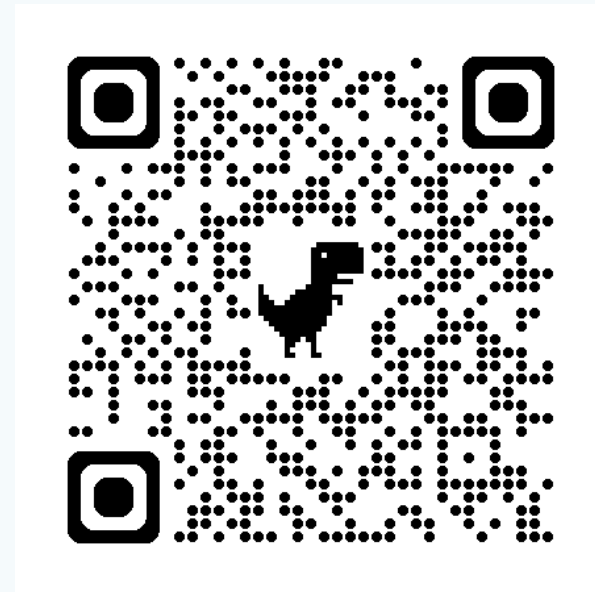


ITU Digital Financial Services Security Lab

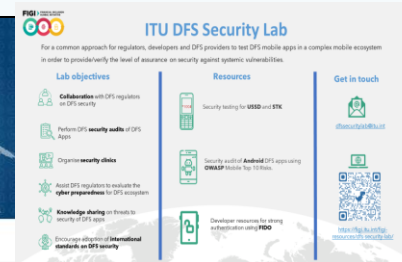
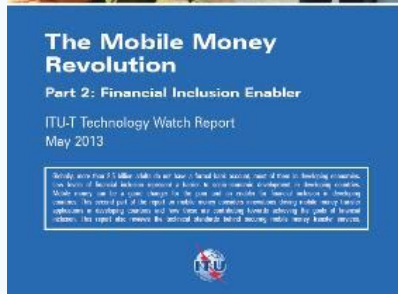
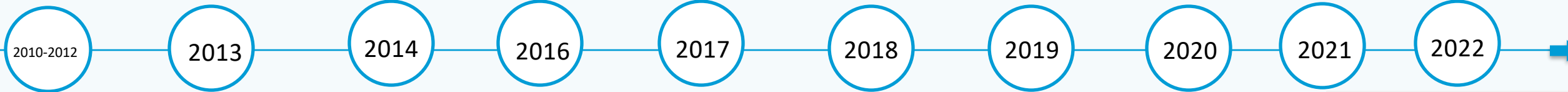
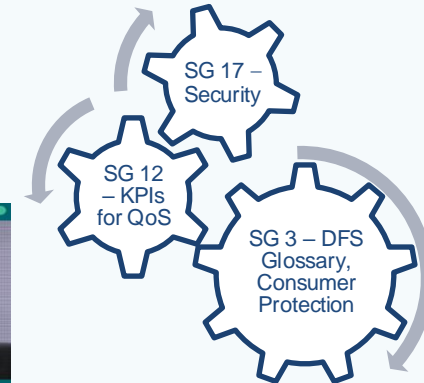
<http://www.itu.int/go/dfssl>



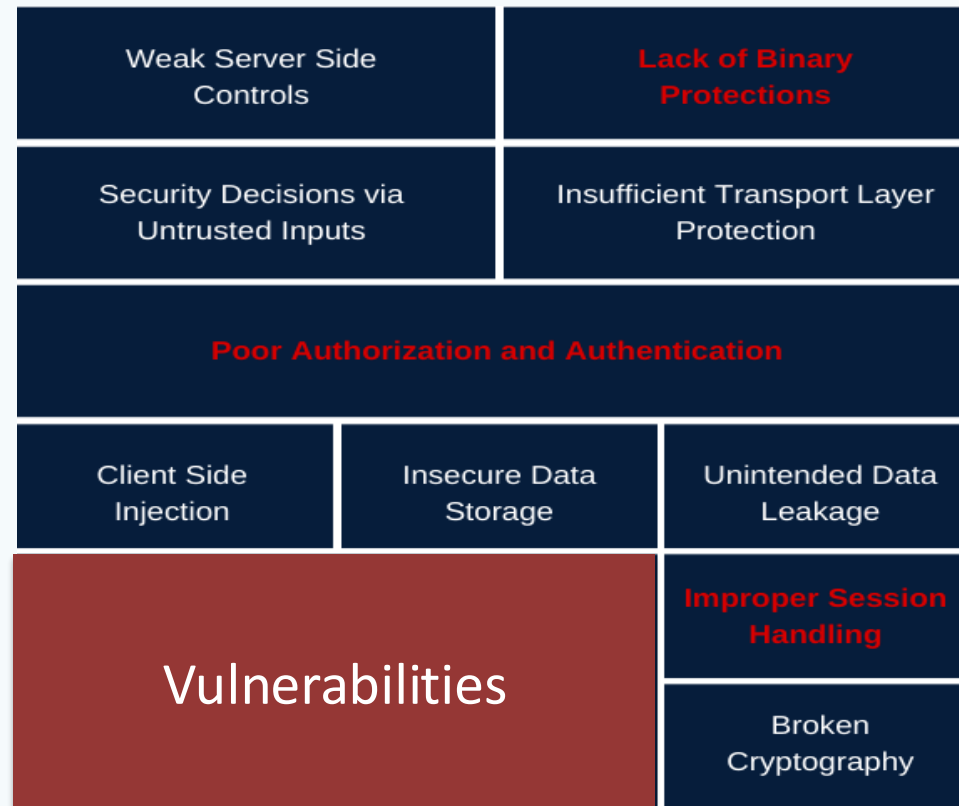
Overview

1. ITU & Digital Finance
2. Security challenges
3. DFS Security Lab
4. Security recommendations for digital finance
5. USSD, Android and iOS mobile payment app security tests
6. DFS Security Lab Knowledge Transfer phases
7. Actions being implemented

1. ITU & Digital Finance



2. DFS application security challenges for regulators



3. DFS Security Lab

Set up and managed by TSB

Objective

Provides a standard methodology to conduct security audit for mobile payment apps (USSD, Android and iOS), address systemic vulnerabilities and verify compliance against security best practices and standards.

<http://www.itu.int/go/dfssl>

3. DFS Security Lab

DFS Security Lab

Cybersecurity capability of
regulators

Security audit of mobile
payment applications

Adoption of security best
practices for digital finance

3. DFS Security Lab - Objectives



Collaborate with regulators to adopt DFS security recommendations from FIGI



Perform **security audits** of mobile payment apps (USSD, Android and iOS)



Encourage adoption of **international standards on DFS security** and **participate in ITU-T SG17**



Organise **security clinics & Knowledge transfer** for Security Lab



Assist regulators to **evaluate the cyberresilience of DFS critical infrastructure**



Networking platform for regulators for knowledge sharing on threats and vulnerabilities

4. Security recommendations for digital finance

Collaborate with DFS regulators and DFS providers to enhance the cybersecurity strategy for DFS and security assurance of the DFS ecosystem **by implementing the recommendations** in the following reports:

1. [DFS Security Assurance Framework](#)
2. [Security testing for USSD and STK based DFS applications](#)
3. [Security audit of various DFS applications](#)
4. [DFS security audit guideline](#)
5. [DFS Consumer Competency Framework](#)



Adoption of DFS Security Recommendations

The recommendations contain the following specific guidelines that may be adopted by regulators.

1. [Recommendations for regulators to mitigate SS7 vulnerabilities](#)
2. [Security recommendations to protect against DFS SIM risks and SIM swap fraud](#)
3. [Mobile Application Security Best practices](#) (From [ITU-T X.1150](#) - Section 9)
4. [Template for a Model MOU between a Telecommunications Regulator and Central Bank on Digital Financial Services Security](#)
5. [DFS consumer competency framework](#)

Link: [DFS Security recommendations for regulators and DFS providers developed under FIGI](#)

Recommendation **ITU-T X.1150 (03/2024)**

SERIES X: Data networks, open system communications and security

Secure applications and services (I) – Application Security (I)

Security assurance framework for digital financial services

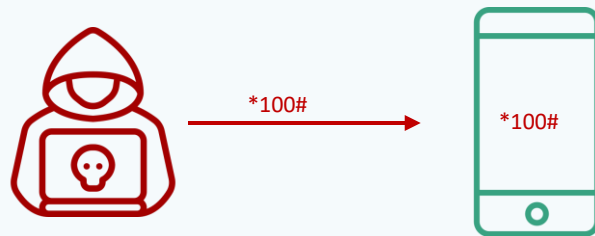
5. USSD & STK security audit tests



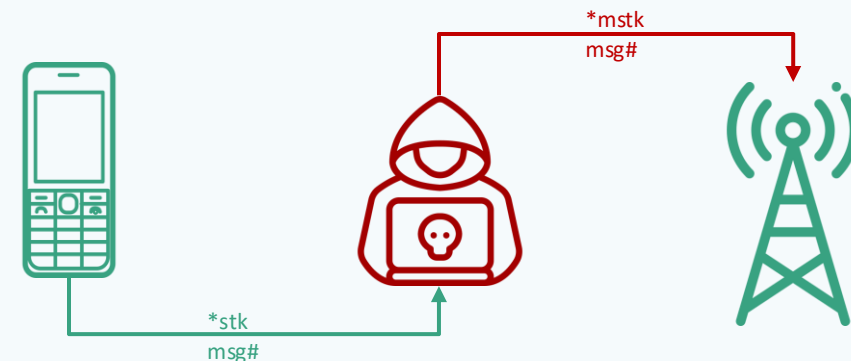
a. **SIM Swap** and **SIM cloning**



b. susceptibility to **binary OTA attacks** (SIM jacker, WIB attacks)



c. **remote USSD** execution attacks



d. **man-in-the-middle attacks** on STK based DFS applications

Android and iOS app mobile payment app security audit tests

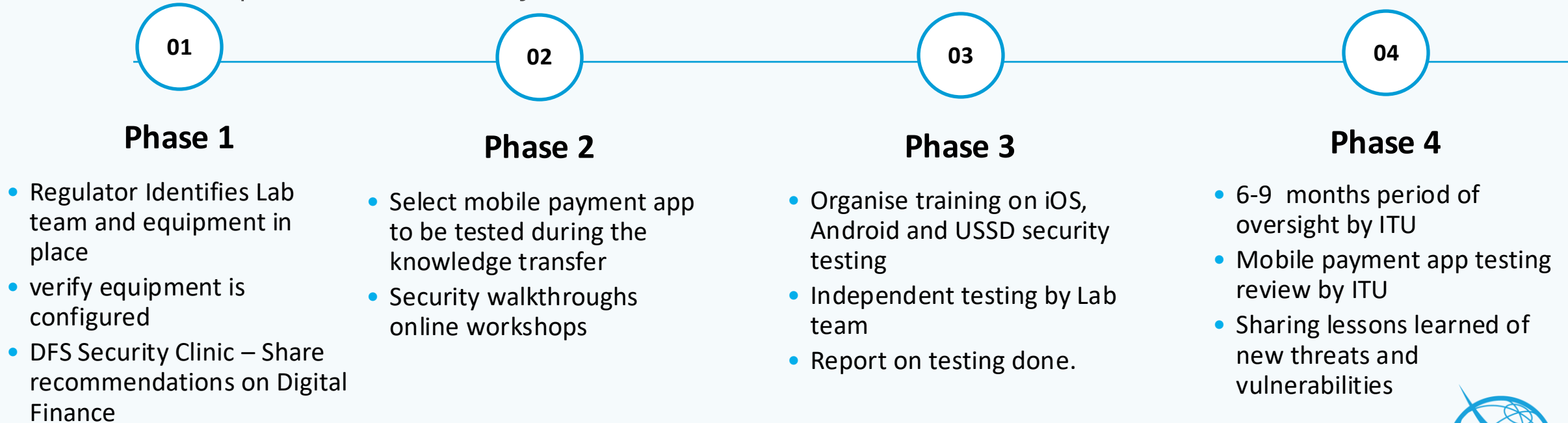
Risks	Security test
M1 Improper Platform Usage	Check misuse of platform features or failing to use platform security controls provided
M2 Insecure Data Storage	Check that malware and other apps do not have access to DFS sensitive information
M3 Insecure Communication	Check that communication channels are encrypted
M4 Insecure Authentication	Authentication cannot easily be bypassed
M5 Insufficient Cryptography	Check crypto algorithms used
M8 Code Tampering	Check whether it is possible to modify the code
M9 Reverse engineering	Decompile source code

Source: ITU DFS security lab Android testing Manual

6. DFS Security Lab Knowledge Transfer phases

ITU has a knowledge transfer programme for regulators to verify the security assurance of mobile payment applications based on Android, iOS, and USSD.

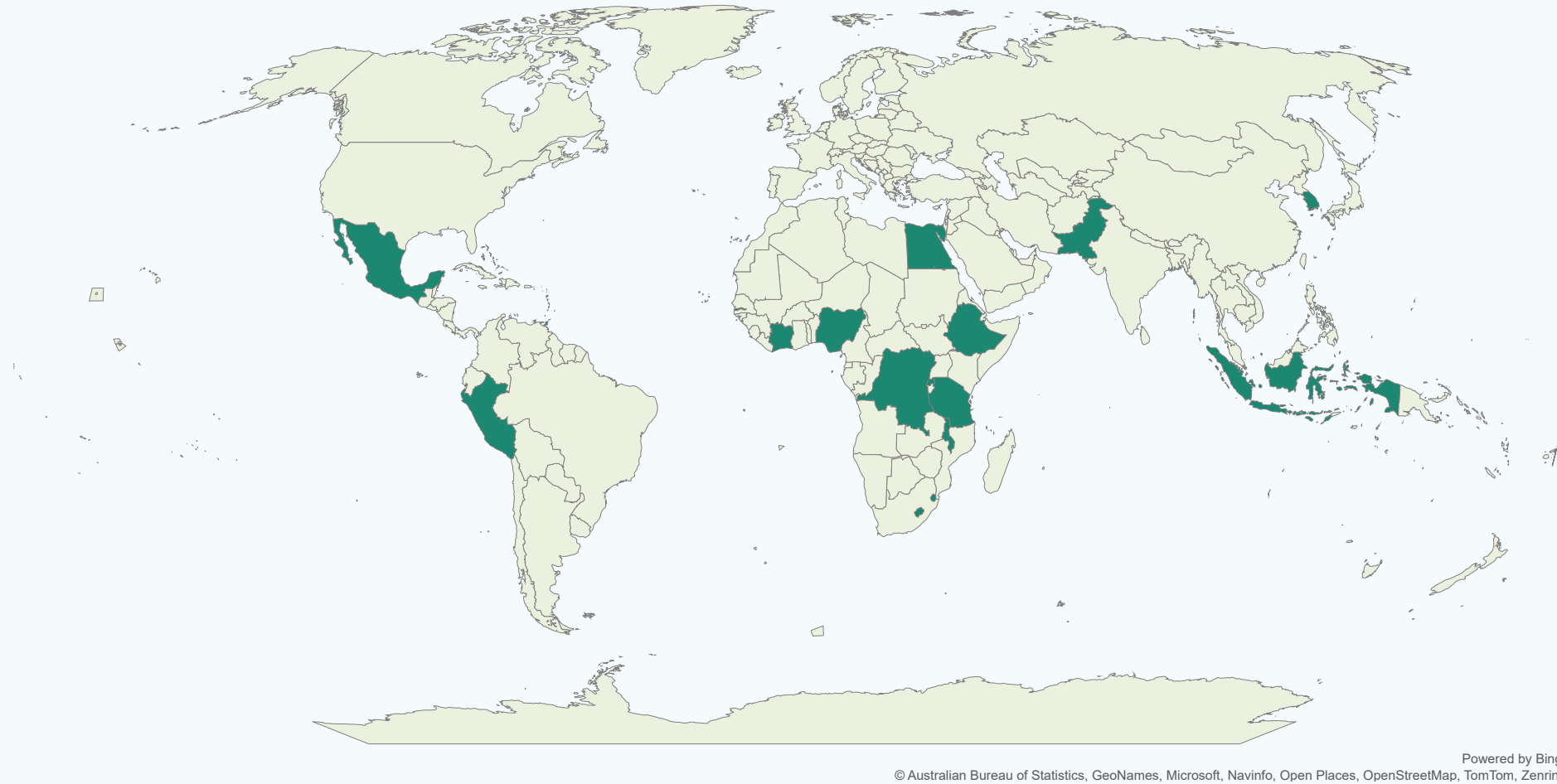
The objective is to empower the staff of the regulator to be able to conduct the security tests and adopt the DFS security recommendations.



7. Actions being implemented

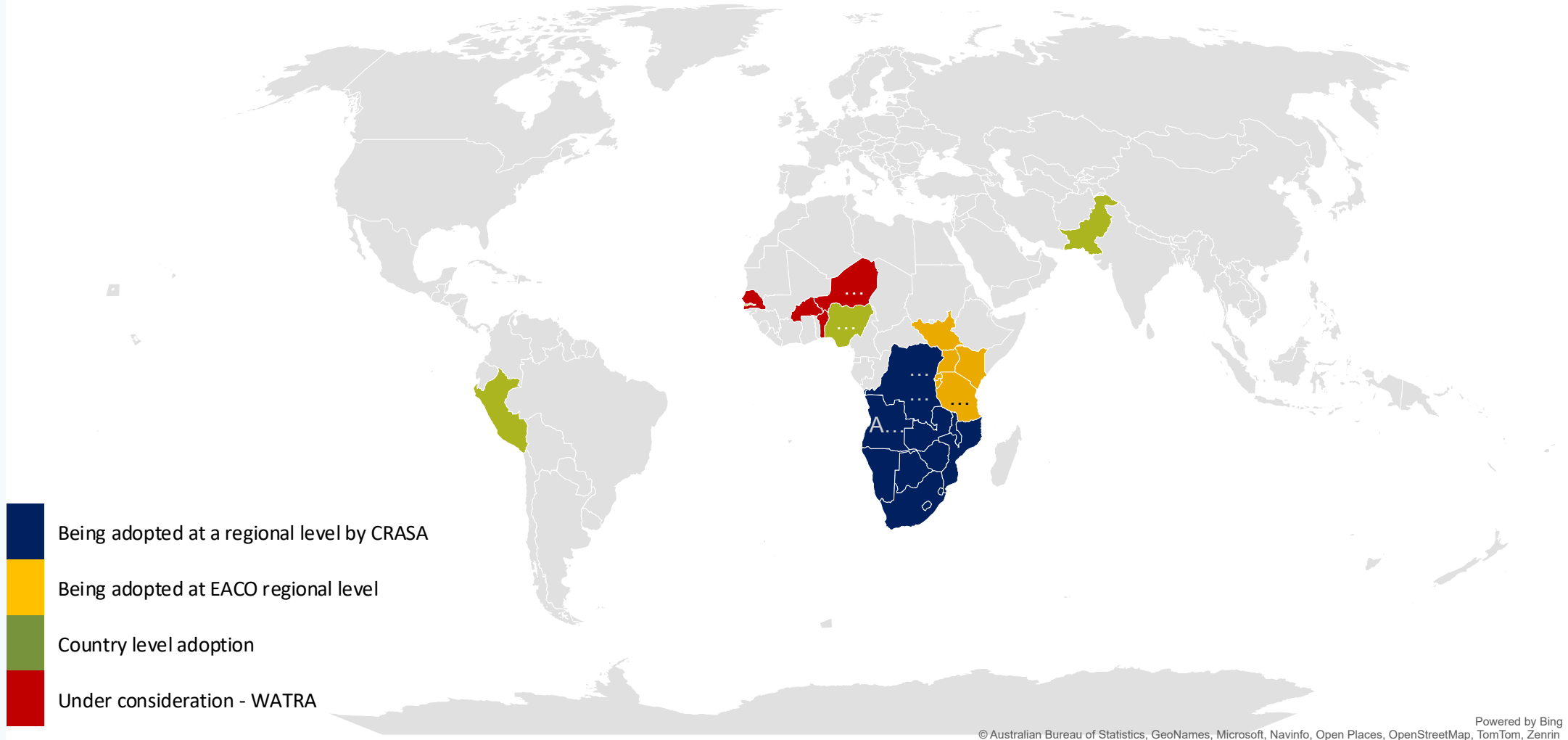
1. Organisation of DFS Security clinics with a focus on knowledge sharing on DFS security recommendations
2. Knowledge transfer for regulators (Ghana, Tanzania, Uganda, St. Lucia, Antigua and Barbuda, Zimbabwe, South Sudan, Ghana, The Gambia and Peru)
3. Guidance on implementing recommendations DFS security recommendations
4. Conduct security audits of mobile payment applications and SIM cards (Zambia, Zimbabwe, DRC, The Gambia, Peru, Tanzania and Uganda, Indonesia).
5. ITU Knowledge Sharing Platform for Digital Finance Security
6. ITU Cyber Security Resilience Assessment toolkit for DFS Critical Infrastructure

DFS security clinics held in 2021-2024



Security Clinics were held in some 25 countries, 3 regional bodies

Countries and Regions adopting the recommendations

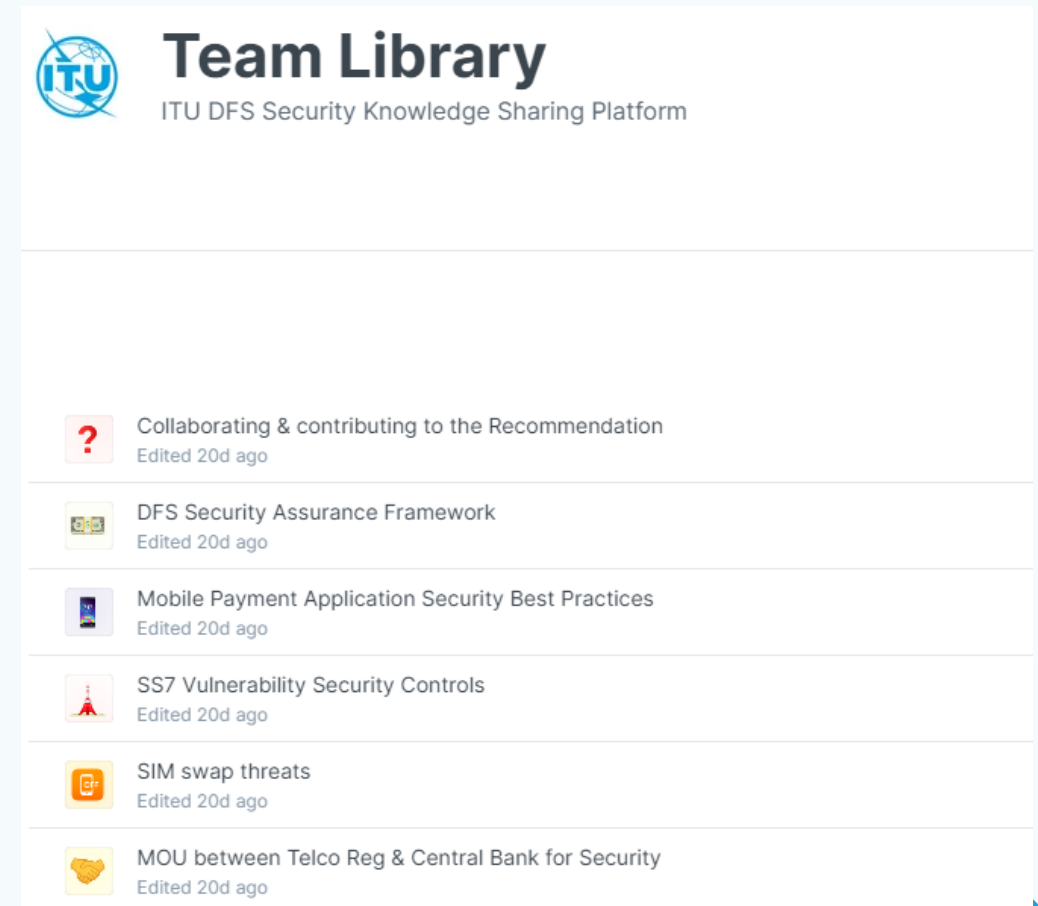


ITU Knowledge Sharing Platform for Digital Finance Security

Objective

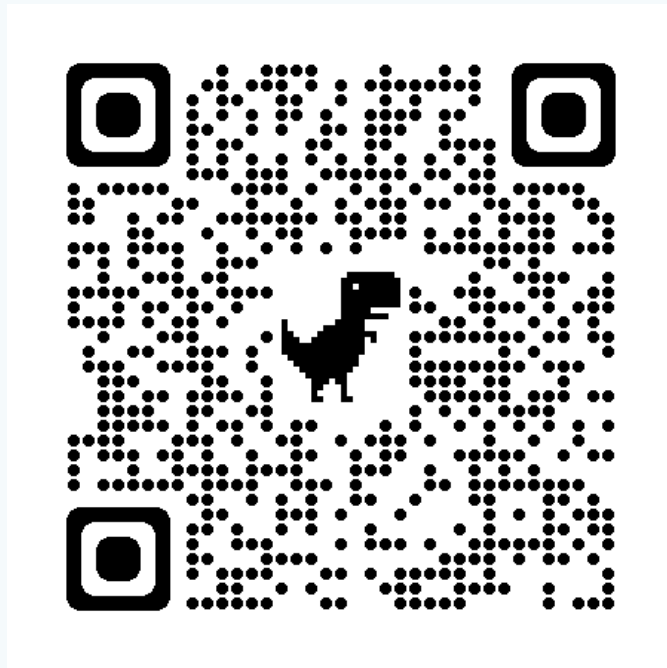
- Collaborate with ITU to keep up to date the DFS security assurance framework & security recommendations.
- Share experiences, challenges, and lessons learned from the implementation of security measures across various jurisdictions.
- Communicate directly with their peers on issues relating to security of digital financial services.

<https://www.itu.int/en/ITU-T/dfs/Pages/share-platform.aspx>




How to register to the ITU Knowledge Sharing Platform for Digital Finance Security

Scan qrcode to go to registration page




<https://www.itu.int/en/ITU-T/dfs/Pages/share-platform.aspx>




Team Library


ITU DFS Security Knowledge Sharing Platform




Collaborating & contributing to the Recommendation
Edited 20d ago




DFS Security Assurance Framework
Edited 20d ago




Mobile Payment Application Security Best Practices
Edited 20d ago



SS7 Vulnerability Security Controls
Edited 20d ago



SIM swap threats
Edited 20d ago



MOU between Telco Reg & Central Bank for Security
Edited 20d ago



<http://www.itu.int/go/dfssl>

Contact: dfssecuritylab@itu.int

Thank you!