



The importance of cyber security for digital finance



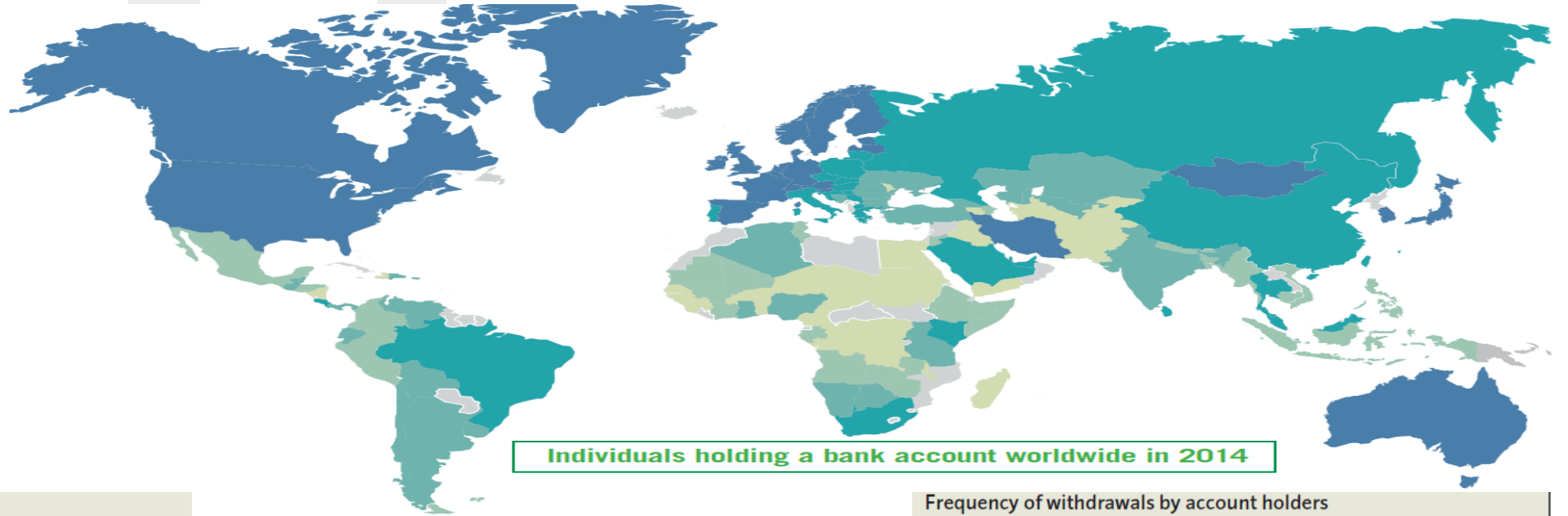
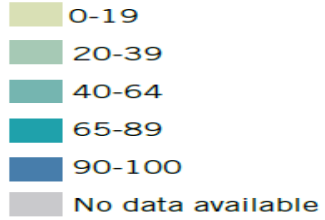
Xavier Mommens

European Investment Bank



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Account penetration in the world
People aged above 15 years
with a bank account (%),
in 2014

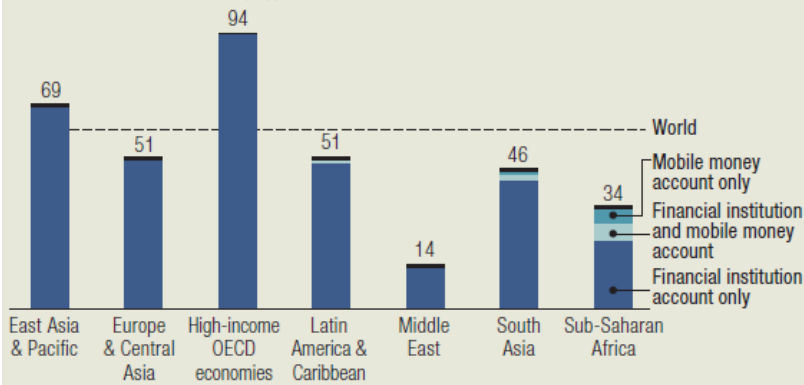


Individuals holding a bank account worldwide in 2014

Source: Global Findex Database
BRD 41559 | April 2015

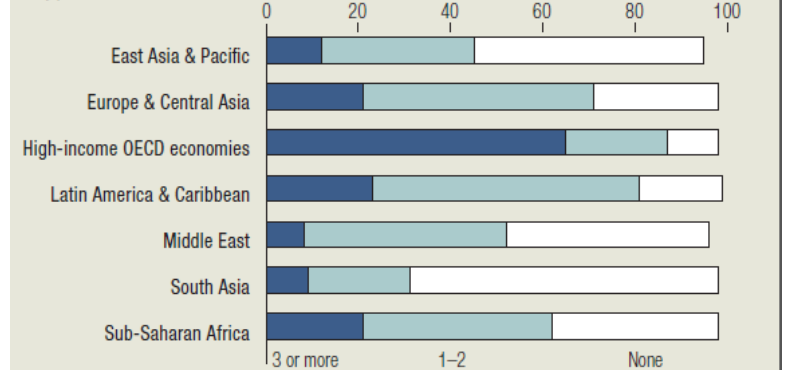
Account penetration

Adults with an account (%), 2014



Frequency of withdrawals by account holders

Adults with a financial institution account by number of withdrawals in a typical month (%), 2014

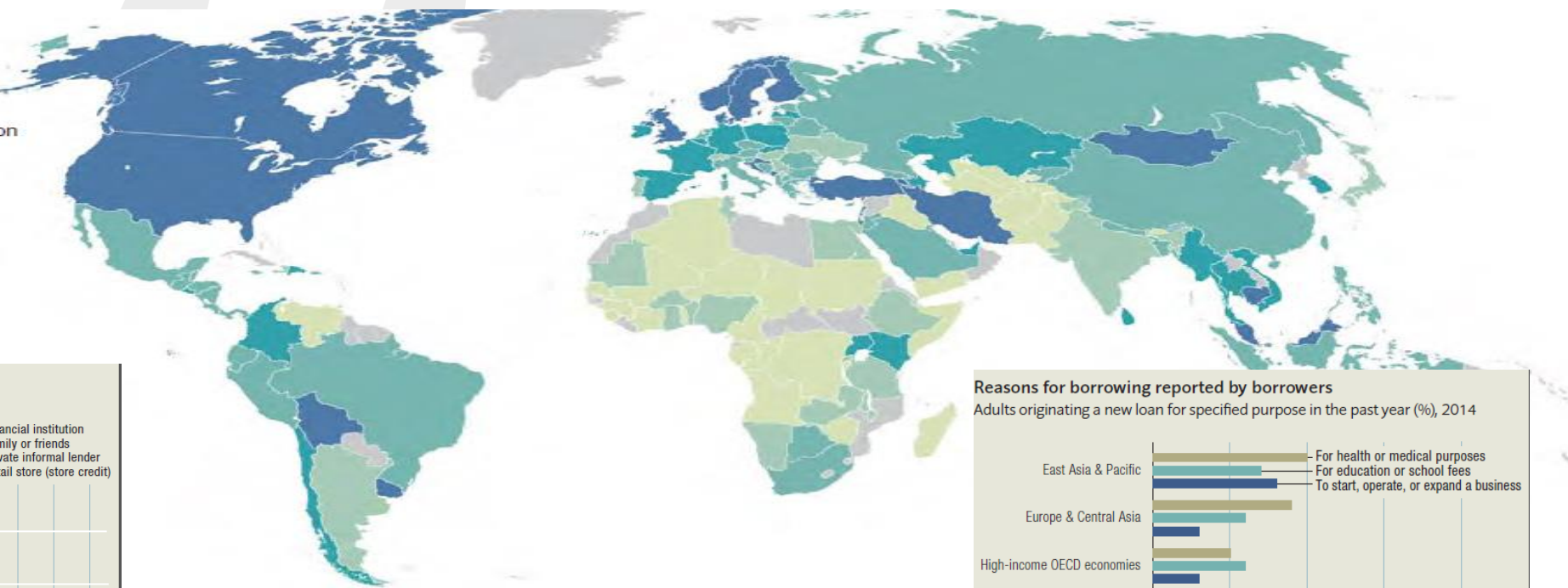
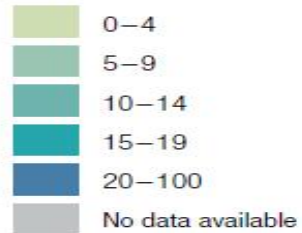




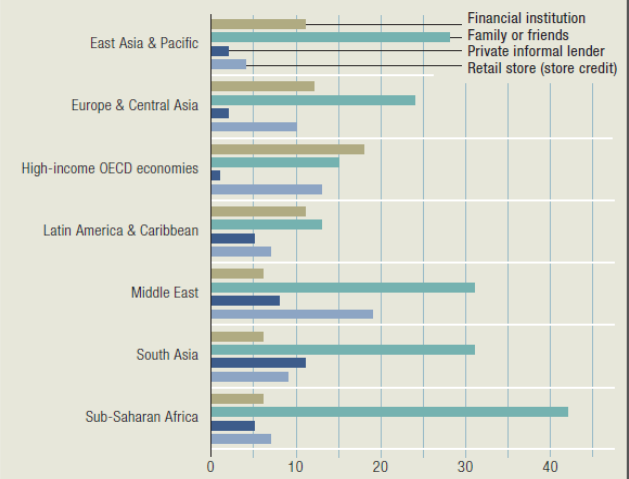
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Individuals: formal credit

MAP 3.2
Origination of new formal loans
around the world
Adults borrowing from a financial institution
in the past year (%), 2014

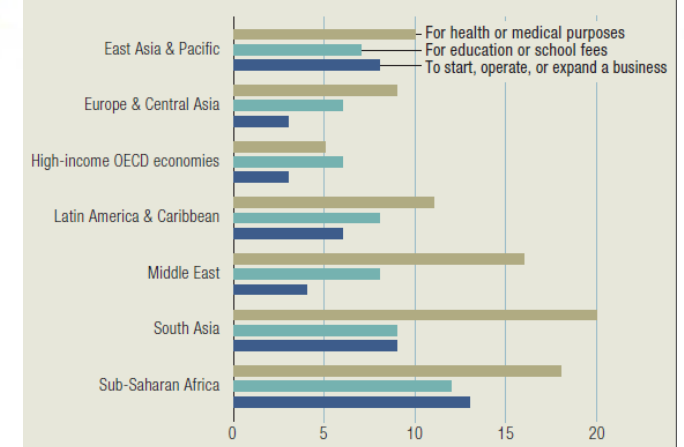


Sources of new formal and informal loans
Adults borrowing from source in the past year (%), 2014



Note: Respondents could report borrowing from more than one source.
Source: Global Findex database.

Reasons for borrowing reported by borrowers
Adults originating a new loan for specified purpose in the past year (%), 2014



Note: Respondents could report borrowing for more than one purpose.
Source: Global Findex database.



EIB studies and/or actions in the context of DFS development

- SSA: beyond the success story of Kenya, what are the opportunities in 8 other countries of SSA
- Morocco: mobile banking regulation
- Central bank of Jordan: Help to set up a payment system and improve the risk management framework



Additional potential EIB actions in the sector of DFS

- Investment in equity or debt in a platform or a start-up
- TA for an existing credit line aiming at reaching the under-banked in remote areas



Before investing, what should be in place? What are the Cyber risks related to DFS? Some questions to be asked:

- Example of Tesco – GB / USD 3 m loss in cyber attack
- Does the business environment has the capacity to mitigate risks related to new technologies in general, and potential cyber attacks in particular?
- Could a cyber attack affect the credibility of DFS?
- What are the tools that existing financial institutions have to counteract potential cyber attacks?



Why cyber security matters for digital finance and financial inclusion ?

Suricate Solutions
Jean-Louis PERRIER



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The company Suricate Solutions

- Cyber Security and electronic banking in Africa.
- Currently based in Luxembourg, Dakar and Abidjan, with extensive settlement plan in Africa.
- Affiliate of Excellium Services
 - # 1 Cyber security company in Luxembourg
 - 50 experts from all areas of security in Luxembourg, Belgium, France
 - Partnerships in Morocco and Tunisia

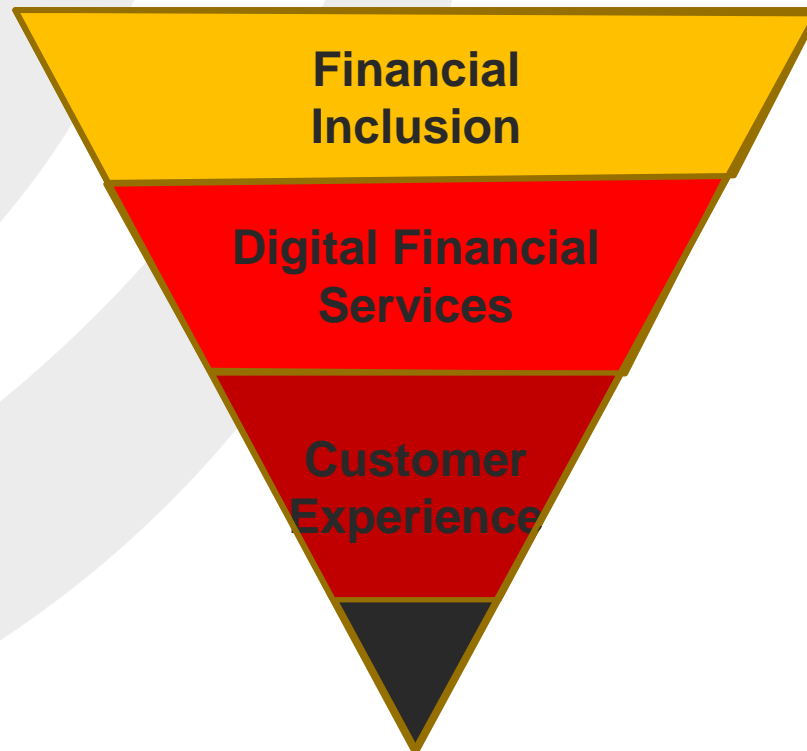
How did the topic start ?

- Economic Mission of Luxembourg in Senegal in Feb' 16
- Met key stakes holders in inclusive finance
 - Largest MFI and Money transfer companies,
 - CTI.SN mutualized MFI datacenter based in Senegal (50 MFI)
 - Governmental and institutional actors in Senegal (eg APSFD)
- Significant challenges in IT security (customer data theft, financial losses, disruption of services)
- Limited technical, human and financial resources



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Digital Financial Services : a key to improve financial inclusion,
... but security is a MUST DO



Reliability, Security, Trust





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Cyber crime : An explosive evolution, a reality in Africa

Worldwide

- **Losses > € 500 B** in 2014 (x9 in 9 years), **0.8 % of GNP**
- **400 M persons** affected each year, **20% of Businesses**
- **900 000 Malwares** in 2015 (x3 in 1 year)
- Professionalization and internationalization of **criminal organizations**

Africa

- 330 M internet users, +30% pa
- 200 M cyber attacks pa (+38%)
- **Losses > € 1B** : € 573 M South Af., € 500M Nigeria, € 39M Ivory Coast, € 36M Kenya, € 23M Senegal
- Ivory Coast 2015 : **Money transfers hijack (+207%), mobile payment frauds (+74%)**

Senegal attacks 2014-2016

- **State agencies** : National IT Agency, Customs, a minimum of 7 Ministries
- Major **Fund transfer Operators**
- Most of largest **MFI**
- Several **Leading Banks, Post**



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Cyber attacks consequences & characteristics

■ Consequences worsen

- Customer data losses (in a context of stronger regulatory requirements)
- Financial losses : 80% are \$ related => Financial Institutions are major targets
- Denial of Service (34% of attacks)
- Lack of trust => Delay in the development of digital financial services

■ A huge and evolving variety of modus operandi, and poor detection

- 85% of attacks use 10 vulnerabilities within > 900 listed
- Tenth of attack models, of which 9 are related to 95% of cases
- 80 % external intrusions
- Reduced intrusion and data leakage time : few minutes for >80 % of cases

TESCO Reveals \$3 Million Lost in Cyber Attack, 1/3 Attack on Nov 8th 2016, 466.000 Google hits on Nov 14th...

- Tesco Plc's banking arm said on Tuesday that **2.5 million pounds (\$3 million) had been stolen from 9,000 customers over the weekend** in what cyber experts said was the first mass hacking of accounts at a western bank. (\$333/customer, in total 126.000 customers)
- Tesco Bank said it had resumed full service after the theft, which forced the **suspension of online transactions** on Monday.
- "We've now **refunded all customer accounts** affected by fraud and lifted the suspension of online debit transactions so that customers can use their accounts as normal," Tesco Bank CEO Benny Higgins said in a statement.
- The bank has provided few details about what happened. **It is not clear** how online thieves broke into the bank, how they pulled out the funds or how much was stolen. It is also **not clear if there are any suspects.**

[HTTP://WWW.NEWS18.COM/NEWS/TECH/TESCO-REVEALS-3-MILLION-LOST-IN-CYBER-ATTACK-1309996.HTML](http://www.news18.com/news/tech/tesco-reveals-3-million-lost-in-cyber-attack-1309996.html)

TESCO Reveals \$3 Million Lost in Cyber Attack, 2/3 « SMALLER BANKS” AT RISK

- Cyber experts said that **smaller banks, like Tesco's, are more vulnerable to attack** than global financial institutions, which have bigger cyber security budgets.
- **JPMorgan**, for example, has disclosed that it spends about **\$600 million on cyber security annually**.
- "Smaller and medium-sized companies may be more vulnerable, many of them have **not invested properly in security measures** and an incident like this should stimulate them to think again," said Sergio Romanets, cyber security expert...
- "There is no indication that our software or services were involved in the incident Nonetheless, we are offering our support in whatever manner will be helpful to Tesco Bank," a spokeswoman for Fiserv said in an emailed statement to Reuters.

■ Tesco Bank has spent 500 million pounds (£610.75 million) building up its



■ Question : how can MFI be smarter on security ?

Tesco cyber-raid raises serious questions over UK banks' security...

<https://www.theguardian.com> > Business > Tesco > Traduire cette page

Il y a 2 jours - The nature of the **attack** that siphoned £2.5m from the supermarket's current accounts in just a few hours should cause alarm at the highest ...

After Tesco fraud, are other banks vulnerable to cyber-attacks ...

<https://www.theguardian.com> > ... > Banks and building societies > Traduire cette page

Il y a 2 jours - Experts have called for card readers and tighter security after £2.5m was stolen from the accounts of **Tesco** Bank customers.

What went wrong at Tesco Bank? • The Register

www.theregister.co.uk/2016/11/10/tesco_bank_breach_analysis/ > Traduire cette page

Il y a 4 jours - **Tesco** Bank has enlisted the help of the National Cyber Security Centre (NCSC) following the most serious **cyber-attack** launched against a UK ...

Tesco. unexpected cyber attack in banking area - Financial Times

<https://www.ft.com/.../41f97300-a4d7-11e6-8898-79a99e2a4de6> > Traduire cette page

Il y a 7 jours - It isn't just the wind whipping off the Firth of Forth that is sending shivers down spines at **Tesco** Bank in Edinburgh. The lender's systems have ...

Tesco Bank 'ignored warnings' about cyber weakness - Financial Times

<https://www.ft.com/.../ec81f30a-a82b-11e6-8b69-02899e8bd9d1> > Traduire cette page

Il y a 1 jour - The **cyber attack** on **Tesco** Bank forced the company to repay £2.5m of losses to 9,000 customers in a heist described as unprecedented by ...

Spy agency GCHQ investigates Tesco Bank cyber theft amid fears it ...

www.telegraph.co.uk > Business > Traduire cette page

Il y a 6 jours - **Tesco** has enlisted the help of spy agency GCHQ to assist its investigation of what is the

Regulators could fine Tesco Bank over cyber attack - The Telegraph

www.telegraph.co.uk > Business > Traduire cette page

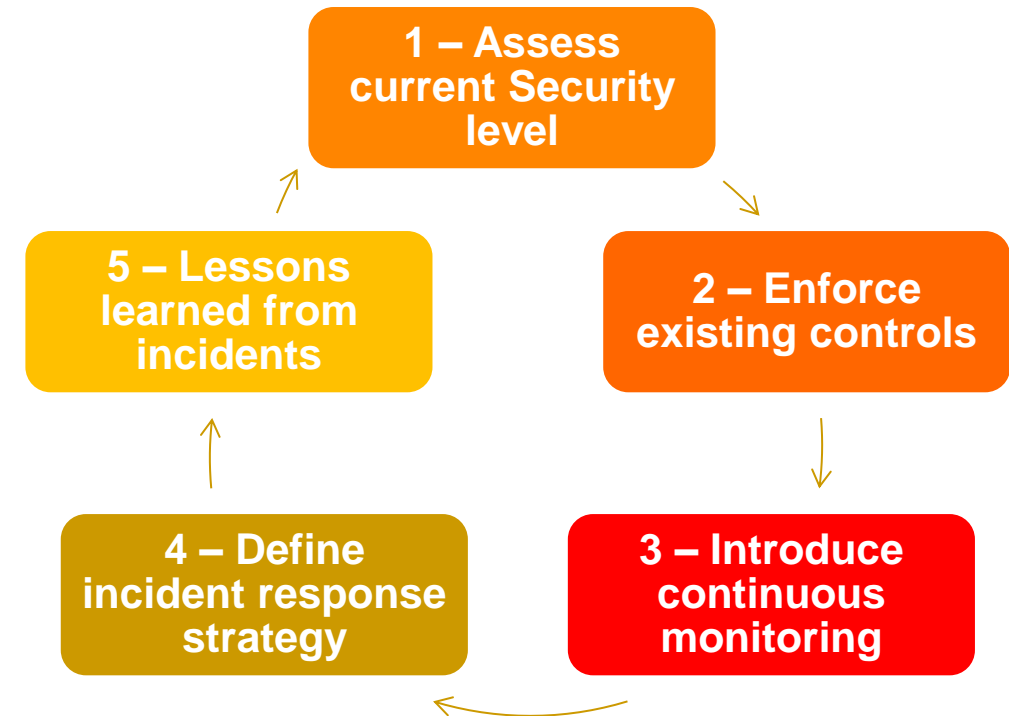
7 nov. 2016 - **Tesco** could be potentially be hit with a multi-million pound fine by City regulators in the wake of an unprecedented **attack** on its banking arm ...



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- 95% of our intrusion tests succeed
- Bring international security best practices to financial inclusion sector, and adapt it to available resources
- Organizations must prepare and implement a continuous mechanism for intrusion prevention, early detection, remediation

Intrusions DO HAPPEN !





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A proven and scalable solution, reference partners,
comprehensive MFI Roll Out Program

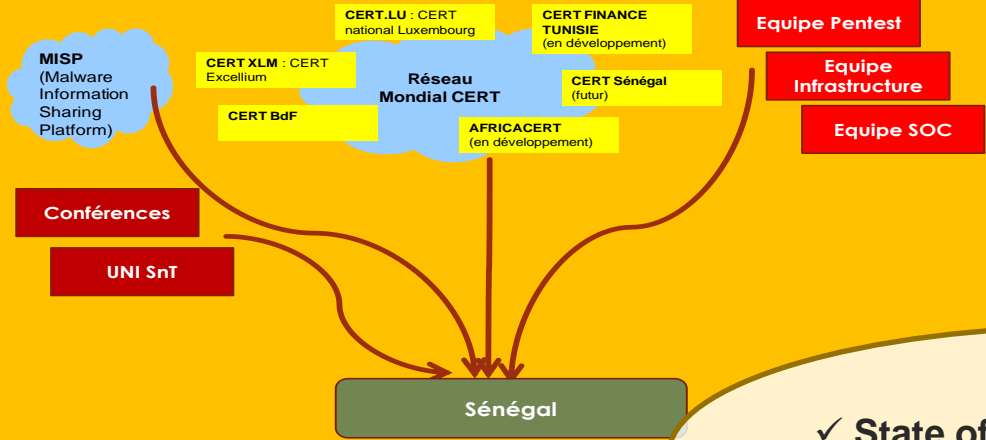
- 1st cyber security operational center in Sub-Saharan Africa will be Based in Dakar Q1 2017
- Local partner APSFD Senegal : MFI professional Association
- Will provide shared services to oversee IT infrastructure up to 24 hours / 24 and 7/7, **prevent, detect, and assist to remediate attacks.**
- The team may handle
 - Senegalese MFI, then West and Central African MFI
 - Mobile Money / Fund Transfer operators
 - CTI.SN and future instances of mutualized datacenters
 - Financial institutions (Banks, Central Banks, Card Processors)



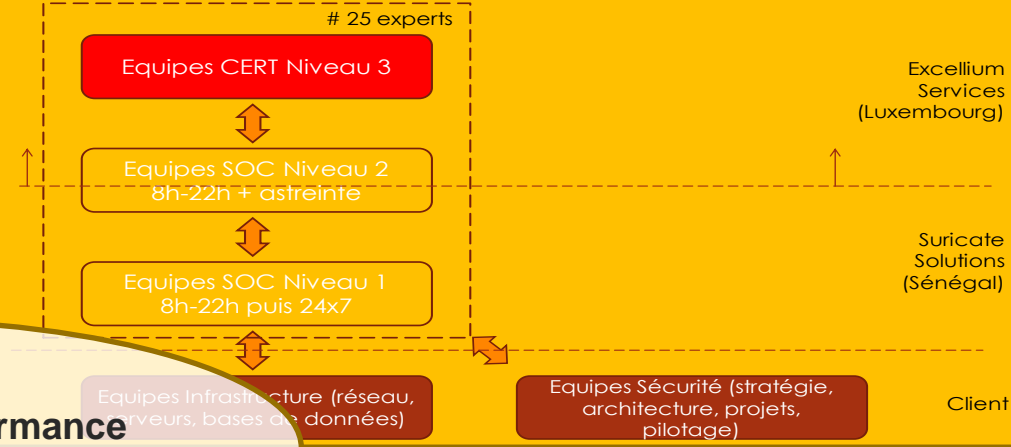
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The 4 components of a Security Operation Center have to be managed altogether to deliver efficiently

Security Intelligence



Organisational Component

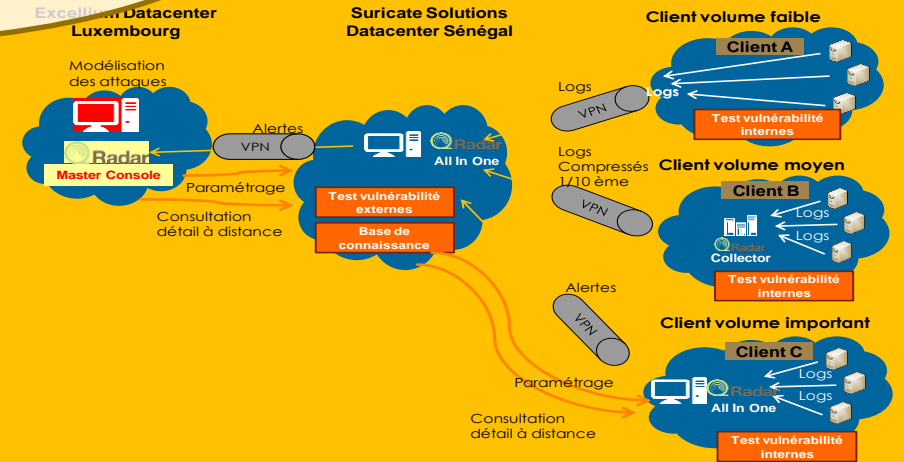


✓ State of the Art performance
 ✓ Proximity and local costs

Operational security team

- 7 to 8 Security Analysts in Senegal
- # 20 experts in Luxembourg
- Availability up to 24 x 7
- Initial and life long training
- Coaching and skills development

Technical Infrastructure





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Our partners are the leading Cyber Security actors in Luxembourg

EXCELLIUM

- **Excellium Services** provides the security infrastructure: Security Operation Centre (**SOC**) and Computer Emergency Response Team (**CERT.XLM**), managing security intelligence exchange with international CERT/CSIRT

SECURITY
MADEIN.LU

- **SMILE** (Security Made In Luxembourg) : Government structure that manages national security activities and national CERT, develops IT security risk methods and tools based on ISO 27k standards adapted to SME, leads security awareness campaigns for public and enterprises

SNT

securityandtrust.lu

- **UNI/SnT** (Luxembourg University / Research Center "Security Reliability and Trust") with as strong expertise on Android devices security



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère des Affaires étrangères
et européennes

Direction de la coopération
au développement et
de l'action humanitaire



Agence luxembourgeoise pour la
Coopération au Développement

- Luxembourg Government is co-financing the Security Center



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MFI Capacity build Up and Roll Out Program : a comprehensive approach

- Management Board Security Awareness seminary
- Employees Awareness Program (train the trainers)
- Technical team thorough security training (9 days)
- Implementation of IT Security Risk methodology & tools
- Initial security assessment
- Technical infrastructure implementation (Light)
- Security Customizing
- Continuous support and capacity build up
- ... And up to the implementation of 2 x MSc Cybersecurity cursus



- Dont forget : we are looking for additional partners/financing to expand the initiative to a wider panel of MFI and countries !
- Jean-Louis Perrier jlperrier@suricatesolutions.com



APSFD-SENEGAL

L'importance de la sécurisation informatique
des opérations financières des IMF au Sénégal

Sidy Lamine NDIAYE – APSFD Sénégal

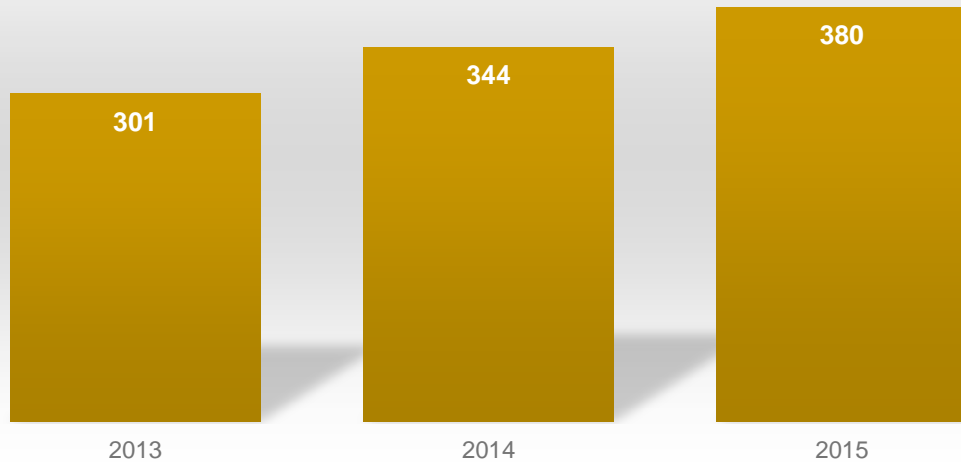
A. Environnement du secteur de la Microfinance au Sénégal

A1 Présentation du Secteur

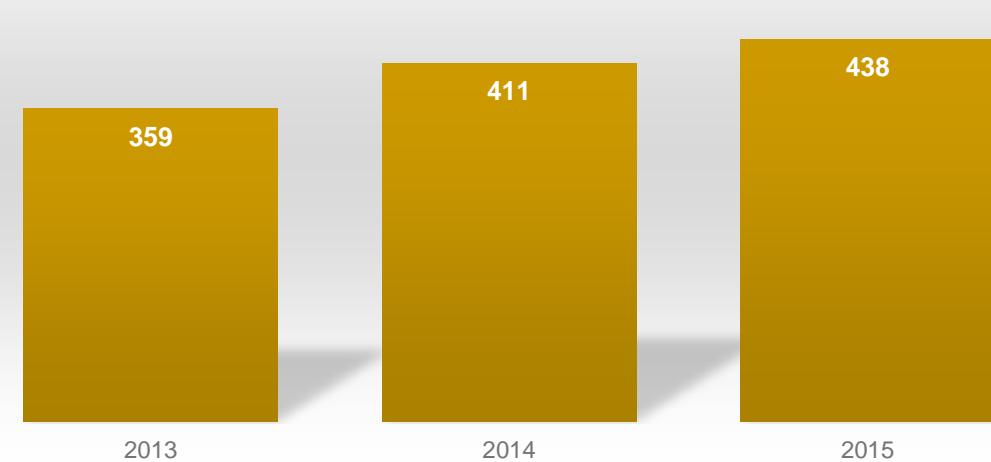
- ❑ Le secteur de la micro finance au Sénégal compte 383 IMF agréées
- ❑ Secteur dominé par une dizaine d'IMF : CMS, PAMECAS, ACEP, MICROCRED, U-IMCEC, CAURIE-MF, COFINA, MECAP, MEC TRANS , KAJAS qui représentent plus de 98% du marché de la microfinance au Sénégal

A2 Situation du Secteur

ENCOURS DE DEPOTS (EN MILLIONS D'EUROS)



ENCOURS DE CREDIT (EN MILLIONS D'EUROS)





Accélération de l'inclusion financière

- ❑ Accroissement soutenu des clients et utilisateurs des services financiers
- ❑ Progression constante du nombre de transactions journalières au niveau des IMF avec plus de 200 000 opérations par jour
- ❑ Utilisations de plusieurs plateformes informatiques par SFD à cause de la diversifications des partenaires dans le domaine des transferts et de l'émission de la monnaie électronique

B. Les enjeux du Secteur en termes de Sécurité Informatique

B1 Problematique

- Les IMF font de plus en plus face à des actes malveillants internes et externes et de menaces persistantes avancées dont la plupart des équipes informatiques éprouvent des difficultés à résoudre
- Les mesures de protection du réseau, les vulnérabilités des systèmes d'exploitation, les comportements à risque, les mauvaises configurations et protections des postes de travail demeurent des questions de sécurité importantes.
- Au sens large la question de sécurité information reste moyen de lutte contre les hackers qui ciblent opérations des IMF notamment les opérations de transferts

B. Les enjeux du Secteur en termes de Sécurité Informatique

B2 -Importance de la Cyber sécurité pour les IMF du Sénégal et de l'UEMOA

- La sécurité des informations personnelles des clients
- Fiabilité des opérations financières des IMF
- La sécurité des Systèmes d'Information et de Gestion des IMF
- Protection des clients et des avoirs des IMF
- La stabilité et la pérennité du secteur de la Microfinance au Sénégal et dans la Zone UEMOA justifiant surtout l'impérieuse nécessité de la création d'une Cyber Sécurité Mutualisé au Sénégal en partenariat avec SURICATE SOLUTIONS.



Merci pour votre Attention

Sidy Lamine NDIAYE, Directeur Exécutif de l'Association Professionnelle
des Systèmes Financiers du Sénégal – APSFD-Sénégal
Email:sindiaye@gmail.com



Ahmed Dermish

Global Technical Specialist
UNCDF Mobile Money for the Poor (MM4P)
Brussels, Belgium



Discussion Questions & Answers