Managing health in the digital age

Policy brief

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Pathways for Prosperity Commission
Technology & Inclusive Development

Digital technologies can boost the quality and inclusiveness of health services. However, often the focus has been on procuring new hardware, with little effect; these then become expensive, cautionary tales for governments. Instead, using data to improve the management of health systems is a better investment of scarce resources.

This brief summarises policy-relevant findings from the report *Positive Disruption: health and education in a digital age.*

Key findings and a checklist for action:

1. Build digital monitoring tools and dashboards for decision-making.
2. Standardise data across your health network.
3. Equip health workers with information to support their basic work.
4. Test and learn through local customisation.

Research findings
key principles

System design and performance, not just funding, are big factors in health outcomes. For instance, South Africa spends 13 times more than Bangladesh on health, but has a similar child mortality rate.

Technology can help improve health systems, provided that countries follow a set of simple principles:

1. Technology should only be deployed where it offers an appropriate and cost-effective solution. Identify what is holding back your health system, and invest in solutions that solve that specific problem.

2. Good content and connections are just as important as hardware, if not more so. Investing in shiny new hardware – eg putting a tablet in the hands of every doctor – will only help if underlying software and systems support their work.

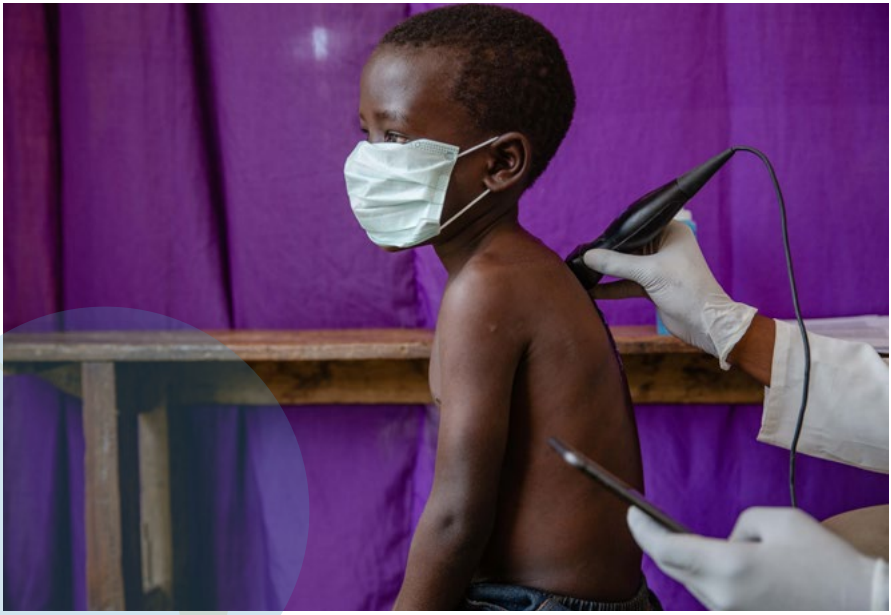
3. To be useful, technology must be supported by digital building blocks: back-end infrastructure, technical standards, and platforms.

Future building blocks

4. Ensuring that new technologies benefit everyone – including those typically left behind – requires deliberate design effort. This could mean using SMS reminders for marginalised patients – rather than simply relying on a smartphone app.

With careful investments, these principles could help **reimagine the architectures of service delivery and improve outcomes for patients. Current trends point towards five future visions for technological transformation of healthcare to improve the quality of care patients receive:**

- **Learning systems:** real-time feedback loops across the system will inform medical practice and decision-making.
- **Proactive systems:** algorithms and dashboards will proactively identify at-risk or priority patients for frontline workers to reach and treat effectively.
- **Personalised systems:** digital health records and the use of data analysis will make personalised diagnosis and treatment possible.
- **Virtual systems:** telehealth and videoconferencing will break down the clinic's walls, bringing the expertise of specialised doctors to all.
- **Changing roles of doctors:** as many tasks are automated, health workers will shift towards offering more patient support.



Recommendations
a checklist for action

These four recommendations are a checklist for policymakers. They represent "quick wins" that should be possible to pursue immediately. Implementing these recommendations is the first step towards a health system that aligns with the principles described earlier, and can put a country on track to tap into the immense potential of digital technology to improve health for everyone.

1. **Build digital monitoring tools and dashboards for decision-making.**
The digital age is powered by data, but data only has impact if it provides insights or supports decision-making; otherwise, much of it goes unused. Health agencies should create system-wide maps, dashboards, or other tools for real-time monitoring of key indicators, for instance, to track real-time drug availability (such as the Clinical Information Network in Kenya) or for disease surveillance (such as MoSQuIT to map malaria). This is a relatively low-cost way to understand performance, and identify priorities for timely resource allocation. To extend the impact, make this administrative data open and accessible to help providers, entrepreneurs and local communities contribute to improving health outcomes.

2. **Standardise data across your health network.**
Policymakers are usually able to set parameters for how data is gathered across the system. Standardising how data is collected, stored, used and protected is a crucial priority. To generate system-wide insights, data must be consistent between clinics and regions. India provides a good example; its national health ministry is developing a standardised platform

to collect consistent health data. Making data consistent may require demanding better coordination from donors and program sponsors, who often want bespoke reporting. Health ministers can also be powerful advocates in cabinet for standardising whole-of-government approaches to data protection, a crucial issue that requires coordinated policy.

3. **Equip health workers with information to support their basic work.**
Digital technology provides a new, rapidly scalable distribution channel to get the latest guidance into the hands of doctors. This can include guidelines for specific disease treatment, messaging services to get advice from specialists, video training, or access to regional data. In Tanzania, e-IMCI (electronic-integrated Management of Childhood Illness) uses mobile phones to provide community workers with World Health Organization-approved protocols for treating common diseases. Apart from closing knowledge gaps among frontline workers, digital tools also help them participate in feedback loops – providing direct information to managers and planners.

4. **Test and learn through local customisation.**
Achieving impact with new technology is notoriously difficult. Tools that work in one context can fall flat in another. Health agencies should adopt administrative and decision-making protocols that allow for co-design, rapid learning, and an organisational culture that accepts risk of failure. Research groups and international organisations continue to evaluate new interventions, but these "proven" technologies and global goods will almost certainly need some adaptation to work in new contexts. Of course, procurement is more costly at small scale, but donors and other organisations may be able to help finance customisation, co-design and testing.

About the Pathways for Prosperity Commission

The Pathways for Prosperity Commission on Technology and Inclusive Development is led by a diverse group of commissioners from government, the private sector and academia. The Commission is based at the Blavatnik School of Government, University of Oxford. We collaborate with partners around the world to produce cutting-edge research, aiming to catalyse action so that frontier technologies work for the benefit of the world's poorest and most marginalised men and women.

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