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Digital Connectivity and LEO satellite constellations

Opportunities for Asia and the Pacific

Launch of ADB sustainable development working paper 2021



Overview - Global ICT indicators 2019 and 2020 where available

(per 100 inhabitants and per cent) and compound annual average growth rate (CAGR) for 2017-2019, 2017-2020 where available



15.2
(+5.7%)

Fixed Broadband Subscriptions



75
(+9.3%)

Mobile Broadband Subscriptions



51.4%*
(+3.5%)

Individuals using the Internet



48.3 %f /
55.2% m

Women and Men using the Internet



96.7%*
(+0.2%)

Mobile Network Coverage



72%

Urban Household Internet Access



37%

Rural Household Internet Access



57.4 %
(+3.7%)

Household Internet Access



93.1%*
(+1.9%)

Percentage of Population within reach of a 3G signal



84.7%*
(+4%)

Percentage of Population within reach of a 4G signal



717.9
tbit/s*
(+35.7%)

Total International Bandwidth



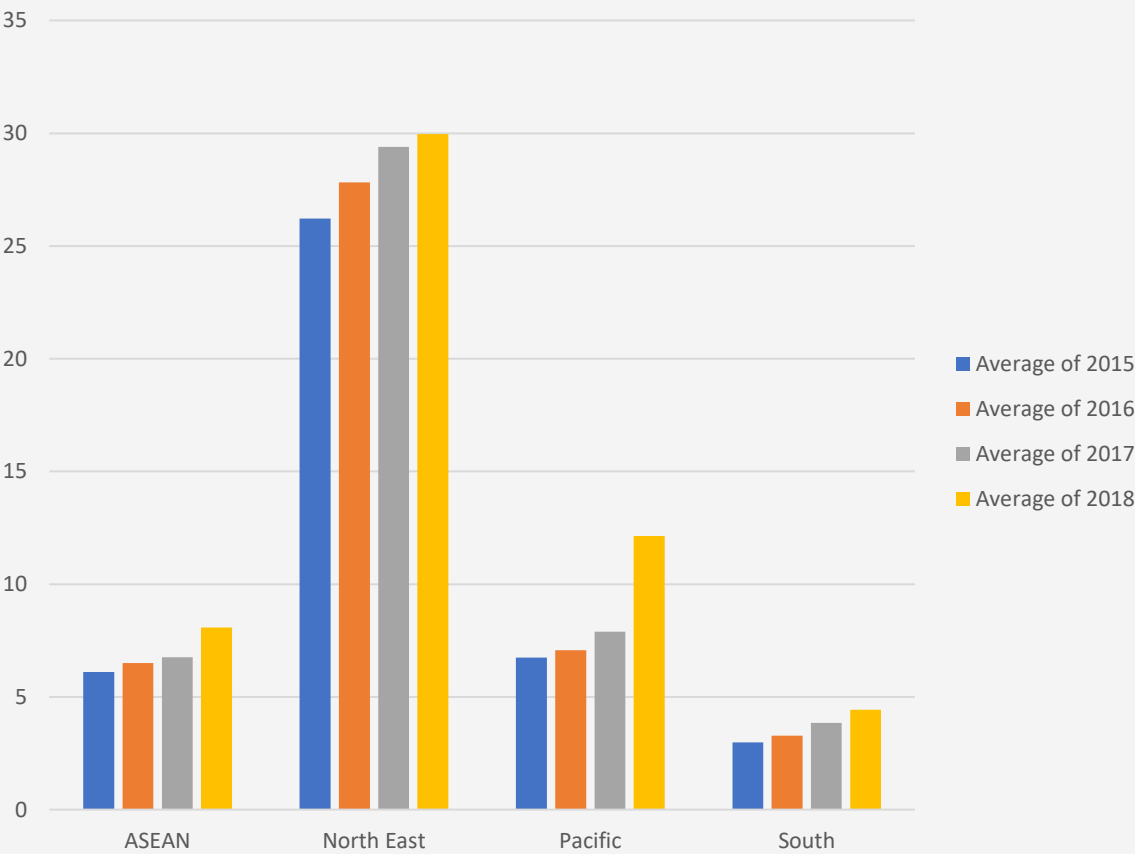
131.3
(+26.4%)

International Bandwidth per Internet user

Source: Source: Based on ITU WTL Database from 2017, 2019, and 2020 where available

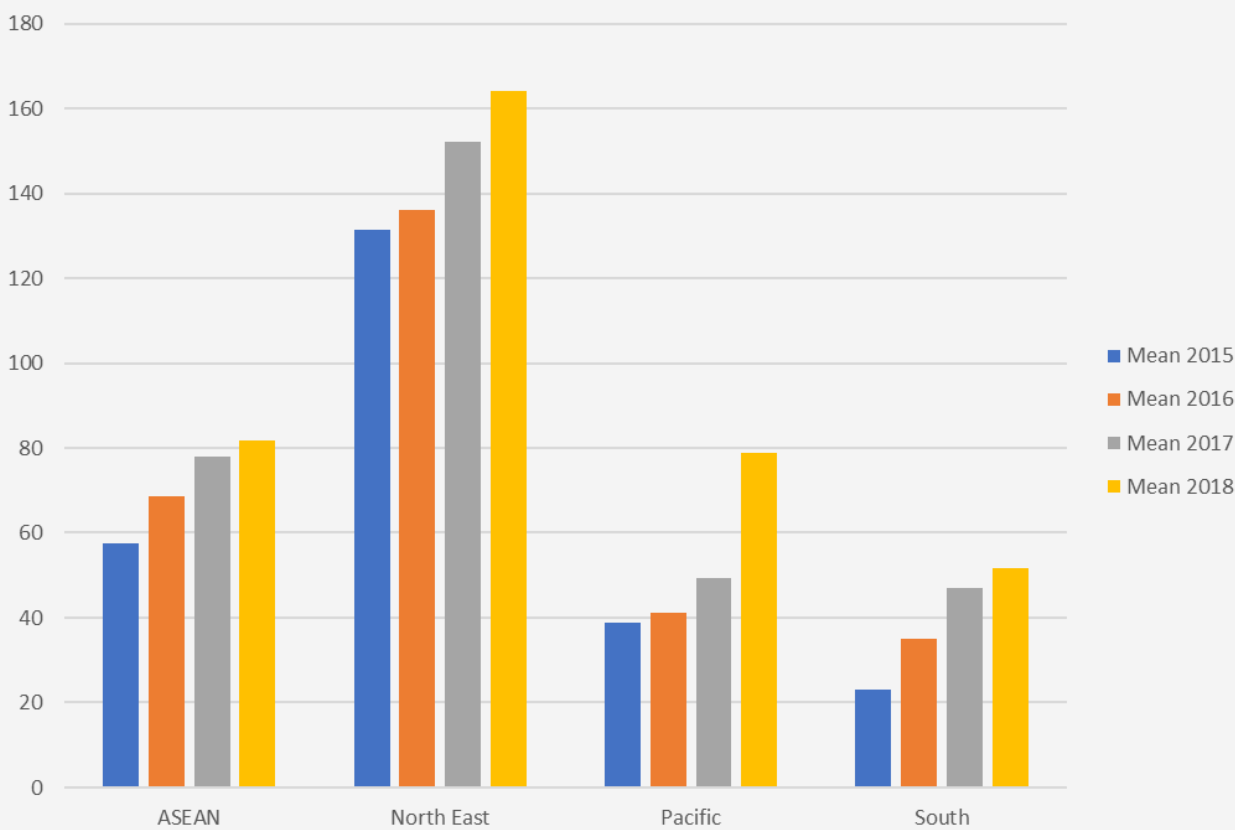
Fixed and mobile subscription in Asia and the Pacific

Fixed-broadband subscriptions
per 100 inhabitants



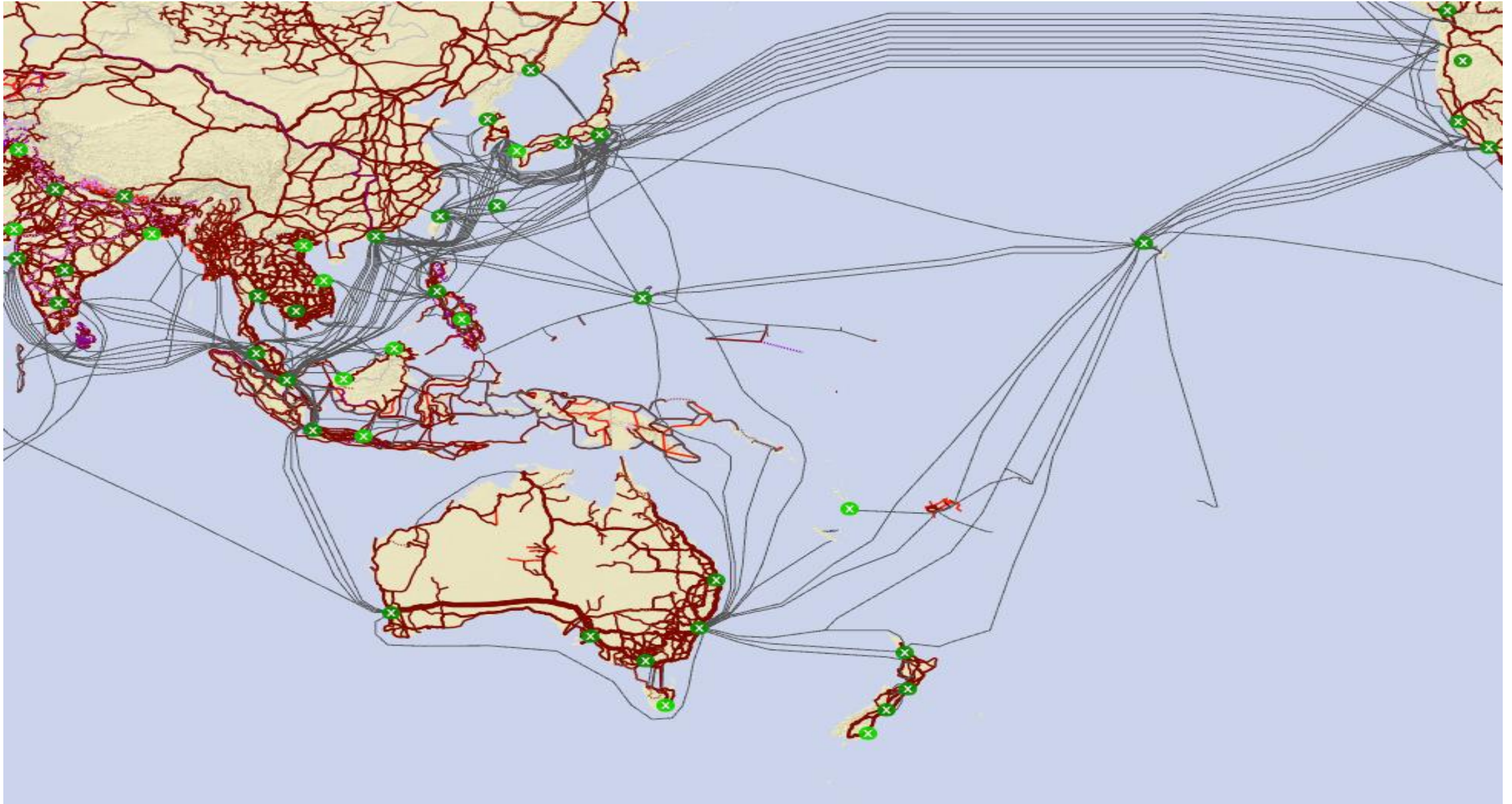
Source: ITU

Mobile broadband subscription
per 100 inhabitants in ASP



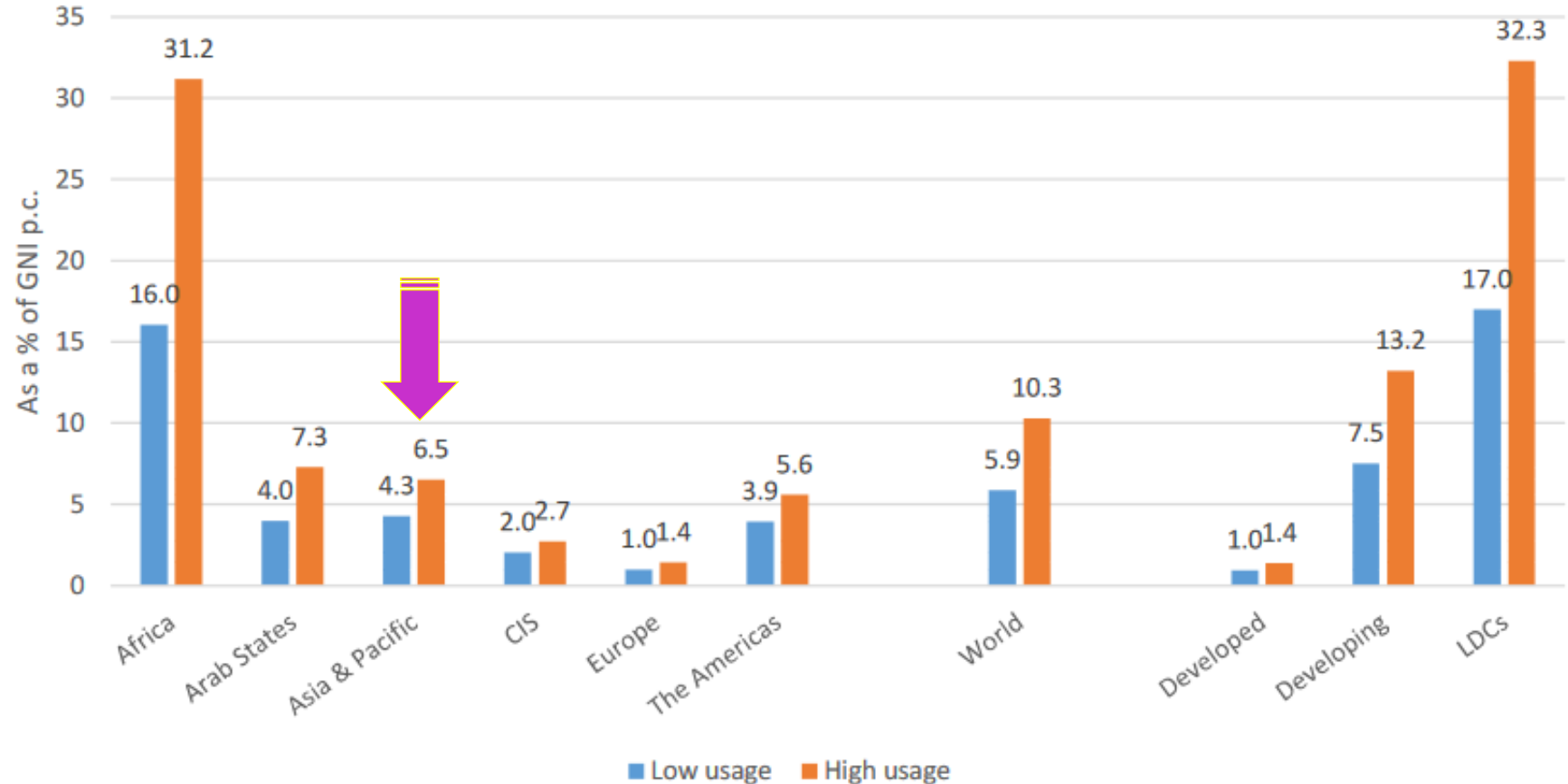
Source: ITU

ITU Interactive Transmission Map



Challenge of Affordability

Mobile-data-and-voice baskets as a % of GNI, 2019



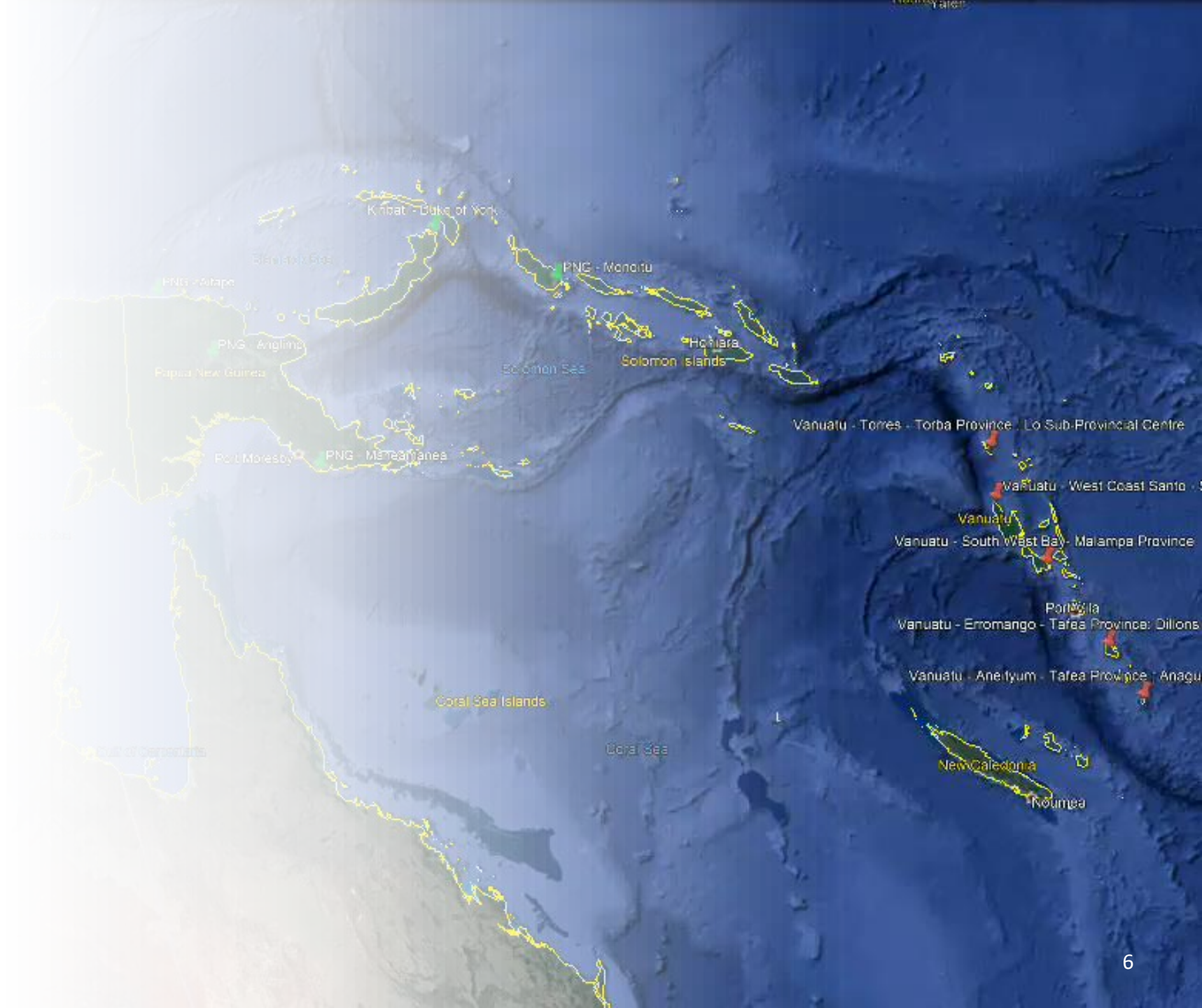
Note: Simple averages. Based on 182 economies for high-usage data and voice baskets and 179 economies for low-usage data-and-voice baskets for which data on prices of mobile-data-and-voice baskets in PPP\$ are available for the year 2019.

Source: ITU. GNI p.c. data are from the World Bank.

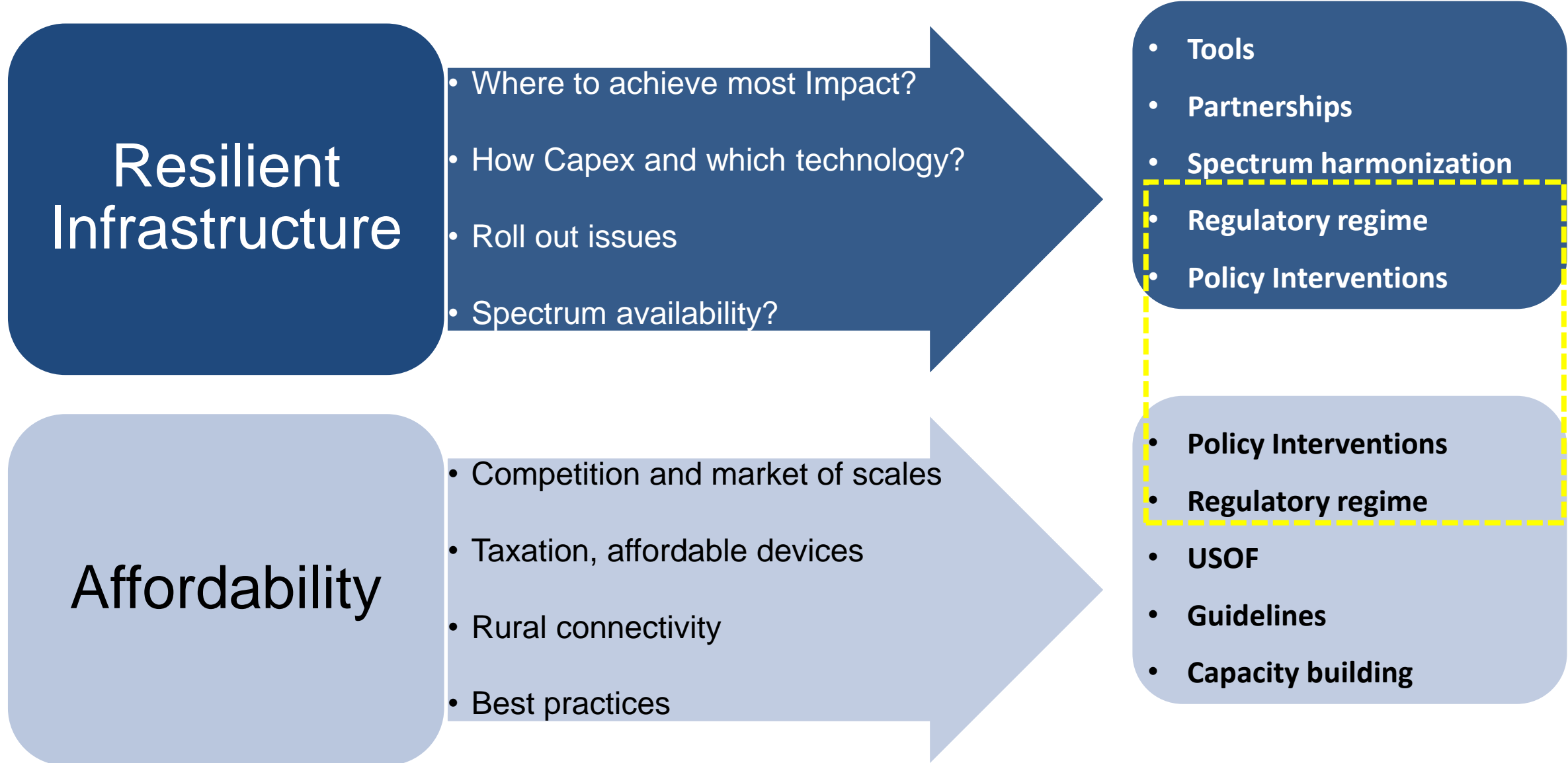
Meaningful Connectivity

**Rise of international connectivity
provides a great opportunity for
digital transformation**

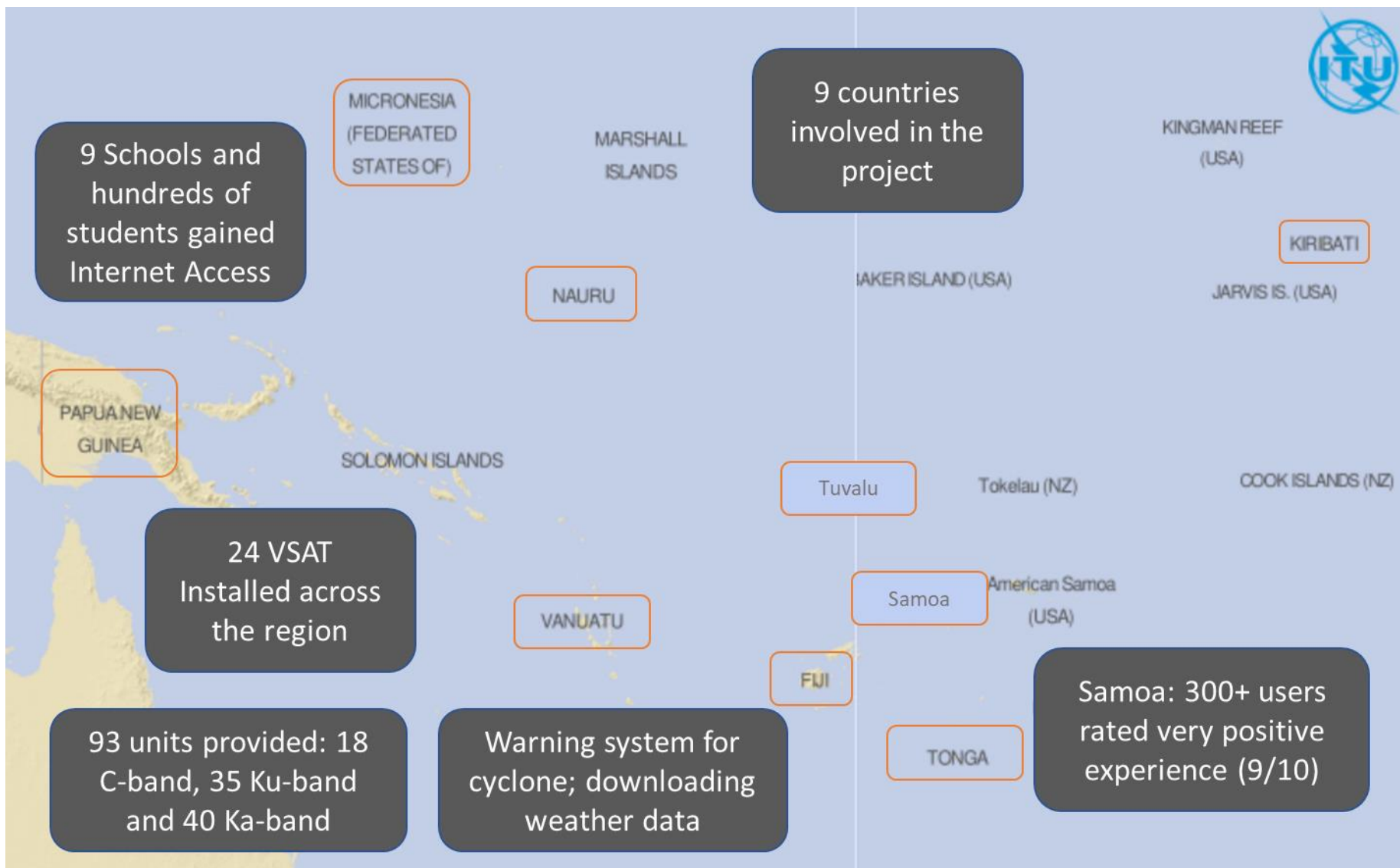
**Need to go hand in hand with
satellite and terrestrial to provide
an inclusive digital experience**



Possible interventions for Solutions



ITU project (2014-2020) on satellite communication – Impact and Experience



2014-2020

9 Pacific Islands countries

93 units of satellite equipment (C Band, Ku Band, Ka Band)

Use across various sectors

Positive response from countries in impact assessment

Outcomes & Benefits



Health Centres:

Telemedicine
Medical supplies



Schools:

Distant learning: COVID, remote islands
Online research: students & teachers
School admin: apps, file sharing

Community:

Communications
Internet
Social media



Emergency:

Early warning
Weather data
Comms for recovery



Resiliency: Backup connectivity is crucial particularly for critical communications

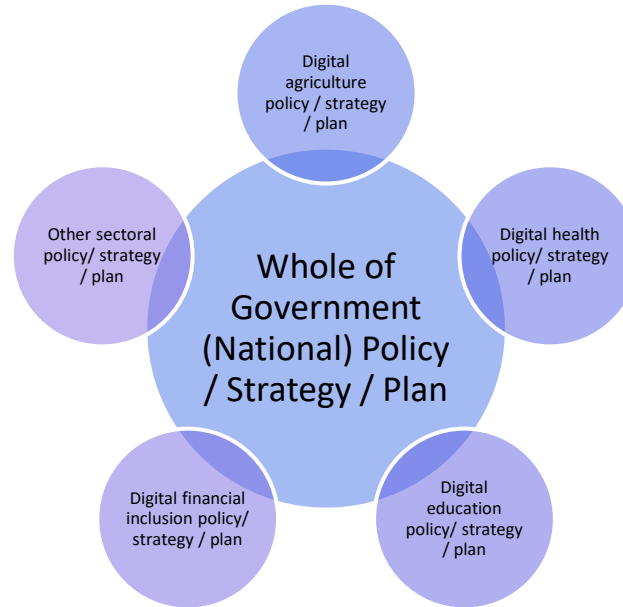
IMPACT STUDY OF THE PROJECT OUTCOMES

SATELLITE BROADBAND IS CRITICAL FOR UNIVERSAL DIGITAL INCLUSION

- **Demand for satellite connectivity continues:** While high capacity submarine cables continue to enhance connectivity, satellite remains the most effective solution for many remote islands
 - Ka-band is most promising – performance, cost and ease of deployment
- **Digital future and need for progressing digital services such as e-government, online learning, smart islands**
- **COVID-19** – underscores the importance of connectivity, video-conferencing becomes a norm, e-applications on the rise

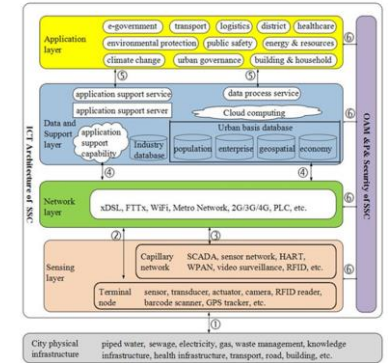
A WHOLE-OF-GOVERNMENT APPROACH

National Vision and SDG implementation plan



Legislations
Regulations

Smart city



Smart village

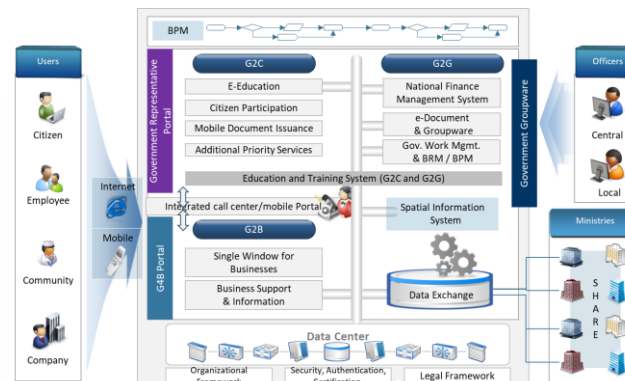


Smart Islands



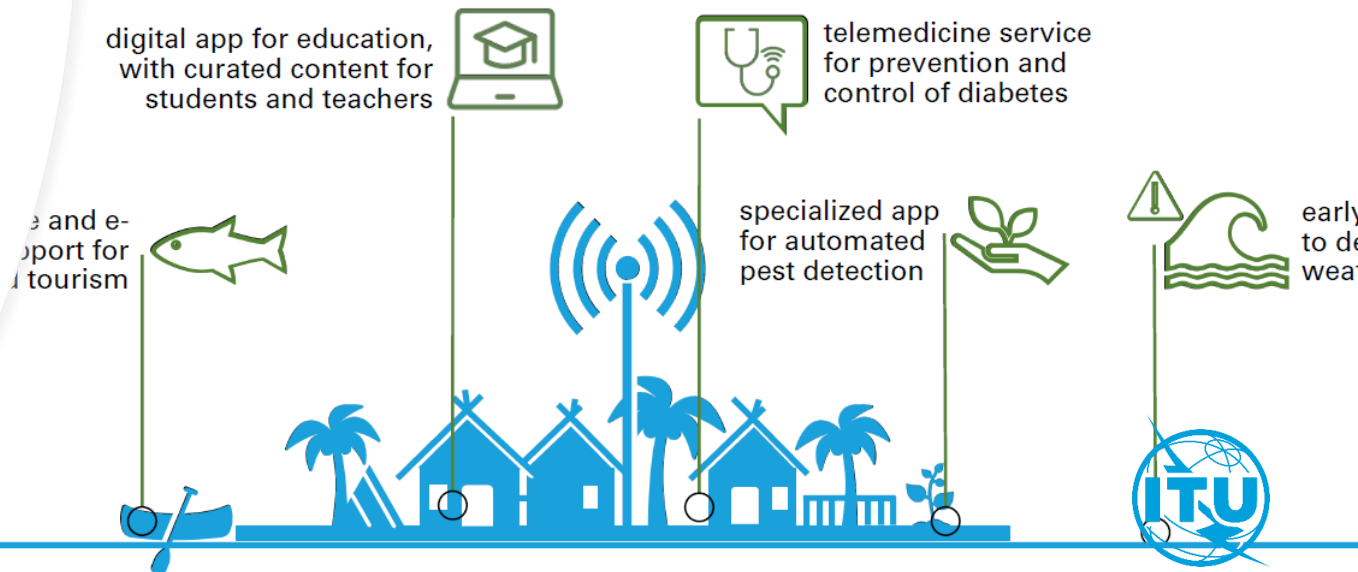
SDG

Customized planning

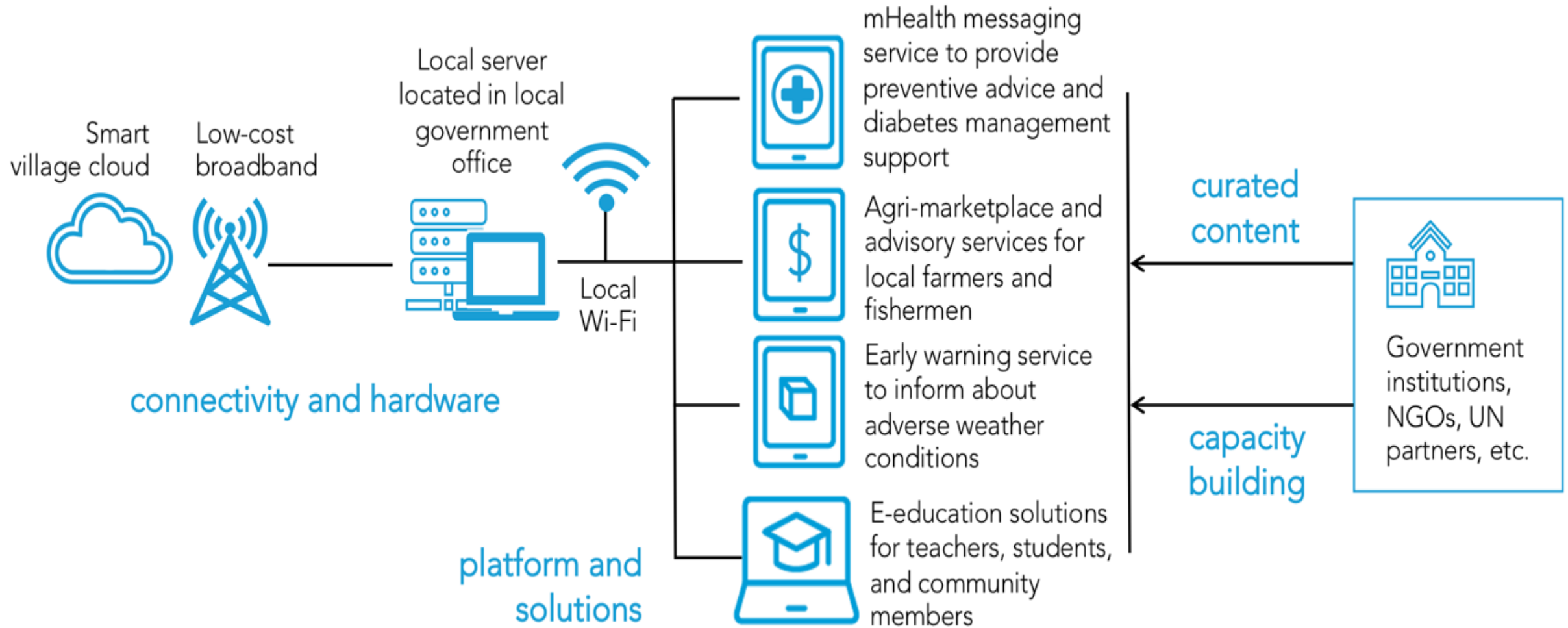


Smart Islands

An integrated development approach



SMART ISLANDS - Example



EXPECTED IMPACT

Reduced inequality, improved well being and access to better jobs through digital services



Education, health, government, e-commerce services through common digital platform



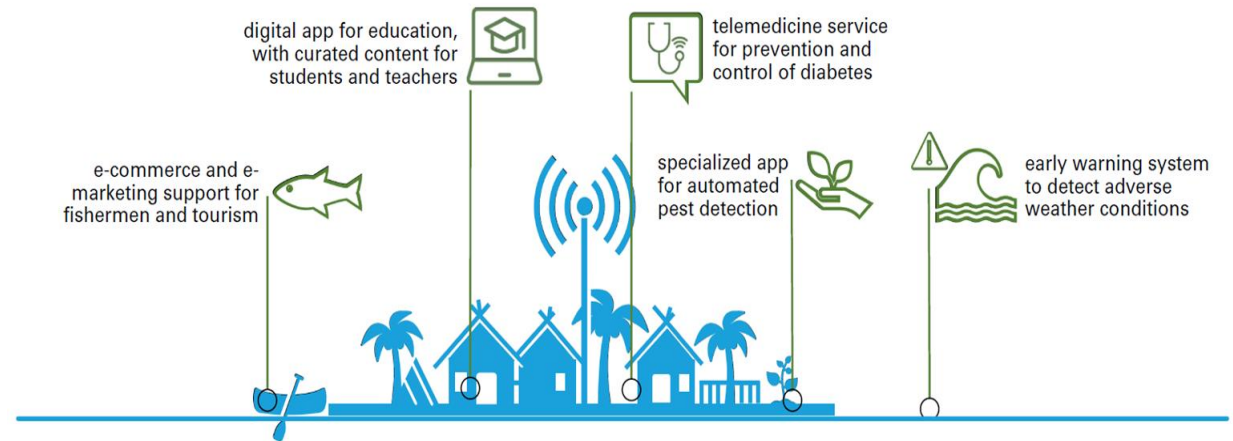
Enhanced sustainability and cross-sectoral partnerships by adopting SDG linked whole of government approach

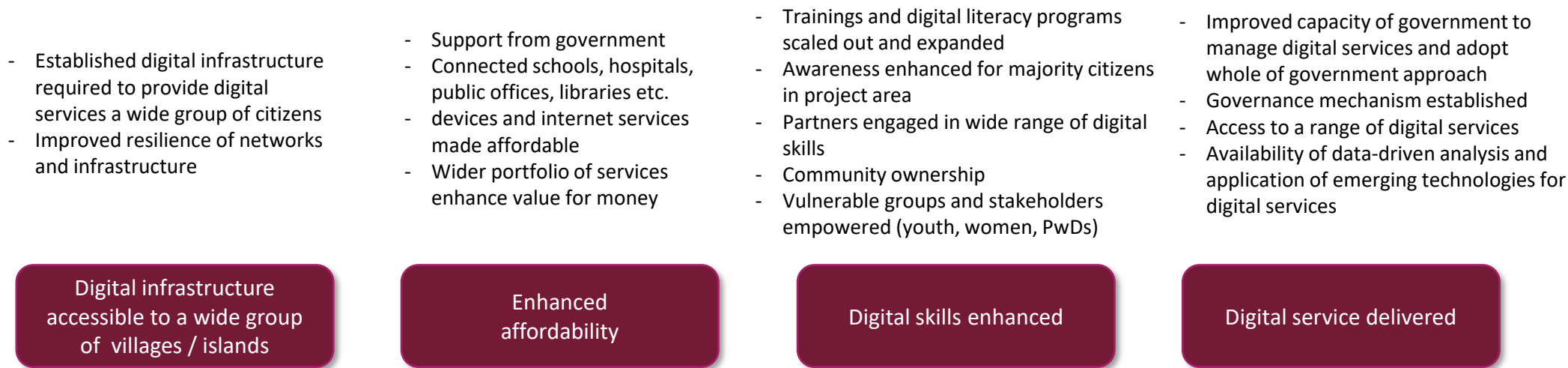


Co-creation and scaling up of SMEs and businesses by providing a platform to innovate



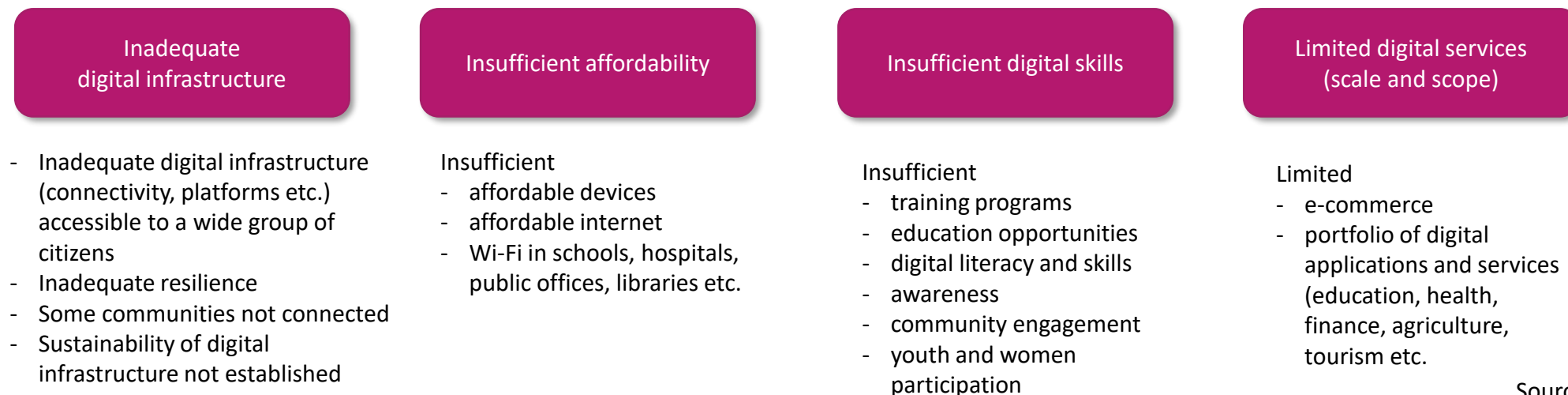
Examples





Evidence based, future proof (integrated emerging technology), partnership driven, whole-of-government approach

Limited digital services available to a small group of islands / villages





unicef
for every child



Map schools to identify connectivity gaps



Build affordable and sustainable **Finance** models



Implement fit-for-purpose infrastructure to **Connect** schools and ultimately every community and every citizen



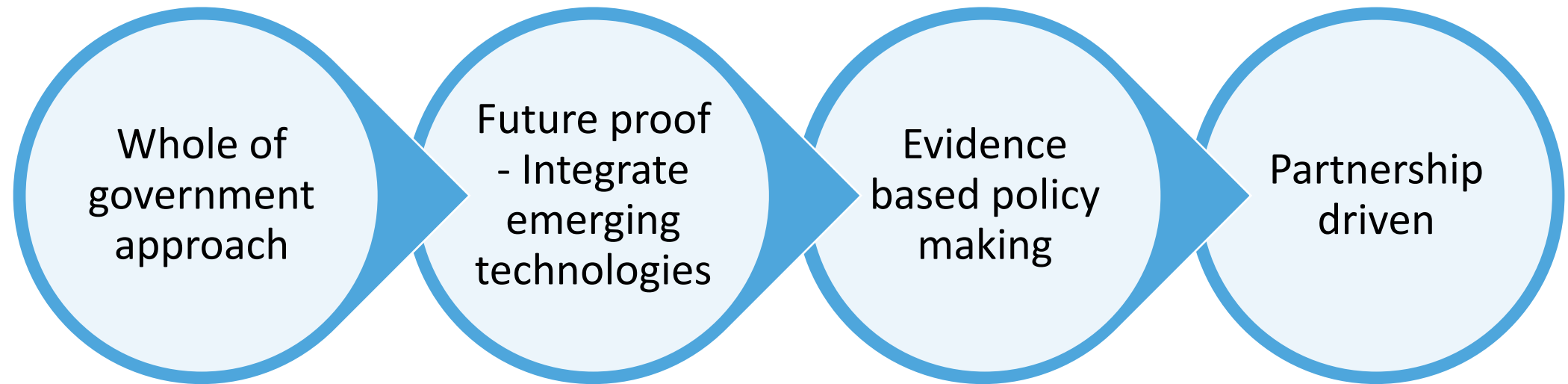
Empower learning and other skills and services via appropriate Digital Public Goods



Connect2Recover is a global initiative that aims to reinforce the digital infrastructure and ecosystems of beneficiary countries.

Objective: provide means of utilizing digital technologies such as telework, e-commerce, remote learning and telemedicine to support the COVID-19 recovery efforts and preparedness for the 'new normal', and, where it is still needed, to prevent the spread of COVID-19 infections while maintaining socio-economic activities.

ITU IMPEMENTATION APPROACH



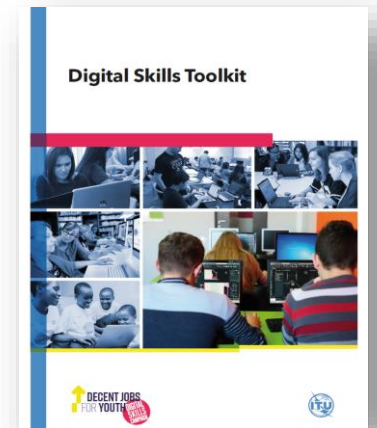
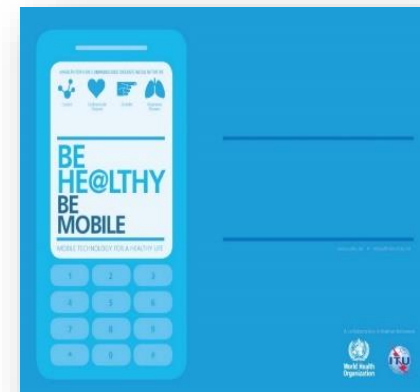
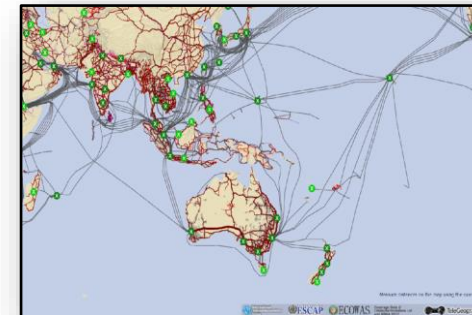
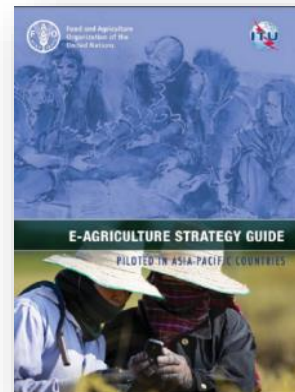
ITU has received interest from **Fiji, Papua New Guinea, Vanuatu**

IMPLEMENTATION TOOLKIT

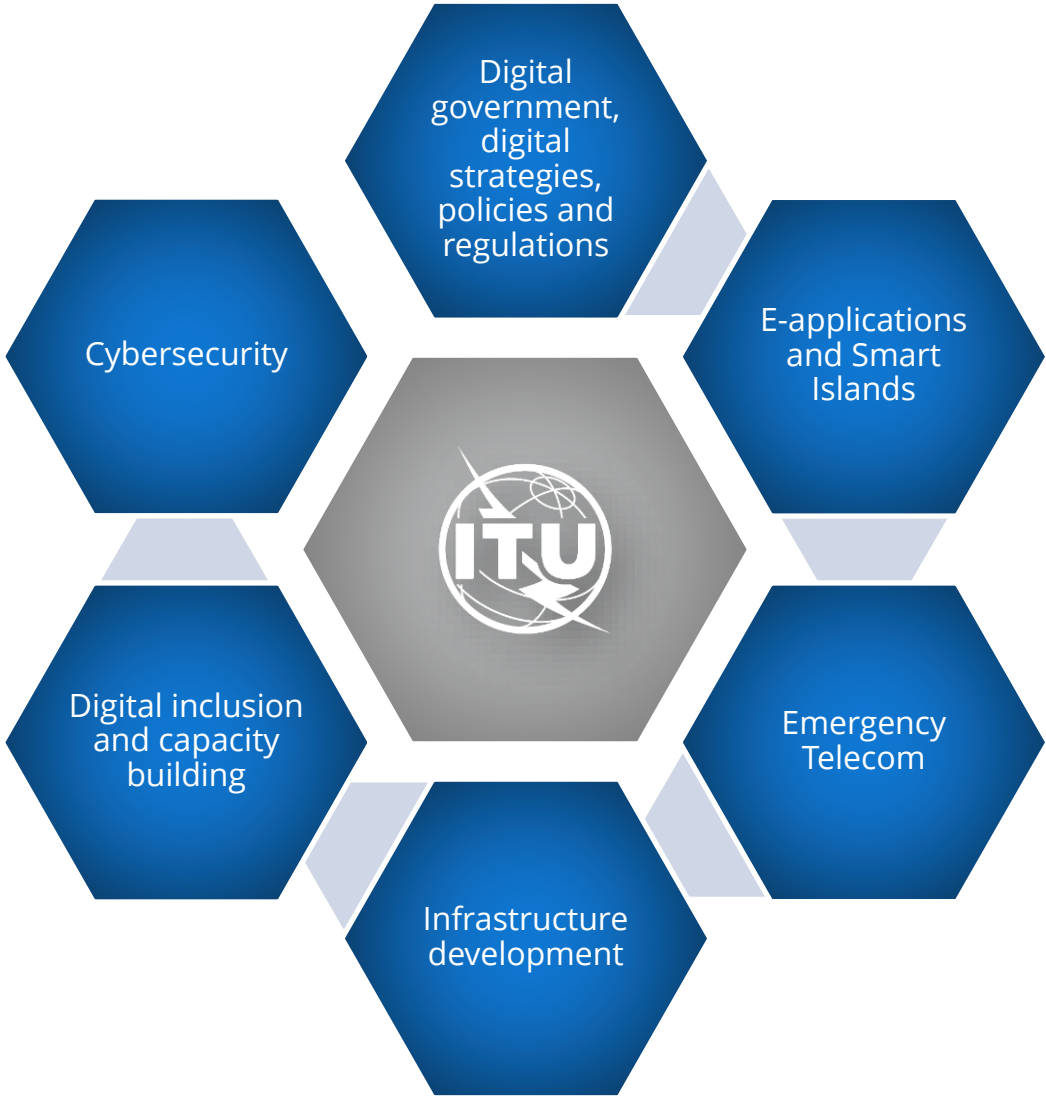
A combination of toolkits used for planning smart islands services, infrastructure, digital skills etc.

Last mile connectivity
toolkit

Digital services
planning toolkit



PARTNERSHIPS ARE CRITICAL TO DIGITAL PACIFIC



National Governments



Australian Government
**Department of Infrastructure, Transport,
Regional Development and Communications**

EU STREIT



**Food and Agriculture
Organization of the
United Nations**





Conclusions

- Improving connectivity in Asia-Pacific is a challenge but real solution is Affordable connectivity
- Tools, best practices and guidelines help in planning and strategizing investments to create the biggest impact
- Partnerships are needed to deliver

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THANK YOU

