Addressing Cyber Security Risks in Emerging Financial Sectors

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Building human capital to address cyber risks in Africa's financial markets

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Building Human Capital at Scale for Digital (with an Emphasis on Cyber-Security)

A-Prof. Dr. Tegawendé F. BISSYANDE
The University of Luxembourg


- 242 professors, assistant professors & lecturers
- 850 academic experts
- 6,366 students from 113 different countries

  - Most international university
  - 12th worldwide in THE Young University Rankings

- 6 research focus areas
  - Materials Science
  - Computer Science & ICT Security
  - European and International Law
  - Finance and Financial Innovation
  - Education
  - Contemporary and Digital History
Top level research in Information & Communication Technologies

Created to **fuel the national innovation system**
SnT: Our Strategy

- Collaborative, demand-driven research model based on strategic partnerships (PPPs)
- Interdisciplinary research approach in relevant economic sectors
- Use Europe as a competitive platform for research grants
- High-risk long-term research
- Highly selective global recruitment to attract top talent
- Build international cooperation through European programs
Key Figures

- 290 employees
- 51 nationalities
- Over 100 paper and individual awards over last five years
- Only three ERC Advanced Grants in Luxembourg
- Highest cited and most productive scientists in Luxembourg
Industry Partnership Program

47% of PhDs work on Industrial Projects

60% of Research Associates work on Industrial Projects

4.6M € in annual partner contributions

43 partners
University is key!
This is often forgotten when it comes to development aid.....
Tertiary education has not been a priority of development aid.

In the late 1980s and early 1990s a series of studies for the World Bank suggested that the benefits of a young person continuing education after secondary school were significantly higher for the person themselves than for their nations. This evidence strongly supported the prevailing view that tertiary education, such as studying at university, only helps the wealthy and privileged, perpetuating these inequalities across generations.
Tertiary education has not been a priority of development aid. The focus on earnings gave far too narrow a picture. In 2008, the Organisation for Economic Co-operation and Development reported that tertiary education contributes globally to social and economic development through the formation of human capital, building of knowledge bases, and the maintenance, dissemination and use of knowledge.
Tertiary education has not been a priority of development aid.

The Sustainable Development Goal for education includes a target to ensure “equal access for all women and men to affordable quality technical, vocational and tertiary education, including university”. On the cusp of global commitment to these goals, it’s a time for change across the donor community – and signs suggest this is happening.
We have tried!

But it does not scale!
- Master in Computer Science
- Research visits of professors

Digital Incubator for University students with
  • Uni.lu
  • Fondation Veuve Emile Metz Tesch

Master in Cyber-security for professionals
- Suricate made the introduction

- Involvement of African univ. in Uni.lu/UBS project
Training the trainers

We must not focus on the symptoms, but rather the disease....
LuxWAyS
Luxembourg West Africa virtual lab for Cyber Security and Emerging Technologies

- We cannot do much from here!
- We need to bootstrap only
- Let’s train professors
- Profs. will train batches of students
- Co-Supervision
- Training duties back in Africa
- Co-funding (UL /GOV/beneficiaries)
- 2 PhDs ongoing
- 1 PhD incoming in Q1 2020
- Proposal presented
Eastern Africa – Cyber Risks
Approaches to Building Human Capital

Margaret Kamau, Co-Chairwoman, SEC Consult Africa Ltd., Kigali, Rwanda
Torsten W. Toellner, CEO Yelbriges Ltd., Thika, Kenya
Do you think cyber crime is a MAJOR hindrance to sustainable growth of financial institutions (Banks, Saccos, Micro-Finance Banks(MFB), etc) ?

Result

- 88%
- 12%
17 microfinance institutions in East Africa were surveyed

Where do most of the major direct threats of e-commerce and mobile-based transactions come from?

Result

- Online Fraud: 55%
- Credit card fraud: 36%
- SIM card swiping: 0%
- Social engineering: 0%
Survey of Yelbridges Ltd. dated 5.11.2019

17 microfinance institutions in East Africa were surveyed

What do you think are some of the evolving Cyberthreats Facing the Financial Services Sector in Africa?

Result

- Emerging Technologies: 3%
- Social Engineering: 0%
- Ransomware: 28%
- Data Theft and Manipulation: 22%
- Alter Algorithms: 37%
- Disinformation/ Fake news: 3%
Survey of Yelbridges Ltd. dated 5.11.2019

17 microfinance institutions in East Africa were surveyed

Does the organization know what to do in a cyber-crisis situation?

Result

- Yes: 88%
- No: 12%
Survey of Yelbridges Ltd. dated 5.11.2019

17 microfinance institutions in East Africa were surveyed

Are the employees sufficiently technically trained?

Result

- Yes: 88%
- No: 12%
Project CYBER4GROWTH
A project of SEC Consult, TÜV Rheinland and DEG in January/February 2019

Budget: 150 kEUR

Cyber Defense Simulation Center
Train-the-Trainer: 10 (Kenya, Uganda, Rwanda, Tanzania)
Participants: 54 (IT Security Professionals)
Test Results: 49 passed, but on average below the German peer group

Coordination in a Business Club together with BVMW

Training offers are necessary (technically and organizational)

Professional monitoring services are necessary

GDPR-Trainings are necessary
Project CYBER4GROWTH II / 2020-2022

Funding is nearly completed

Knowledge

Organizational

Technically

Connecting experts for Cyber Security in the

Cyber-crisis management excercises

Managed Security Services

Managing Security Services

24/7-Monitoring

Firewall

IDP/IPS

VPN (IPSec, SSL VPN)

Application Control

Entity Management

Anti-DDoS

Infected LAN

IPv4 – IPv6
Our vision: **Fair markets**. Business partners at eye level. **Data security** as a basis. Worldwide. Smart **Africa** as a leading region in world.

**Yelbridges Ltd. and SEC Consult** are working hard to **build a bridge** between Luxembourg, Germany and Eastern Africa.
Group A: Building a cyber security resource center in low capacity environments

Group B: Experiencing a cyber attack
- Room #42