



Building Cyber Resilience for Financial Inclusion

Africa Cybersecurity Resource Centre for Financial Inclusion (ACRC)



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THE GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG





Agenda

- Context, problem statement
- ACRC organization, objectives, approach, roll out
- Zoom 1 Microfinance & SME Starter Pack
- Zoom 2 Building a trusted information sharing community

Context African financial sector & financial inclusion are strongly exposed to cyber-(in)security

GLOBAL THREATS

86%
financial motivation

55%
organized crime

70%
external

280 days
detection to containment

AFRICAN FINANCIAL SECTOR

>3,000 financial institutions and fintech

>250m fragile customers

78% policy makers cite cybersecurity as top 3 risk

71% CROs cite cybersecurity as top 2 risk

LIMITED CYBER RESOURCES

10,000 experts in Africa vs 700,000 in USA

\$1.5bn = cybersecurity expenses of the 4 top US banks

14/54 countries with national cybersecurity agencies / law / CERT

0 embryonic data & coordination

Problem statement the sector has to drastically heighten cyber resilience in a “smart way”

Major gaps to considerably reduce cyber risk & help safeguard global financial stability (*)

- **response and recovery**
- **information sharing**
- **capacity development**
- **consistency of regulation and supervision**
- **cyber risk into financial stability analysis**
- **deterrence of cyberattacks**



(*) IMF, December 2020 “Cyber Risk and Financial Stability: It’s a Small World After All”.

ACRC a project and a team to build an African organization



Not-for-Profit Public-Private Partnership consortium

Experienced pluri-disciplinary team with >500 experts

Seed Funding African Development Bank - ADFI Facility -

Luxembourg House of Cybersecurity: Agency of the Luxembourg Ministry of the Economy (35 experts). CIRCL CERT, MISP developer, ECB & other international partners

SnT/UNiversity of Luxembourg: Interdisciplinary Centre for Security, Reliability and Trust, a strategic research priority in cyber security (>300 researchers)

Excellium Services: Luxembourg cyber security leader (>160 experts), CERT.XLM, SOC, now Thales Group (2.500 experts)

Suricate Solutions: 1st west African SOC since 2016 in Senegal, strong background in financial inclusion (>19 experts)

CERT Computer Emergency Response Team
SOC Security Operation Centre



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ACRC objectives and approach

Objectives

Improve cyber resilience of financial inclusion institutions and protect customers against cyber attacks

- foster financial inclusion
- secure the development of Digital Financial Services
- enable building interoperable payment systems

Approach

Sectoral

cybersecurity for the African Financial Sector

Regional

reach scale and contribute to sustainability, quality and time to market

Scalable & Sustainable

build lasting ecosystem and replicate throughout the continent, open-source components

Inclusive

servicing Tier III rural microfinance institutions to international bank networks and Central Banks

Independent & ethical standards

for trusted peer to peer exchange, agility, consistency

Collaborative

with local, international and multilateral partners and authorities

Quality

world class services, at affordable costs, mutualization

Human Capital Development is critical

>100 experts in 3 locations in 3-5 years, MSc curricula, PhD, initiatives to bridge gender gap, R&D

Open and consistent ecosystem

Components & organization

“Public good” core services

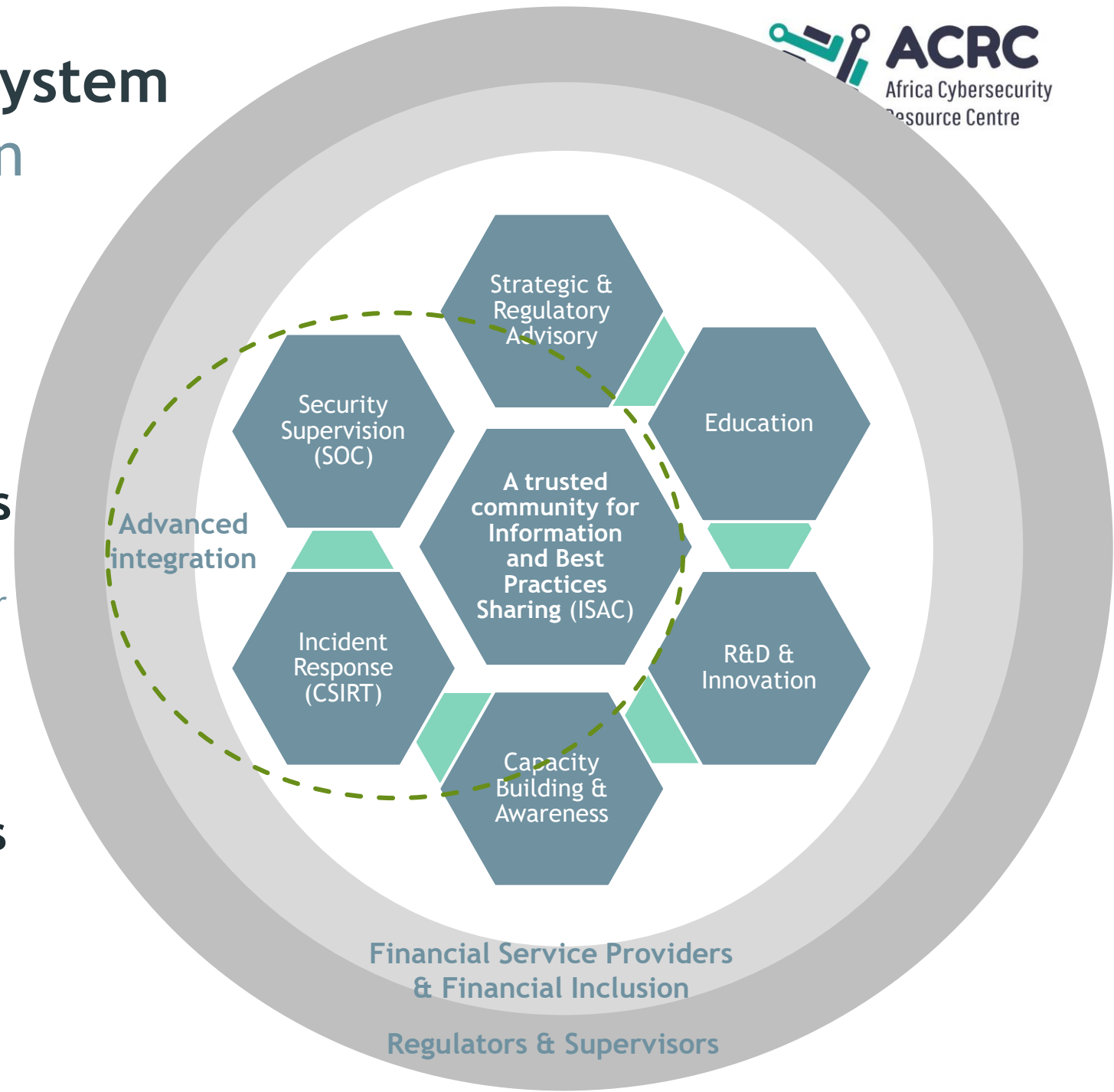
serving the African Finance Cybersecurity Community

Catalytic & synergistic partnerships

professional associations, academics, regional, sub-regional and multi-lateral organizations, gender gap or hackathon initiatives, law enforcement, authorities, donors, service providers etc

A proximity network of reference commercial partners in sub regions

- Incident Response (CSIRT)
- Security Supervision (SOC)
- Other commercial services



ACRC Roll Out

First steps



Stakeholder engagement & Sectoral awareness #40 events, >2500 Participants

International networks, central banks, professional associations for banks, microfinance, fintech, GSMA, multi-lateral organizations (IMF, World Bank, Alliance for Financial Inclusion, African Association of Central Bankers, Global Forum of Cyber Expertise, AUC, EU projects), Academia, donors

African Finance Cybersecurity Conference Information sharing, Research & Education conference
2021 Rwanda, 2022 Senegal

Hiring and training experts Start hiring local team # 30 in Y3, #109 in Y5 including 10 PhD

Roadmap of # 50 services

Central Bank Digital Currencies cybersecurity research project with IMF (funding phase)

Launch dedicated cybersecurity packages for Microfinance/SME & Fintech

Launch African Cybersecurity Information & Best Practices sharing community



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A structured but flexible approach

A reference framework with an adaptable roadmap

- **Co-building with stakeholders:** Central bank, Professional Association, MFI Network, TA, investors ...
- **Mutualization** reduce costs drastically ... and increases **impact**
- **Foundation level** for MFIs & SMEs, including Fintech
- Additional level for Fintechs on application security
- **3 steps:** 1 discover, 2 evaluate, 3 remedy
- **Accessible services delivered remotely**
 - Free
 - Shared cost
 - Fee-based with affordable pricing
- Services provided by ACRC or Suricate Solutions
- **long term support** for the development of cybersecurity maturity
- **Possible co-financing** by Microfinance Institutions technical and financial partners to reduce barriers of entry

90% of African businesses operate without the necessary cybersecurity protocols in place (*)



Bridge the cyber security maturity gap of \approx most MFI & Fintechs to protect institutions and customers (responsible finance)

- **Management awareness** (=budget + sustainability of the company)
- **Anticipate** the demands of **investors and regulators**
- Understand that **cybersecurity is not just about technology or compliance**
- Clarify **governance** (need not be complicated)
- Identify **critical assets** that are **vital to protect**
- Build a **realistic** cyber resilience **roadmap** (prepare for incidents, response, recovery)
- Develop a **budget** and **mobilise donors, investors, and required human resources**

- **Sectoral report** : maturity assessment, key remediation actions
- **Due diligences** before financing
- **Regulation evolution**

(*) Source Interpol's African Cyber Threat Assessment Report, October 2021

Free Fit4Cyber self-diagnosis

<https://start.cyber4africa.org/>



Africa Cybersecurity Resource Centre

Bienvenue dans l'outil d'auto-évaluation CASES : FitCyber4Af

Ce sondage posera des questions et présentera des recommandations en fonction de vos réponses. Rappelez-vous qu'il s'agit d'un outil d'auto-évaluation et qu'il ne touche pas à la surface de la sécurité de l'information en fournissant une estimation de base.

Démarrer

- Questionnaire and recommendations
- Understanding the dimensions to be considered
- Launching the first actions before going further



Africa Cybersecurity Resource Centre

français

Résumé:

Voici la liste des recommandations visant à améliorer la maturité de la sécurité de l'information dans votre entreprise, à condition que vos réponses reflètent correctement l'état de votre entreprise. N'oubliez pas non plus qu'il s'agit d'une auto-évaluation et qu'elle ne fait qu'effleurer le niveau de maturité de la sécurité de l'information. Par conséquent, nous ne sommes pas responsables des résultats de cette enquête.

[Votre lien de résultats](#)



24 /100

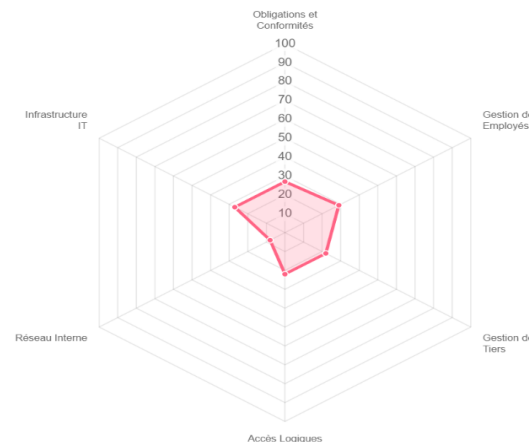
Rapport:



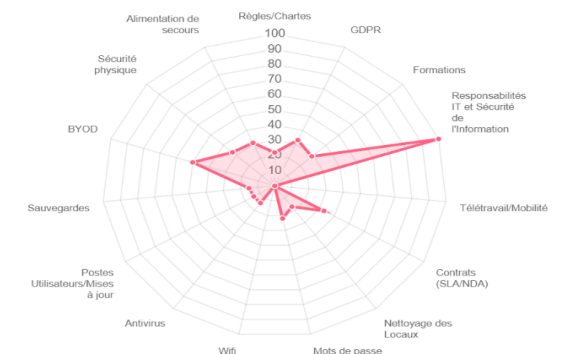
Téléchargement

Courriel

Score par section



Score par catégorie



Microfinance & SME Starter Pack Support to raise awareness and facilitate access to essential services



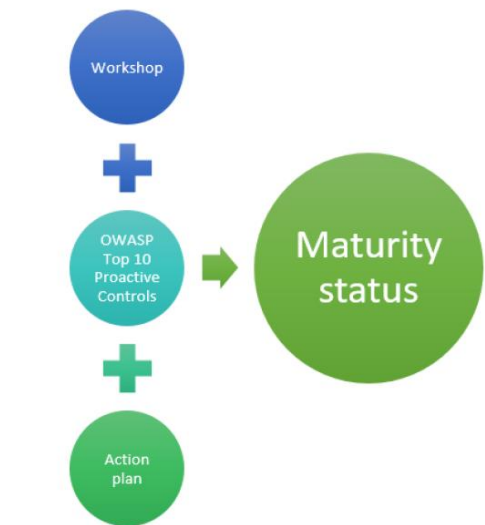
Service	Discover	Evaluate	Remedy
Raising awareness among MD and Boards	2h conference or webinar with professional assoc. Free of charge.		
Training of the technical team	"Introduction to Cybersecurity" in 3 days, webinar/site, cost price		
Cybersecurity self-assessment	FitCyber4Africa online assessment Free of charge.		
Flash cybersecurity diagnosis		2-day audit, personalised recommendation, fixed price.	
Vulnerability analysis (non-updated systems)		External vulnerability scan, cost price.	
Cyber hygiene: implementing the basics			Trust Box: policies, procedures. 12 webinars; Open Source Tools. Free of charge.
Employee awareness			Information kit. Free of charge.
Raising customer awareness			Information kit. Free of charge.
Sharing information & good practice			Annual subscription, paying according to institution size.
Online employee awareness campaign (+ email phishing test).			Annual subscription, payable.
Vulnerability analysis: recurrent			Annual subscription, payable.
Shared CISO (IS Security Manager)			1 or 2 days/month, paying.
Security supervision: shared SOC			Paying

Fintech Starter Pack

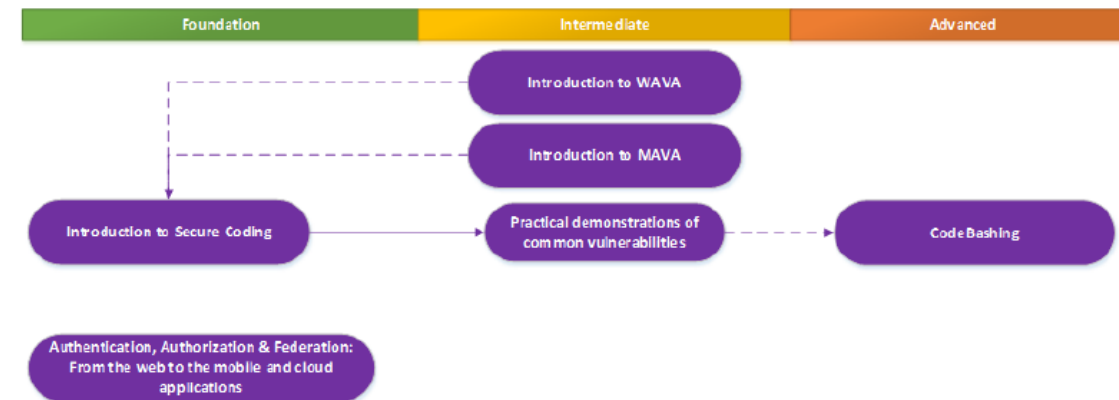
Understanding and Implementing Application Security

Technical Maturity Assessment

- Identify, through a quick and pragmatic approach, its level of maturity regarding the integration of security-related activities in software development.
- Provide direct feedback and an action plan
- Based on the OWASP Top 10 Proactive control framework
- **Workshop + Report 1 day**



Training & additional services



- Presenting application security to developers and management
- Training developers in secure coding
- Training developers to evaluate and review web and mobile applications
- A **complete** tailor-made **course**



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Building a trusted information sharing community

Open to local, regional or global stakeholders & initiatives

Africa Cybersecurity Resource Centre

Funding

Coordination
&
Partnerships

Communication

Work Groups

Partnerships

Conferences

Afr. Financial ISAC
Threat Intelligence
Crisis Management

Sector Policy Makers

Central Banks

Policy Makers

Supervisors

National/regional Financial
Market Infrastructure (GIM,
GIMAC, national switches...)

National / Regional / Intl. Authorities

Local LEA

International LAS (Africol,
Interpol, Europol...)

National CSIRT

National Cyber Security /
Data Protection Agency

African Union, ECOWAS, EAC,
CEMAC, SADC, ...

IMF, WB, ECB, BIS

Partners

Universities & Research

Professional Associations,
Networks, Work Groups

ITU, ISOC, GSMA, EU, GFCE

Donors & Institutions

Cyber Security Service
Providers

Vendors

FSPs

FSP

Digital FSP

Financial CSIRT-SOC

**CORE
TRUST
CIRCLE**



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Building a stronger community over time

Objectives

- **Ensure trusted sharing**
 - **Peer-to-peer relationship** (closed sessions)
 - **Free to choose** what to share and with whom
 - **Fairness** : effective sharing by all members, affordable costs for all
 - **Compliance** : Does not replace regulatory incident reporting
 - **Independent trusted 3rd party** between financial institutions (members) and authorities (partners)
- **Deliver value-added information**
 - **Extensive qualification and analysis of reported incidents**
 - **Trends and sectoral situation for fact based decision**
 - **Common vocabulary**: MITRE ATT@CK framework for consistent reporting & benchmarking
 - **Technical** (Indices of Compromission with **MISP** (Malware Information Sharing Platform))
- **Improve threats detection**: CSIRT and SOC must feed ISAC, and vice versa
- **Longstanding capacity building** e.g. deep understanding threats, new TTPs...

Organisation of the ISAC network

An involved network of formal/informal local chapters



- **Local champions** : First chapters in Ivory Coast and Senegal on the launch pad
- **Collaborate to recruit** local peers & international groups
- **Support/facilitate the production of information** by members
- **Disseminate** relevant internal and external content
- **Ensure a minimum of sharing** for each member
- **Contribute to the ACRC ISAC governance**

Organisation of the ISAC network

Continuously fostering collaboration



- Annual on-site conference (closed session for financial institutions)
- 2 virtual conferences/year (closed session for financial institutions)
- Working meetings between chapter leaders & ACRC
- Local chapters meetings (ACRC may be invited)
- Private collaborative environment such as "slack" for secure informal communication

ACRC ISAC to deliver an **extensive & unique range of practical and actionable information**, covering operational to strategic levels

Service	Micro Finance / Fintech (per site)		Banking / Insurance / MNO (per site)		Central Bank
	Base	Advanced	Base	Advanced	
Threat Intelligence Inbound & Outbound (MISP)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Critical Threats Alerts White Bulletin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Good Practices Bulletin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Threats Intelligence Newsletter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Threats Intelligence Webinars	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Access to Threats Intelligence training	<input checked="" type="checkbox"/> Intro ISAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Intro ISAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Threats Intelligence Standard statistics and trends	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Detailed incident reports		<input checked="" type="checkbox"/> declarants		<input checked="" type="checkbox"/> declarants	
Africa Incident Dashboard		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ISAC Conference access (open sessions)		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Access Collaborative communication environment		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CB dedicated
Customised analysis reports		<input checked="" type="checkbox"/> Optional		<input checked="" type="checkbox"/> Optional	<input checked="" type="checkbox"/> Optional
Yearly Incidents review strategic workshop		<input checked="" type="checkbox"/> Optional		<input checked="" type="checkbox"/> Optional	<input checked="" type="checkbox"/>
Access to simulation environment option		<input checked="" type="checkbox"/> Optional		<input checked="" type="checkbox"/> Optional	<input checked="" type="checkbox"/>

Implementing the ISAC

Next steps : Would you like to help ?

- Setup first local chapters
- Start delivering content Q1 2023
- Deployment
 - Bank, Microfinance, Insurance and Fintech international networks
 - Professional Associations
 - Central Banks, African Association of Central Bankers, Alliance for Financial Inclusion
 - World Bank & IMF
- Subscription fees by type of institution
- Governance & Advisory Board
- Funding staff, conferences, research ...

Conclusion A smarter approach to keep up with the pace of criminals and increase cyber resilience is necessary, and possible

**BUILDING THE
AFRICAN FINANCE
CYBERSECURITY
COMMUNITY
#TOGETHER**



- A collaborative spirit to share information and international best practices in a way adapted for the African financial sector
- Embed public-private partnerships across work to strengthen the ecosystem and succeed over time
- Sectoral and regional approach to reduce implementation time and save money for critical sectors



Our partners:



ADFI is financed by:



Consortium members:



www.cyber4africa.org

Join our community and partnership now !

Thank you

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More

www.cyber4africa.org
www.adfi.org

1x ACRC Regional Centre

Holistic approach to drive cyber resilience on a large scale

Information Sharing and Analysis Centre

Operation of the Malware Information Sharing Platform (MISP)
Interconnection with international ISAC (FS-ISAC, ECB, Interpol, ...) and CERTs
Analyze and share information on threats, vulnerabilities, best practices
High level crisis management, crisis simulation exercises

Coordination & Partnerships

- Relationship with stakeholders and partners within the ecosystem
- Intelligence sharing conferences, Work Groups, events

Capacity Building

- Awareness, training, advanced content creation
- On site and online sessions
- Contents for events and transverse initiatives: Code Hackademy, hackathons, Gender Gap bridging programs

Research, Development & Innovation

- Academic partnerships
- Education: train trainers (PhD students) and students (MSc)
- R&D for public or private customers
- Disseminate R&D results (research conferences, papers, newsletter)

Strategic & Regulatory Advisory

- Advisory Services to central banks
- Support smart regulation setup and implementation by FSP
- Country or sector wide initiatives (e.g. awareness)

3x Sub Regional Centres

Private partners network for proximity

Computer Incident
Response Team (CSIRT)

- Incident response preparation and management
- Crisis management
- Forensic Investigations
- Level 3 support of the C-SOC

Security Operation
Centre (SOC)

- 24x7x365 security supervision to identify attacks
- Penetration testing and vulnerability scanning

Advisory Services &
training

- Governance (maturity Assessment, ISO 27k, PCI DSS, Business Continuity, Risk Management...)
- On site Commercial and Certifying training

Other cybersecurity
services

- Upon request