

TITLE OF PRESENTATION: TECHNOLOGICAL & DIGITAL BREAKTHROUGHS IN HEALTH

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### BACKGROUND AND CONTEXT

Technology and AI are being used to provide healthcare services during disruptions such as loss of electricity, damage to hospital infrastructure, and access roads in a number of ways:

- **Telemedicine:** the use of telecommunications technology to provide healthcare services remotely. This can be done through video conferencing, phone calls, or text messaging. Telemedicine can be used to provide consultations with doctors, nurses, and other healthcare providers, as well as to deliver care to patients in remote areas.
- Wearable devices: Wearable devices such as smartwatches and fitness trackers can be used to collect health data from patients. This data can be used to monitor patients' health remotely and to identify potential problems early.
- **Drone delivery**: Drones can be used to deliver medical supplies and medications to remote areas. This can be especially helpful in the event of a disaster when roads may be impassable.
- Al-powered robots: Al-powered robots can be used to perform tasks such as taking vital signs, administering medication, and providing basic care. This can free up healthcare workers to focus on more complex tasks.







### FOR IMPROVED PATIENT CARE

- Technology is being used to automate tasks that are currently done by healthcare professionals, freeing up their time to spend with patients. For example, AI can be used to schedule appointments, review medical records, and order tests.
- Technology is being used to provide patients with more personalized care. For example, wearable devices can track patient health data and provide real-time feedback. This information can be used to identify patients who are at risk for certain diseases and intervene early.







## Improved efficiency of healthcare delivery

- Electronic health records (EHRs) are streamlining data management and improve communication between healthcare providers. This can lead to fewer errors and better coordination of care.
- Telemedicine is being used to provide remote care to patients in rural or underserved areas. This is especially important in rural areas where there may be limited access to healthcare providers. This can improve access to care and reduce the need for travel.
- Predictive analytics is being used to identify patients at risk for certain diseases and intervene early. This can help to prevent or delay the onset of disease, which can save lives and money.







### **REDUCING HEALTHCARE COSTS**

- Al can be used to identify waste and inefficiencies in the healthcare system. This information can be used to make changes that will save money.
- Telehealth can reduce the need for in-person visits, which can save money on travel and other expenses. The Technology can help to reduce the cost of healthcare by making it possible to deliver care more efficiently. This can be especially helpful in the event of a disaster when costs are likely to be high.
- Precision medicine can target treatments to individual patients, rather than a onesize-fits-all approach. This can lead to better outcomes and lower costs.







### Healthcare by air: Rwanda's life-saving medical drones

The east African state was the first in the world to use drones to deliver blood and essential medicines to rural hospitals. The breakthrough came following an agreement between the government and US manufacturer Zipline, and two centers now operate in the east and west of the country











## UNDP's Solar for Health (S4H) has existing infrastructure in partnership with the Global Fund



UNDP's Solar for Health initiative, installed in over 1,000 facilities to date, supports governments to increase access to quality health services through the installation of solar energy photovoltaic systems (PV), ensuring constant and cost-effective access to electricity, while reducing carbon emissions.

| Countries   |             | Total facilities |  |
|-------------|-------------|------------------|--|
| <b>&gt;</b> | Zimbabwe    | 900+             |  |
|             | Chad        | 150              |  |
|             | Nepal       | 145              |  |
|             | Sudan       | 62               |  |
| Ť           | Zambia      | 19               |  |
| *           | Namibia     | 11               |  |
| *           | South Sudan | 10               |  |
| C*          | Libya       | 5                |  |
| 2           | Angola      | 1                |  |

#### Case study 1: Health facility

Health facilities in rural areas of Zimbabwe installed with solar panels ensure the necessary source of energy to provide health services to local communities while reducing the electricity bills by up to 60%.



#### **Case study 2: Effective warehousing**

UNDP has supported the set up of so-called Medical Store Limited (MSL), to install 300 kWh solar energy systems in central medical warehouses in Zambia.

The warehouse guarantees the quality of vaccines and medicines.



### ESWATINI RFM HOSPITAL







### Smart Facilities integrate 4 interdependent technology pillars into physical infrastructure



#### **ENERGY & MOBILITY**

- **Renewable Energy Electric Vehicles** Vehicle-to-Grid Energy Storage (Li-ion)



#### **BIG DATA & INTERNET OF THINGS**

 Sensor-based technologies Energy Consumption & Environmental Monitoring Artificial Intelligence and Machine Learning integration laaS, PaaS, SaaS



#### "The whole is greater than the sum of its parts." - Aristotle

#### **ICT, BUSINESS INTELLIGENCE & AI**

- NextGen broadband connection – 5G, LTE-M, MulteFire
- Global Mobile Virtual Network Operator (GMVNO)
- OnelCTbox
- NextGen Satellite Communications – **SpaceX**, SatCube
- IoT connectivity LoRaWAN, BLE, Zigbee, Sigfox, NFC
- eMeeting

### **SECURITY**

- End-point protection CyberFirewall
- Solar Street Lamps
- · Perimeter Security Cloudbased CCTV and Premise Access System
- Access control
- Fire Detection/suppression









ON-DEVICE STORAGE



# Smart Facilities for Health fill a critical gap in health system strengthening, unlocking additional benefit of existing health system investments



### CONCLUSION AND CALL TO ACTION/QUICK WINS

Develop a comprehensive digital health strategy part of the health system strengthening strategy

### Partnerships for financing of technological and digital solutions

Prioritize capacity building and training











