifically sound and cost-effective use. A sustainable and resilient healthcare system should also use innovative technologies to reduce the environmental impact of healthcare as a means toward achieving long-term sustainability.



The business sector can:

- Develop solutions to promote equal access and well-being for all, such as providing qualified vaccines and affordable medicines to larger populations;
- Leverage technology advancements to encourage responsible and efficient resource usage, supporting improved healthcare efficiency;
- Promote safe and reliable products and technologies and encourage environmental responsiveness, such as using paperless e-detailing for medical communication.

5.

Financing

A good health financing system should raise adequate funds for health in ways that ensure people can use necessary services and are protected from financial catastrophe or impoverishment resulting from having to pay for these services. A sustainable and resilient healthcare system should also focus on potential increases in healthcare costs and develop new models to finance a preventive intersectoral approach and increase resource efficiency. A country can tax tobacco or other harmful products, for example, to expand sources of income for healthcare and curtail consumption. The model each country chooses for financing will be deeply rooted in its societal values and governance system.



The business sector can:

- Develop innovations for financial inclusion and security, such as creating more effective charitable platforms to support more people in receiving appropriate care and treatment.

6.

Leadership/Governance

Leadership and governance involve strategic policy frameworks combined with effective oversight, coalition building, the provision of appropriate regulations and incentives, attention to system design and accountability. A sustainable and resilient healthcare system should also pay attention to collaboration to develop a shared vision among diverse stakeholders as well as focus on coordinated cross-sectoral planning so that policies are coherent, health-promoting and address the complex and long-term nature of the risks.



Although this sixth building block, leadership and governance, is mainly led by Governments around the world, the business sector can and should:

Act as a strong support for Governments to secure effective oversight, coalition building and the provision of appropriate regulations and incentives as well as effective system design — and to be a constructive, positive force for accountability to the society.



Five key actions for businesses to take

To further support the business sector in prioritizing the Global Goals and embedding them into core business strategies and operations, here are five key actions that can help companies align their business strategies and operations with the SDGs to maximize positive impacts.

Action 1: Understand the SDGs and take a “principles-based approach” to implementing them.

Taking a principles-based approach to the Global Goals means considering the full range of a company's impact — both positive and negative. From a business perspective, this reduces business risk and nurtures innovation and new business opportunities that are aligned with the needs of the world.

Action 2: Prioritize SDG actions to maximize impact.

Companies must define a clear set of priorities and select goals and targets to focus on. The 17 SDGs will all have varying levels of relevance to each company depending on its sector or geography. Priorities should be defined through a holistic assessment of the company's current positive and negative impact on the SDGs across its operations and value chains and in communities where it operates.

Action 3: Set ambitious goals and targets.

Companies should adopt an “outside-in” approach when setting goals and targets for current and required performance while meeting the needs of people and the planet. This means looking at what is needed outside as well as inside the company and taking a global perspective to set goals accordingly.

Action 4: Embed the SDGs into core business.

It is essential for companies to understand that progress towards sustainability goals creates value for the company and clearly communicate the business case for how the goals complement the delivery of other business objectives. Ensure that sustainability goals are integrated into performance reviews and remuneration schemes across the organization, making sure that well-designed incentives are aligned with the specific roles of functions and individuals. Publicly communicate the company's sustainability ambitions in top-level vision, mission and purpose statements, linking future business success to sustainability.

Action 5: Report and communicate contributions to the SDGs.

Integrating progress reporting on the Global Goals into the company's reporting cycle will build transparency and accountability, nurturing trust and connections with communities, consumers, civil society and investors. Communicating the role that the business is playing in the delivery of sustainable development is an effective way to demonstrate its success in implementing a principles-based approach to the Global Goals. This will contribute to wider awareness and growing support for the Global Goals and the 2030 Agenda.

BRI and African countries

According to *Agenda 2063: The Africa We Want*, published by the African Union: "We aspire that by 2063, Africa shall be a prosperous continent, with the means and resources to drive its own development, with sustainable and long-term stewardship of its resources and where African people have a high standard of living, and quality of life, sound health and well-being."⁵²

With this goal in mind, Africa has a long way to go in the next four decades. The spread of COVID-19 across Africa has threatened the continent's progress. "Much hangs in the balance," as UN Secretary-General António Guterres remarked at the 33rd African Union Summit on 20 May 2020. "It will aggravate long-standing inequalities and heighten hunger, malnutrition and vulnerability to disease... and millions could be pushed into extreme poverty."

No one alone can tackle these challenges. At such a critical point, international efforts are required more than ever. BRI can be leveraged to support the healthcare infrastructure development in Africa and promote solidarity and unity among countries, advance each other's interests through international collaboration and support their most vulnerable populations, making sure that no one is left behind.

52. African Union Commission, *Agenda 2063, The Africa We Want (Popular Version)*, 2015, https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf.

4.2. A Further Note for the Business Sector on Achieving Sustainable Success in BRI Countries

Businesses engaged in building resilient and sustainable healthcare infrastructure in BRI countries can succeed through two overarching approaches: Localization and the development of clear sustainability priorities, as follows.

Decide what to offer by investigating and understanding local market needs:

- **Identify local market healthcare needs and locate the most urgent challenges:** Identify the major disease burden and trends, analyse the root causes and identify the most urgent healthcare unmet needs.
- **Understand the current healthcare infrastructure:** Measure the current development level for each of the six building blocks, including the weakest as well as the strongest block, in comparison with peer countries; identify the most urgent infrastructure gaps that must be bridged to support government plans and strategies for a sustainable and resilient healthcare system.

Decide how to approach the local market by identifying the most effective models for product-offering and collaboration:

- **Consider local policy and regulations on healthcare sector investment;** countries may have varying regulations for public, private or foreign investment in different sectors.
- **Respect the local cultural and religious context,** participate and operate in alignment with the local context and respect individual cultures and differences.
- **Consider population distribution and affordability,** measure and estimate the potential market size and strike a balance between coverage and efficiency.
- **Consider local business regulations and readiness to measure the ease of doing business; e.g.** starting a business, applying for construction permits, access to electricity, registering property, getting credit, paying tax, enforcing contracts and resolving insolvency.⁵³

53. World Bank Group, Doing Business 2020.

Table 5. Product offering and collaboration models and examples

Product offering model

Product export: Export finished products (e.g. medicines, vaccines or devices) to another country.

Example: Atomo Diagnostics, a leading med-tech company founded in 2010 in Sydney, Australia, exports its rapid HIV test kits to Africa and Europe through a local distributor network.

Benefits: The product export model allows the startup to enter a wide range of markets and ramp up quickly without requiring a heavy initial investment.

Technology export: Customize or localize the design or offering of products or services through a technology collaboration.

Example: Instead of directly participating in local financial services markets, ZhongAn exports its technology solutions, Graphene and Fusion, to build up capabilities for its clients, including traditional insurance companies and emerging internet platforms — enabling them to participate in digital financial service businesses.

Benefits: Companies adopting this model can enter foreign markets quickly without heavy upfront investments in capital or human resources. In addition, they can both comply with local restrictions on foreign participation in certain industries and participate in the local market. They can also bridge cultural gaps more easily.

Local manufacturing: Invest in or build local factories to manufacture products.

Example: Sinopharm set up China's first certified powder-injection manufacturing plant: the VCP Pharmaceutical Joint Stock Company. Based in Vietnam, the enterprise is compliant with WHO requirements for good manufacturing practices (GMP), good storage practices (GSP) and good laboratory practices (GLP).

Benefits: The local manufacturing model can help the company leverage local natural and human resources and control cost while maintaining supply with a localized supply chain. It promotes local well-being and improves local employment, and in return can win support from the local government.

Collaboration model

Partner with local businesses: Collaborate with the local private sector (e.g. local distributors and technology companies).

Example: Baobab Circle, a United Kingdom-based company that offers an online chronic disease management tool, partnered with Telkom, an integrated telecommunications services provider based in Kenya, in 2018 to launch a mobile health application that offered personalized tips exclusively to Telkom subscribers — reducing diabetes and high-blood pressure cases in the country.

Benefits: This approach allows the company to bridge cultural gaps and access a wide customer base without heavy upfront investment.

Public-private partnership (PPP): Cooperative arrangements between Government and businesses to provide products and services to the public.

Example: Sandor Medicaid cooperated with the Government of Bangladesh through a long-term leasing contract to provide cost-effective medical devices for dialysis or kidney transplants. It operates two centres with 90 machines in Dhaka and Chittagong.

Benefits: The PPP service-delivery model can benefit the public, the Government and businesses. It provides local patients with affordable services that improve quality of life and save lives, and it minimizes the need for public-sector capital investments. For the business sector, it increases public support, ensures that projects can be carried out successfully, provides entry to the public health system and ensures that a Key Performance Indicators-based revenue stream, negotiated in advance, can be guaranteed and protected.

Collaborate with international organizations: Work with multilateral international organizations, such as the UN Global Compact.

Example: The Serum Institute of India (SII) has been working with multiple international organizations, including UNICEF, Gavi, the Bill & Melinda Gates Foundation, PAHO and WHO, to offer affordable and quality vaccines to children in Africa. As the vaccines have been pre-qualified by WHO, the products can be sold to developing countries in large quantities through UNICEF procurement. SII now supplies 40 per cent of the vaccines funded by Gavi.

Benefits: The collaboration brings the company guaranteed large-scale procurement and pricing while benefiting the public by improving access to quality healthcare products.

Advice for companies on local collaboration

1. Work with the local public sector to gain public support and increase social impact:

- **Engage the local government and align with development goals.** Understand and align with national development goals and strategic priorities to improve social welfare and gain support.
- **Engage non-government organizations with local expertise** to enlarge business coverage and social impact.

2. Invest in local talents to bring mutual benefits:

- **Hire and develop local talent.** Create job opportunities for local talents, whose familiarity with the local context can promote long-term sustainable growth.
- **Empower and enable local partners.** Share both technology and management know-how and learn from their experience and guidance.



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About the UN Global Compact

As a special initiative of the UN Secretary-General, the United Nations Global Compact works with companies everywhere to align their operations and strategies with ten universal principles in the areas of human rights, labour, environment and anti-corruption. Launched in 2000, the UN Global Compact guides and supports the global business community in advancing UN goals and values through responsible corporate practices. With more than 10,000 companies and 3,000 non-business signatories based in over 160 countries, and 68 Local Networks, it is the largest corporate sustainability initiative in the world.

The UN Global Compact is unparalleled in its ability to unite companies with every stakeholder group working to advance sustainable development, including the United Nations, Government, civil society, investors and academia. Together, through bold actions and collaboration between all sectors of society, we can end extreme poverty and hunger, fight inequalities and address climate change, ensuring no one is left behind.

Visit unglobalcompact.org to learn more.

About UN Global Compact “Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs” Action Platform

Launched on June 16, 2020 during the UN Global Compact Leaders Summit, the Action Platform is designed to be the main mechanism for engaging companies operating in alignment of the SDGs under the framework of the Belt and Road Initiative. The Action Platform takes a sectoral approach to engage private sector players across major infrastructure sectors to ensure adoption of Global Compact ten principles in corporate strategy and actions to truly accelerate the SDGs.

For more information about the action platform and potential participation, please contact: bri@unglobalcompact.org

About Boston Consulting Group

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we help clients with transformation — inspiring complex change, enabling organizations to grow, building competitive advantage and driving bottom-line impact.

To succeed, organizations must blend digital and human capabilities. Our diverse, global teams bring deep industry and functional expertise and a range of perspectives to spark change. BCG delivers solutions through leading-edge management consulting along with technology and design, corporate and digital ventures — and business purpose. We work in a uniquely collaborative model across the firm and throughout all levels of the client organization, generating results that allow our clients to thrive.

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The launch of the Action Platform on Sustainable Infrastructure for the Belt and Road Initiative to Accelerate the SDGs as well as the publication of this white paper marks the 75th anniversary of the United Nations and the 20th anniversary of the UN Global Compact. Amid the COVID-19 pandemic, the UN Global Compact is uniting businesses everywhere to "recover better, recover stronger and recover together" — the sentiment expressed as the topic of this year's Leaders Summit.

UN Secretary-General António Guterres has called COVID-19 "the greatest test that we have faced together since the formation of the United Nations." This pandemic is an important reminder that everyone is interconnected and interdependent and that without solidarity, we will all lose.

The global challenges confronting us are unprecedented, yet they also offer a rare window of opportunity to restore solidarity and trust, strengthen preparations for future crises and facilitate sustainable development. We would like to invite everyone to inspire, learn from and contribute to the strong recovery the world needs — in particular, we invite the business sector which is at the forefront of BRI implementation to build sustainable and resilient infrastructure for a more sustainable future. It is critical that companies manage their impact on the environment, society and governance responsibly and facilitate BRI investments that are economically, environmentally and socially sustainable.

Let future generations look back on 2020 as the year the business sector are elevating their efforts to close the gap by leveraging innovative technology, accelerated SDG implementation by building sustainable and resilient healthcare infrastructure and defined the future of the Health Silk Road through concrete actions and collaborations — towards a shared global future of good health and well-being.

Action Platform Institutional Partners



The Ten Principles of The United Nations Global Compact

Human Rights

- 1** Businesses should support and respect the protection of internationally proclaimed human rights; and
- 2** make sure that they are not complicit in human rights abuses.

Labour

- 3** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- 4** the elimination of all forms of forced and compulsory labour;
- 5** the effective abolition of child labour; and
- 6** the elimination of discrimination in respect of employment and occupation.

Environment

- 7** Businesses should support a precautionary approach to environmental challenges;
- 8** undertake initiatives to promote greater environmental responsibility; and
- 9** encourage the development and diffusion of environmentally friendly technologies.

Anti-corruption

- 10** Businesses should work against corruption in all its forms, including extortion and bribery.

The Ten Principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.