EMERGING TECHNOLOGIES IN RESPONSE TO COVID-19

Blockchain, ICT, Data for Pandemic Management

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What are some of the technological solutions that have been implemented by countries across the globe to tackle COVID-19?
Road to Recovery…..Tackling Pandemic

Covid-19 outbreak has been catastrophic for global economies, shutting down the world and crippling economies in ways that will change the world forever.

This virus has not been selective - it has resulted in many fatalities that we need to mitigate against in future.

The Pandemic highlights the need for collaborative approaches to managing global crisis and more significantly how we need to transition as Covid-19 has rapidly transformed the way we interact, trade, communicate and create wealth.
Challenges Faced

Agricultural Sector
- Agricultural produce going to waste due to lack of demand and markets
- Lack of transportation for the agricultural produce

Governments
- Borders controls difficulties in monitoring infected people
- No crisis management
- Legal issues
- Public administration
- Food security
- No proper health management
- Reduced tourism

Education
- Closure of Schools/Universities/Colleges
- Lack of E-learning tools
- Difficulties in grading systems
- Schools communication and management during and post the pandemic

Financial sector
- Lack of finances to manage pandemic
- Financial Stock market collapse
- No lending power

Public Health & Epidemiology
- Challenges with COVID19 testing processes
- Lack of creative health protection
- Challenges of flatten the curve
- Infection case transmission tracing
- Medical care device manufacturing
- Mental health on the increase due to lockdown

Business Sector
- Insufficient supply chains
- Lack of business development tools
- Cultural shift
- Business operations halted or shut down
- Lack of bell out funds

Society
- People are not observing social distancing
- Disadvantaged communities are vulnerable has they don’t have good healthcare
- Elderly care are vulnerable to being infected
- Women torn between managing their household, childcare and losing their jobs
GLOBAL RESPONSE to Covid-19 tech solutions for a Resilient Green World
Fundamental Challenges in a Data-driven World

- Data quality
- Data management
- Data governance
- Data science
- Data intelligence
- Data optimisation
• **Data**- is key for the operational success and implementation of renewed business models and pandemic management

• **Interconnectivity through data**- devices will power the collection and flow of data around the world, data being golden thread for global value chain optimisation

• **Data control and ownership**- sits mainly within large platforms owned by big institutions who use the data to untap value, major concern on how this data is utilised, owned and dispersed

• **Regulatory structures around data**- will need to be strengthened in some countries and many are looking into data localisation laws and data flows between borders

• **Quality data**- is and will remain an important ingredient in value creation but even more important for global/economy resilience, recovery stimulus and sustainability gains
Where your Privacy Is (and isn’t) Protected?

- **Data Protection Law Passed or Under Review**: 46
- **Data Localization Requirement Passed or Under Review**: 8
- **Law Weakening Encryption Passed or Under Review**: 25
- **Data Retention Requirement Passed or Under Review**: 39

The EU implemented the General Data Protection Regulation (GDPR) to give citizens control over their personal data.

Brazil passed a data protection law inspired by GDPR, although it lacks some enforcement measures.

Russia mandates that companies store their users’ data on local servers, where it can be accessed by the govt.

Companies like Apple and Evernote have already complied with China’s new data localization regulations.

India’s 2018 draft data protection framework mandates that personal data be locally stored.

A draft surveillance bill in Australia could require companies to build “back doors” into encryption tools.

Encryption technologies are strictly prohibited in Cuba.

Morocco bans encryption services except those authorized by the military.

Colombia requires service providers to retain data for 5 years.

Italy requires telecom operators to store communications data for up to 6 years.

Telecom providers in Ethiopia store content and metadata for at least 1 year.

www.freedomonthenet.org
Digital book of records /transactions chained together
Transactions are made up of blocks of data organized in order
Blocks of data are linked together - one block linking the other
Blockchain is underlying technology where Bitcoin comes from
Blockchain has many application potential to build on
Blockchain enables transparency, trust, traceability,
A look at **Blockchain technology**

**How It Works?**

**Transaction Request**

Broadcasted to a P2P network consisting of computers, known as nodes.

**Validation**

The network of nodes validates the transaction and the user's status using known algorithms.

**Transaction complete!**

A verified transaction can involve cryptocurrency, contracts, or records.

Once verified, the transaction is combined with other transactions to create a new block of data for ledger.

It will then be added to the existing blockchain, ensuring it unalterable.
Blockchain for COVID-19

Data Privacy-Proof Blockchain DLT Open Architecture

End-to-end secure data sharing and coordination among authorities

1. FAST COVID-19 TESTING
2. COVID-19 PATIENT REGISTRATION
3. REAL-TIME COVID-19 PATIENT MONITORING
GPH Education Programmes

❖ Equipping leaders with digital and leadership skills
   Online and Offline learning - Virtual learning

• Government - innovative policy/regulatory frameworks
• Business - support business model transformation
• Women - support diverse talent within STEMA
• Youth - develop digital talent of the future

❖ Project DigitalEducate20-(DE20)
• Provide fun learning to young people emerging technology areas including Blockchain, Robotics and AI
• Tokenization of education and Incentivising learning

GPH exists to bridge the digital divide partnering with global organizations
Blockchain and Supply Solutions

- **Supply Chain** - Covid-19 urgent need to strengthen resilience in global value chains
- **Pandemic mitigation strategies** - should leverage blockchain to free up supply chains and boost global value chains
- **Delivery of goods and services** - medical equipment to cities - boost efficiency and transparency through blockchain speeding up processes/digitising documentation/improving KYC/same copy of transactions for all parties value chain
- **Blockchain transparency** - through track and trace of a good which will have a digital identity helping to verify and authenticate the provenance of that good
- **Data about goods** - can be integrated into one digital document, updated in real time and shared so visible to all across the value chain which speeds up transaction/minimises repetitive processes, tackles fraud and creates trust
- **Boosting digital trade** - through end to end digitisation will stimulate trade
Blockchain and Supply Solutions
Blockchain solutions

PHARMACEUTICAL SUPPLY CHAIN

MEDICAL RECORDS

SMART CLAIM
People can participate in population health studies and monetize their data in the form of tokens.

With more data sets, the usage of new technologies like AI would be possible which will result in discovering widespread risks of population health.

Healthcare system where all the information is easily accessible by doctors, patients and pharmacists at any given time.

- Higher security and transparency.
- Sharing of statistics of researches which, in turn, would facilitate clinical trials and treatment therapies for any rare disease.
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<th>BLOCKCHAIN BENEFITS TO GOVERNMENTS</th>
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<td>Land registration and other connected citizen services</td>
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<td>2.</td>
<td>Voting (Sierra Leon)</td>
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<td>3.</td>
<td>Healthcare - managing and securing of health information for patients</td>
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<td>4.</td>
<td>Supply Chain management - tracking supplies and avoiding counterfeiting</td>
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<td>Education - Validating of grades and attestations</td>
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<td>6.</td>
<td>Reduce corruption and fraud</td>
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<td>7.</td>
<td>Securing interconnected government services</td>
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<td>8.</td>
<td>High level identity management - for citizens to access government services a high identity management using blockchain is used</td>
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Blockchain for SMART SUSTAINABLE INCLUSIVE CITIES
**KENYA**

Safe Hands Kenya is working to use existing tech-enabled supply chains to hand out items such as sanitizer, masks, soap and surface disinfectant, particularly in poor, densely populated areas.

**SOUTH AFRICA**

- Following millions of sign-ups to South Africa’s COVID-19 HealthAlertservice, praekelt.org, the Johannesburg-based non-profit behind the bot, partnered with the World Health Organization (WHO) to create a global version.

**NIGERIA**

NiMEDix Ecosystem Technologies

Decentralized healthcare application (DApp)
- Real time Geo location contact tracing on Google maps and advice against Hotspots.
- Doctors decisions support systems.
- Electronic case reporting and remote triage.
XRG transforming training & events via virtual reality

XRG builds immersive virtual reality (VR), augmented reality (AR) and mixed reality (MR) solutions that revolutionize training and events enabling a new business as usual.

This interactive methodology has a proven track record for significantly increased knowledge retention rates and is highly scalable. By enabling the use of personal phones and low cost headsets it’s inclusive, low cost and environmentally friendly.

**VR TRAINING**

- 45% increase in knowledge retention versus 5% increase with traditional training
- Decreases training time by an average of 60%
- Online & offline Training
- Simple and intuitive
- Local languages and dialects
- Fully customizable course material
- Android & iOS Native Apps or Oculus from Facebook
- Scalable and cost effective

**VR Workshops & Conferences**

- VRGather transcends borders and allows businesses to host internal and external meetups, new employee orientations, product launches, workshops and even large-scale conferences in any environment without leaving the comfort of your home or office.
- Fully customizable environments
- Use virtual whiteboards with stick it notes to pictures, PDFs to other multi-media files
- Allow people to explore your products through AR in the palm of their hands
- Empower participants to connect through network pods and private breakout rooms

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BlueDot, a Canadian startup created an AI based service that tracks and forecasts outbreaks to help fight the virus. The BlueDot’s AI warned of the threat several days before centers for disease control issued their public warnings.

IBM Rapid Supplier Connect™ makes it possible for buyers and suppliers joining the fight to help keep hospitals and key support organizations ready - to quickly find each other, accelerate verification and onboarding processes, and gain near real-time insights into inventories of life-saving equipment. It combines a scalable blockchain for business network, proven supply chain solutions, and a network of dedicated industry and technical experts.
• 8 European countries have taken part in a no profit initiative to develop an open source application which analyses Bluetooth signals between mobile phones to detect users who have been in close proximity to each other.

• The app temporarily stores that encrypted data locally, and if the users later test positive for COVID-19, it can alert anyone who has been around the infected individual in the preceding days, while keeping all users’ identities protected.
Recommendations

Prepare - Protect - Preserve
Recommendations

- Important to identify, learn and invest in technologies can play transformative role in mitigating against future pandemics. Invest in wide scale education and research and development.
- Invest in strengthening the digital economy and diversification of economies with focus on non-traditional sectors - move towards tech, Arts, Agriculture.
- Support SMEs and digital entrepreneurs by providing liquidity, building strong digital ecosystems.
- Emerging economies strengthen platform economy and physical and digital connectivity and financing.
- Invest in human capital to build skills and capacity that will help innovate and create sustainable cities.
- Unite nations so there is greater collaboration and solidarity on keys issues - climate, health, economy.
- Develop sandboxes in countries to create collaborative ecosystems for fintechs, governments and others.
- Accelerate cross border digital trade by digitising trade documentation and removing trade barriers.
ARE WE READY?

Technology is an ever changing playing field and as such those that want to remain in the helm of managing future pandemics and driving growth will have to adapt and fully utilize the full potential that these emerging technologies present. And overall we have to strive to flatten not only the COVID-19 curve but also all the curves to all the challenges the world is facing. We are facing a climate, health, economic and financial crisis!

Uniting and bringing to the world what might be perceived as drastic and innovative solutions will lead us to Prepare, Protect and Preserve our societies.
Contact

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thank you