Scaling-up Primary Healthcare Telehealth Innovations in Trusted Cyber Space

November 2022, 15:20 – 15:40

Presenters: Dr Laticha EM Walters (Next Generation Enterprises and Institutions, e-Government, Software Architectures and Solutions), Mr. Jeremy Wallis (Future Production Manufacturing: Industrial Sensors), Dr Amanda Skepu (Next Generation Health: Molecular Devices, Diagnostics and Vaccines) and Dr Zubeida Dawood (Defence and Security: Governance, Privacy and Trust)

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CSIR
Touching lives through innovation

Objectives

- Scaling-up Primary Healthcare Telehealth Innovations in Trusted Cyber Space
  - Definitions
  - Background and Need
  - Value Proposition
  - Telehealth Scale-up Framework and Implementation Roadmap
  - Scaling-up Umbiflow
  - Enabling Point of Care (POC) Innovations
  - Enabling Cybersecurity Innovations
- Business Model
- Conclusion

Definitions

- Telehealth
  - Telemedicine
  - Digital health
  - Virtual health
- Types of Telehealth
  - Provider to Provider: Teledermatology
  - Provider to Patient: Telepsychiatry
  - Patient to Provider: Teleconsultation
  - Hybrid models: Teleradiology
- Synchronous and Asynchronous Modes
- Antenatal care
- Point of Care (POC)
- Cybersecurity

Telehealth Background and Need

9 provinces

8.5% GDP

84% public health

1:310,000
dermatologist:
population ratio

revised
Telehealth guidelines

1999
National
Telemedicine System

Policy
Referral Policy

strategies
National Digital Health
Global Digital Health

draft
Telemedicine strategy

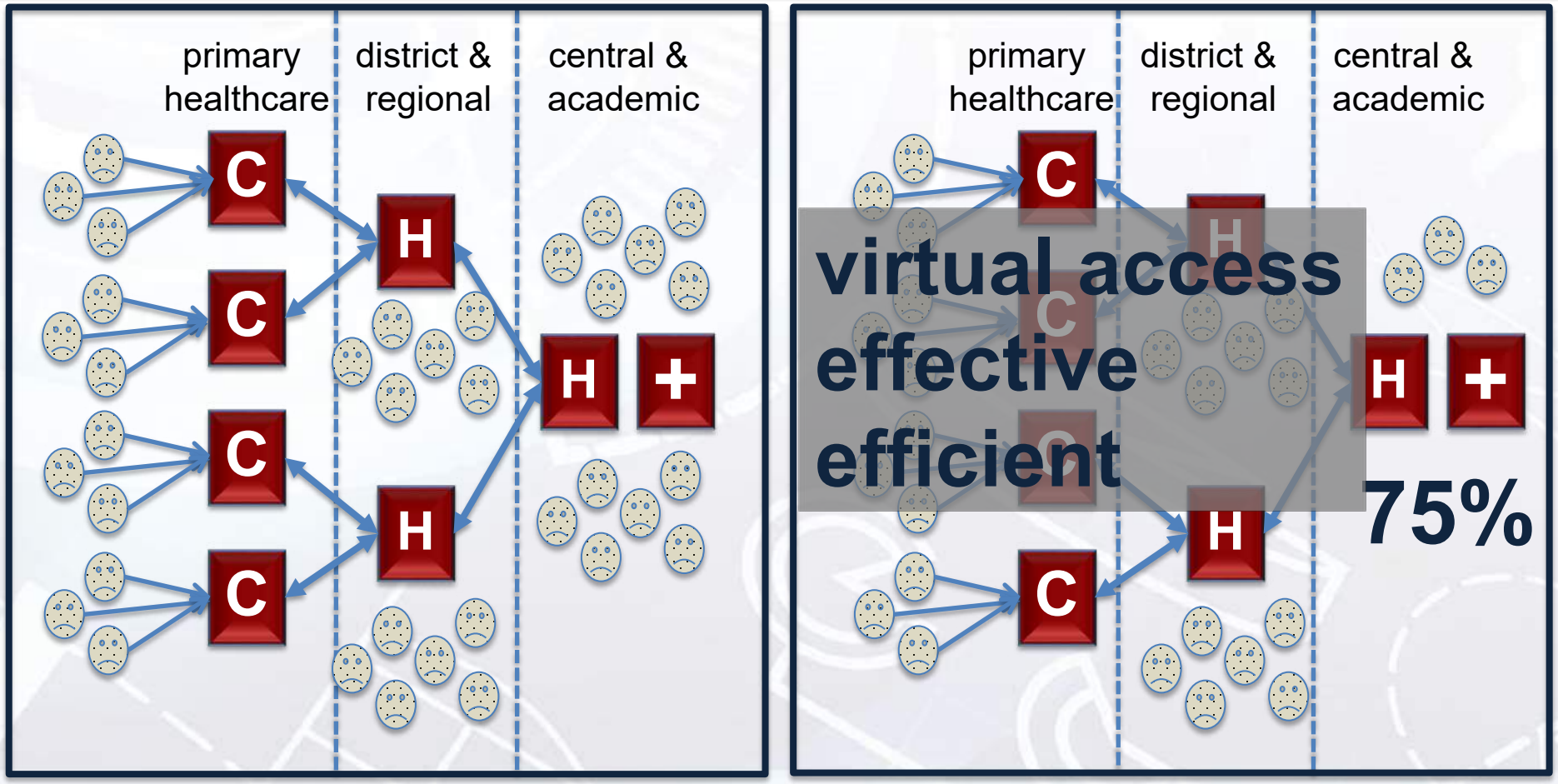
standards
HNSF

SDG 3

EHR

Walters, L E M, Mars, M, & Scott, R E. (2016). A review and critique of teledermatology in the South African public health sector. In Anthony J. Maeder, Kendall Ho, Alvin Marcelo, & Jim Warren (Eds.), *The promise of new technologies in an age of new health challenges* (Vol. 231, pp. 143-151). Amsterdam, Netherlands: IOS Press.

Telehealth Value Proposition

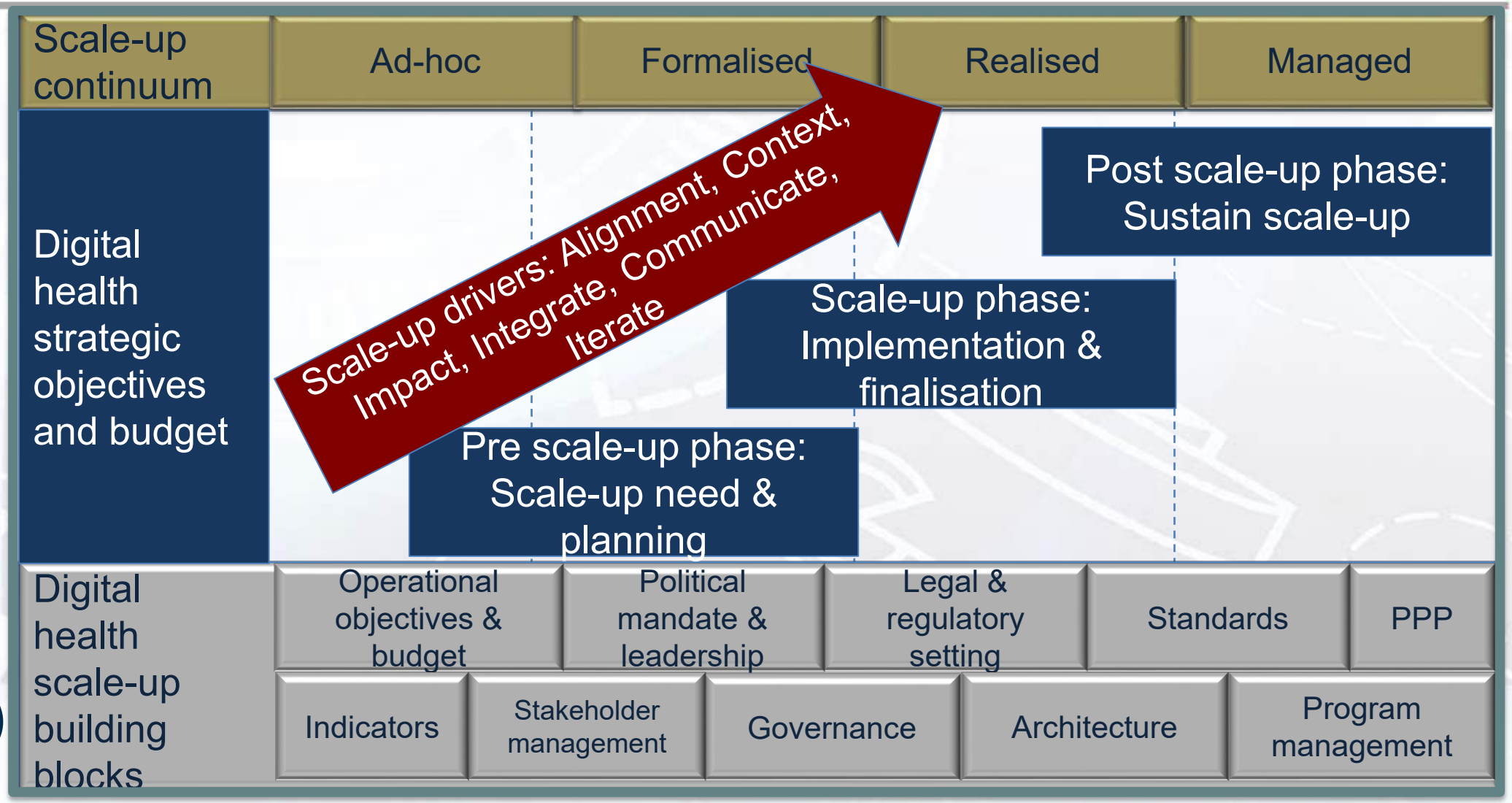


Walters, L E M, Mars, M, & Scott, R E. (2016). A review and critique of teledermatology in the South African public health sector. In Anthony J. Maeder, Kendall Ho, Alvin Marcelo, & Jim Warren (Eds.), *The promise of new technologies in an age of new health challenges* (Vol. 231, pp. 143-151). Amsterdam, Netherlands: IOS Press.

The Doctor could see you now, but…

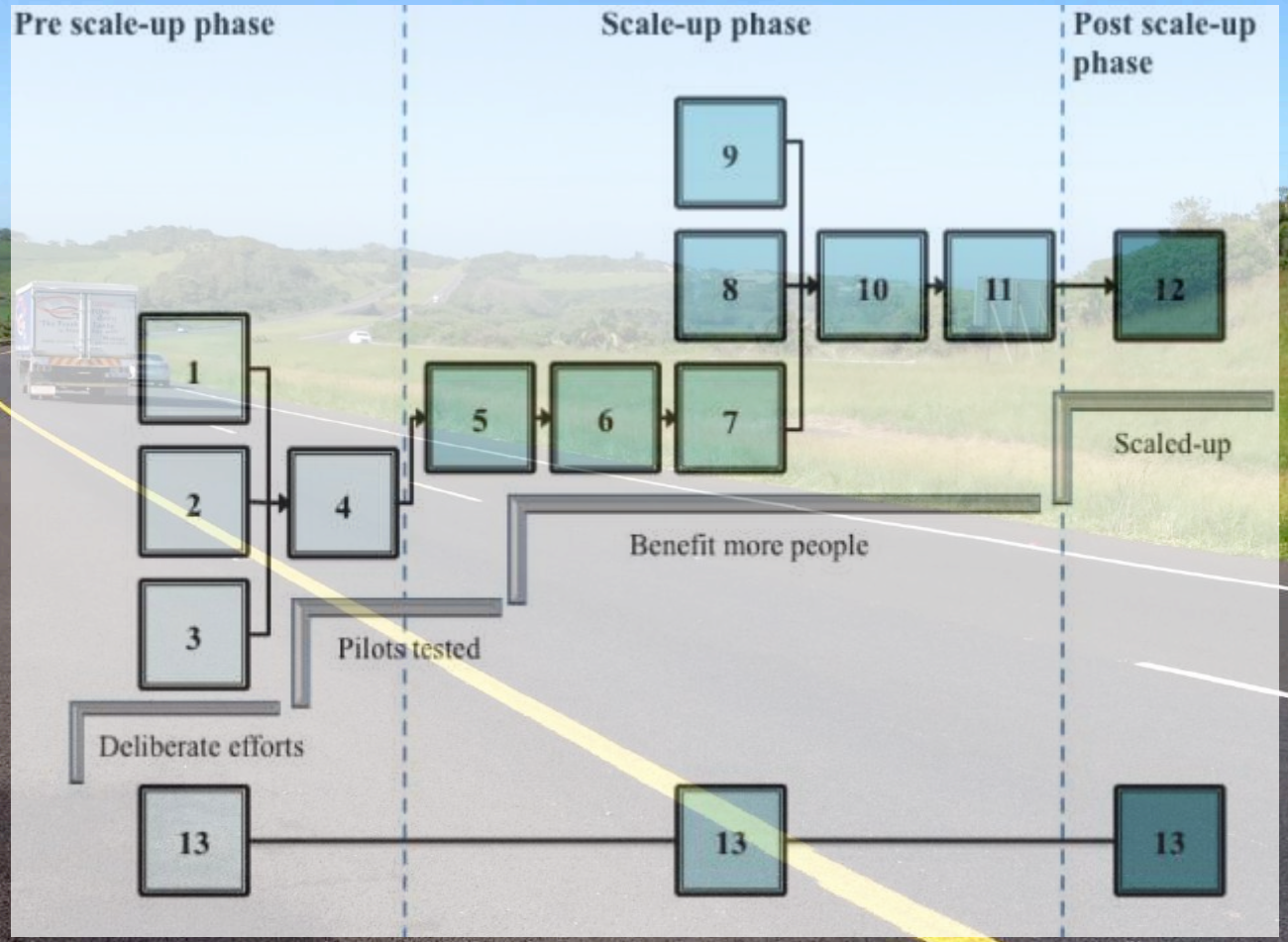
Ref: Walters, L E M, Mars, M, & Scott, R E. (2016). A review and critique of teledermatology in the South African public health sector. In Anthony J. Maeder, Kendall Ho, Alvin Marcelo, & Jim Warren (Eds.), *The promise of new technologies in an age of new health challenges* (Vol. 231, pp. 143-151). Amsterdam, Netherlands: IOS Press.
Ref: Walters, L E M , Scott, R E, & Mars, M. (2018). Design requirements for a teledermatology scale-up framework. *South African Computer Journal, 30*(1), 128–160. doi:https://doi.org/10.18489/sacj.v30i1.559

Telehealth Scale-up Framework (THSF)



Ref: Walters, L E M, Scott, R E, & Mars, M. (2018). A teledermatology scale-up framework and roadmap for sustainable scaling: Evidence-based development. *Journal of Medical Internet Research, 20*(6), e224. doi:10.2196/jmir.9940

Telehealth Scale-up Implementation Roadmap (THSF-IR)



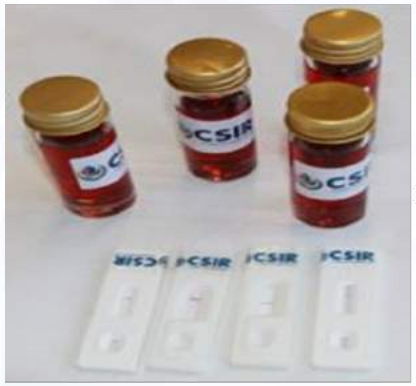
Components, Inputs, Ownerships, Process, Procedures, Timing, Outputs

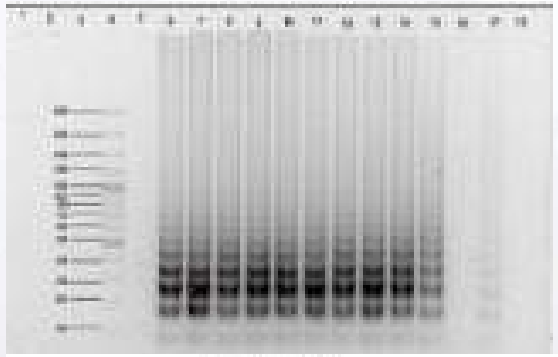
Ref: Walters, L E M, Scott, R E, & Mars, M. (2018). A teledermatology scale-up framework and roadmap for sustainable scaling: Evidence-based development. *Journal of Medical Internet Research, 20*(6), e224. doi:10.2196/jmir.9940

Scaling-up Umbiflow

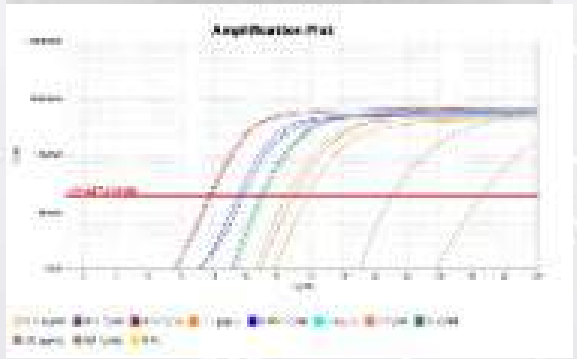
Enabling Point of Care Innovations

Lateral Flow POC Rapid test kits:





Isothermal POC Molecular PCR:

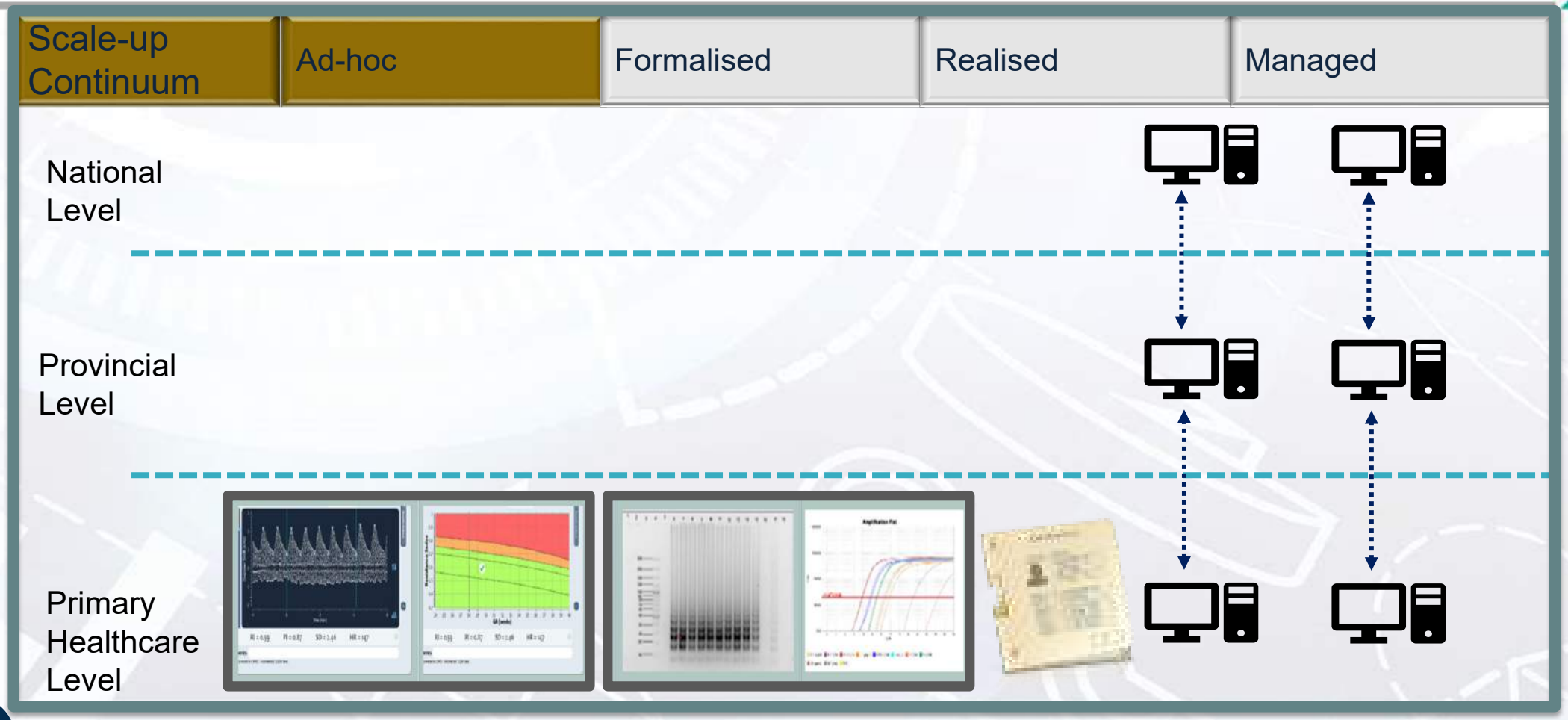


Enabling Cybersecurity Innovations

Network Emulation Simulation Laboratory (NESL)

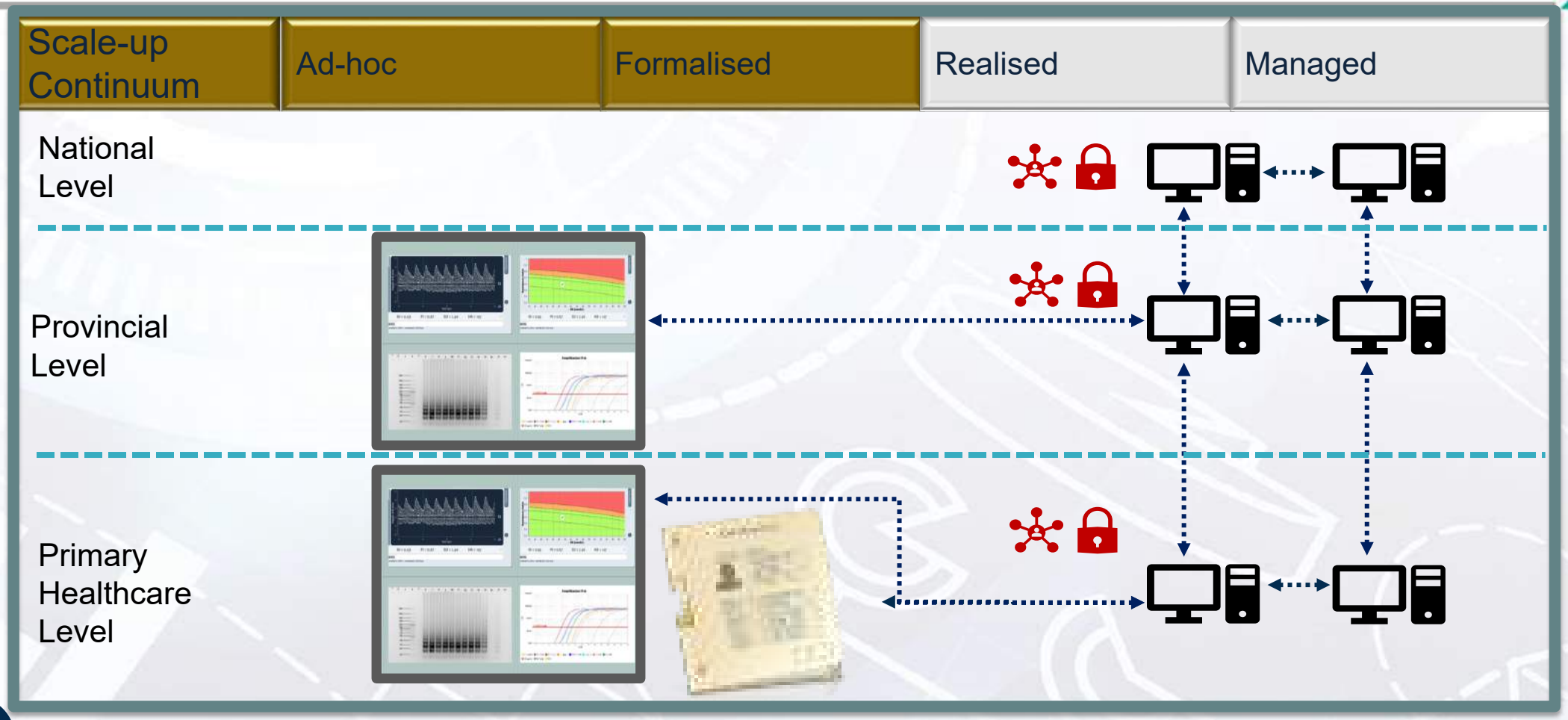
Biometrics Systems

Telehealth Scale-up Continuum: Ad-hoc



Ref: Walters, L E M, Scott, R E, & Mars, M. (2018). A teledermatology scale-up framework and roadmap for sustainable scaling: Evidence-based development. *Journal of Medical Internet Research, 20*(6), e224. doi:10.2196/jmir.9940.

Telehealth Scale-up Continuum: Formalised



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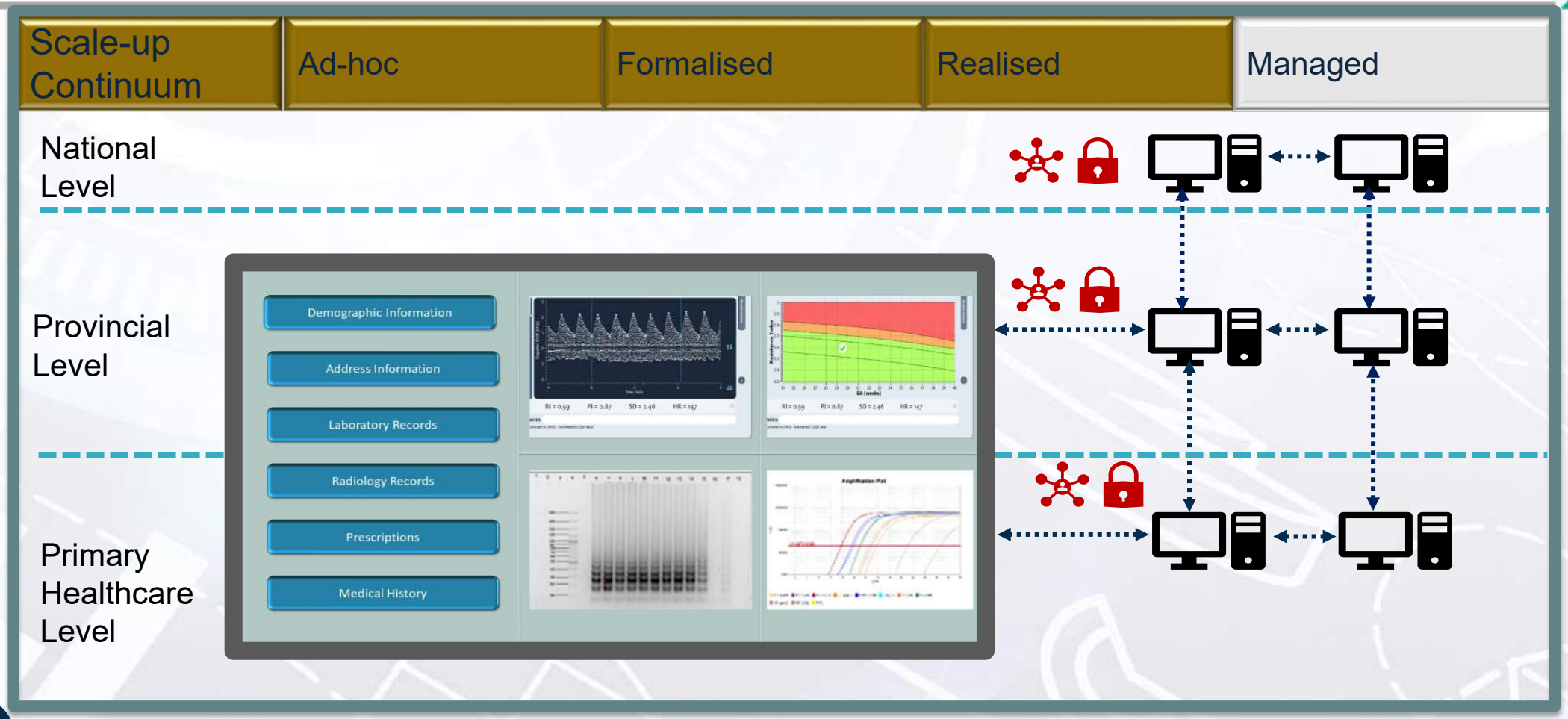
Telehealth Scale-up Continuum: Realised



Ref: Walters, L E M, Scott, R E, & Mars, M. (2018). A teledermatology scale-up framework and roadmap for sustainable scaling: Evidence-based development. *Journal of Medical Internet Research, 20*(6), e224. doi:10.2196/jmir.9940.

Telehealth Scale-up Continuum: Managed

Scale-up Continuum	Ad-hoc	Formalised	Realised	Managed
National Level				
Provincial Level				
Primary Healthcare Level				

Ref: Walters, L E M, Scott, R E, & Mars, M. (2018). A teledermatology scale-up framework and roadmap for sustainable scaling: Evidence-based development. *Journal of Medical Internet Research, 20*(6), e224. doi:10.2196/jmir.9940. Photo: *Patient and Provider consent obtained. Background Microsoft 365 stock creative content.*

Business Model

Identify Telehealth Scale-up Ready Programs
AUDA-NEPAD Member states
Countries adopting UHC and SDG 3

→

Telehealth Scale-up Framework:
Pre Scale-up
Scale-up
Post Scale-up

→

Telehealth Implementation Roadmap:
Guided scale-up

Existing and Potential Partnerships

AUDA-NEPAD AFRICAN UNION DEVELOPMENT AGENCY
CSIR Touching lives through Innovation
UNIVERSITEIT STELLENBOSCH UNIVERSITY
UNIVERSITY OF KWAZULU-NATAL
ISfTeH Your Global Partner in Digital Health International Society for Telemedicine & eHealth
ata American Telemedicine Association

Potential Funding Opportunities

Government's buy-in: National Digital health budget provisions
Implementing Agencies: NGOs and NPOs
International Digital Health Funding Agencies and or Implementing Partners: EU, USAID, Bill and Melinda Gates, PATH
Other: IDC, African Development Bank, World Bank

Conclusion

- The aim is to enhance access to healthcare services and providers by digitally and physically augmenting the effectiveness and efficiency of the referral pathways
- Sustainably scale up primary healthcare-level telehealth in trusted cyberspace
- Enabled through a combination of the CSIR's evidence-based innovations for under-resourced settings

THANK YOU

Next Generation Enterprises and Institutions:
e-Government, Software Architectures and Solutions
Future Production Manufacturing:
Industrial Sensors
Next Generation Health:
Molecular Devices, Diagnostics and Vaccines
Defence and Security:
Governance, Privacy and Trust

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