CYBERSECURITY LUXEMBOURG

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie

SECURITY MADEIN.LU

LUXINNOVATION
TRUSTED PARTNER FOR BUSINESS

LUXEMBOURG CYBERSECURITY ECOSYSTEM

NATIONAL ACTORS

EDUCATION & RESEARCH

BEE SECURE · cgie centre de gestion informatique de l'éducation · LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY LIST · RESTENA · uni.lu UNIVERSITÉ DU LUXEMBOURG · SNT securityandtrust.lu · LCSB

SECTORAL PPPS

INCERT · Infrachain · LU-CIX · LUXITH

AUTHORITIES & REGULATORS

CAA COMMISSARIAT AUX ASSURANCES · CNPD · CSSF Commission de Surveillance du Secteur Financier · ILNAS · ILR INSTITUT LUXEMBOURGEOIS DE RÉGULATION · LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG Ministère d'État Haut-Commissariat à la protection nationale

NATIONAL STRATEGY & GOVERNANCE

High Commission for National Protection

Ministry of Foreign and Euopean Affairs

Ministry of the Economy

State Intelligence Service

Directorate of Defence

ILR INSTITUT LUXEMBOURGEOIS DE RÉGULATION

Departement of Media, Telecommunications and Digital Policy

INTERMINISTERIAL COORDINATION COMMITTEE FOR CYBER PREVENTION AND CYBERSECURITY

SERVING THE PUBLIC SECTOR

Ctie

ANSSI.LU Agence nationale de la sécurité des systèmes d'information Luxembourg

GOVCERT.LU CERT gouvernemental Luxembourg

SERVING THE PRIVATE SECTOR

SECURITY MADEIN.LU · c3 · cases.lu · circl.lu

SPECIFIC LEGAL FRAMEWORKS

- **CIP** Critical Infrastructure Protection (loi du 23 juillet 2016 portant création d'un Haut-Commissariat à la Protection nationale)
- **GDPR** General Data Protection Regulation (loi du 1er août 2018 portant mise en place du régime général sur la protection des données)
- **NIS** Network and Information Security (loi du 28 mai 2019 portant transposition de la directive NIS)
- **PSDC** Prestataires de Services de Dématérialisation ou de Conservation (loi du 25 juillet 2015 relative à l'archivage électronique)
- **PSF** Professionnels du Secteur Financier de Support (loi modifiée du 5 avril 1993 relative au secteur financier)

COMPANIES

74 COMPANIES WITH CYBERSECURITY AS A CORE BUSINESS

EMPLOYMENT	SIZE	AGE
932 employees in total	74% 1-10 employees	**5** years
		~50% of companies have been created during the past 5 years

Estimated by Luxinnovation based on last available figures in Editusdata and LBR

68 START-UPS

START-UPS REPRESENT MORE THAN 20% OF THE NATIONAL CYBERSECURITY ECOSYSTEM

CORE BUSINESS

35% One third of start-ups have cybersecurity as a core business

TOP 3 SOLUTIONS OFFERED

1. Identity management
2. Governance, risk & compliance
3. Encryption

57% of start-ups are or have been hosted in a Luxembourg incubator

304 companies

24% · 22%

DIVERSIFIED SOLUTIONS

Luxembourg companies mainly specialised in risk identification and systems protection

- Identify 29%
- 50%
  - Protect
  - Detect 8%
  - Respond 9%
  - Recover 4%

TOP 7 SOLUTIONS

COVER 60% OF THE NATIONAL MARKET*

1. Governance, risk & compliance
2. Identity & access management
3. Data security
4. Asset management
5. Penetration testing
6. Backup & storage
7. Awareness & training

* Based on the ECSO Cybersecurity Market Radar

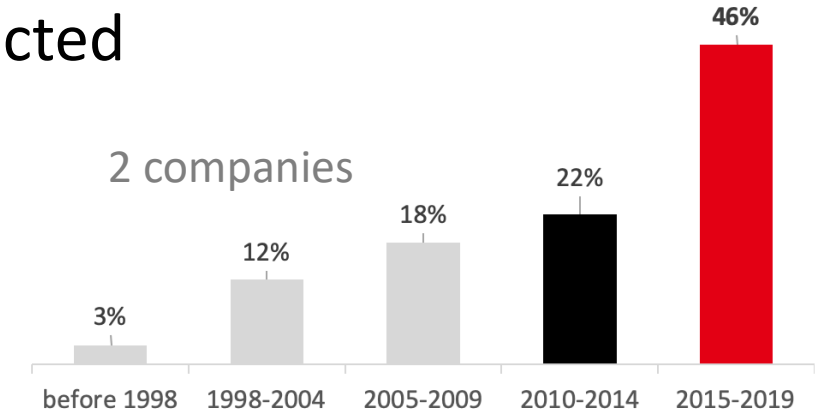
Agenda

1. Where it all started
2. Public sector initatives
3. Private sector market mapping
4. The core business entities
5. Innovation & start-ups

Where it all started

2000, the “ILOVEYOU” virus

- 10 days of self-propagation
- 50 million infections
- US $5.5 – 8.7 billion in damages worldwide
- 10% of internet-connected computers in the world had been affected



International guidance

2002, OECD Guidelines - towards a culture of security

Public sector initiatives

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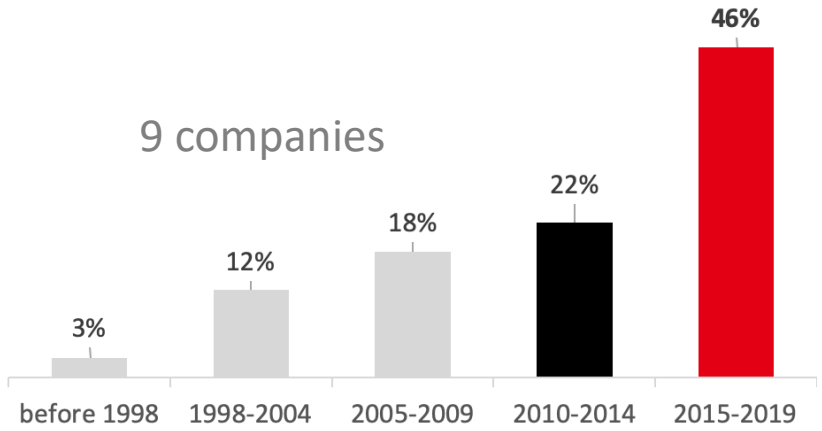
Ministry of the Economy – first mover

2003, launch of CASES

cases.lu

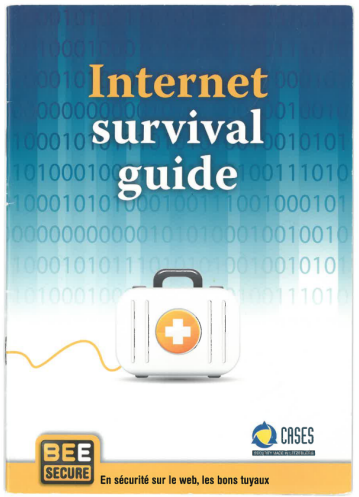
Cyberworld Awareness and
Security Enhancement Services

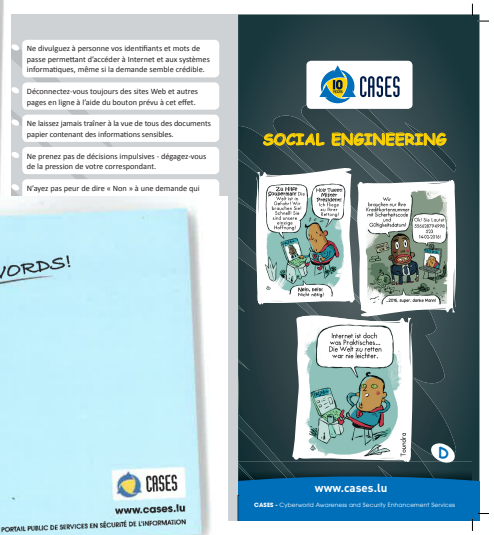
LUXEMBOURG



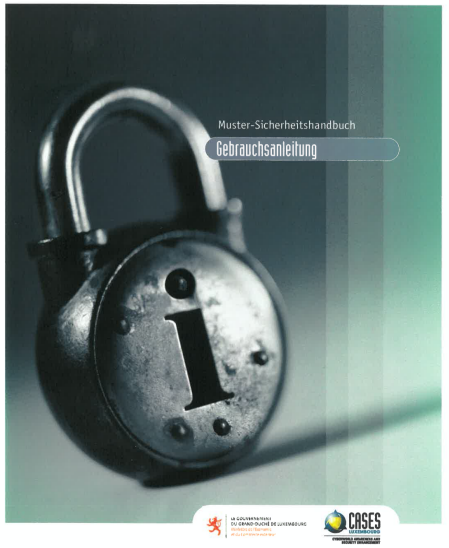
CASES

The first years





Informationssicherheit



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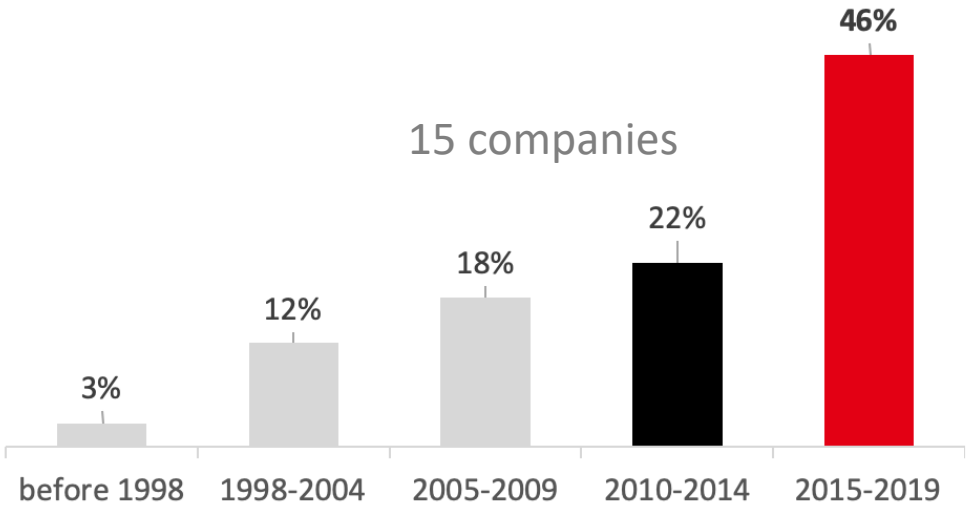
A key period for the ecosystem

2008 – 2012

- **CIRCL (2008)**
- **BEE SECURE (2009)**
  - Consortium between Education, Family and Economy ministries
- **SECURITYMADEIN.LU (2010)**
  - Incorporated CASES & CIRCL
- **GOVCERT (2011)**
  - Link to the Prime Ministers Office
- ***2012 - 1st National Strategy***



CASES and CIRCL – today

Focusing on tools & services to secure the economy

cases Diagnostic

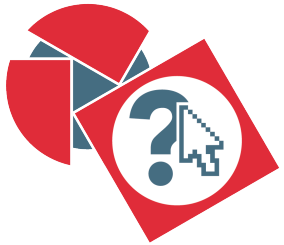
Check-up de la sécurité de l'information

cases MONARC

Gouvernance de la sécurité de l'information

CIRCL MISP Threat Sharing

CIRCL AIL Analysis of Information Leaks



CIRCL URL ABUSE

C3 (created in 2018)

Cybersecurity Competence Center – the 3rd dept. of SECURITYMADEIN.LU

SPAMBEE

c3 Testing

National strategy & governance

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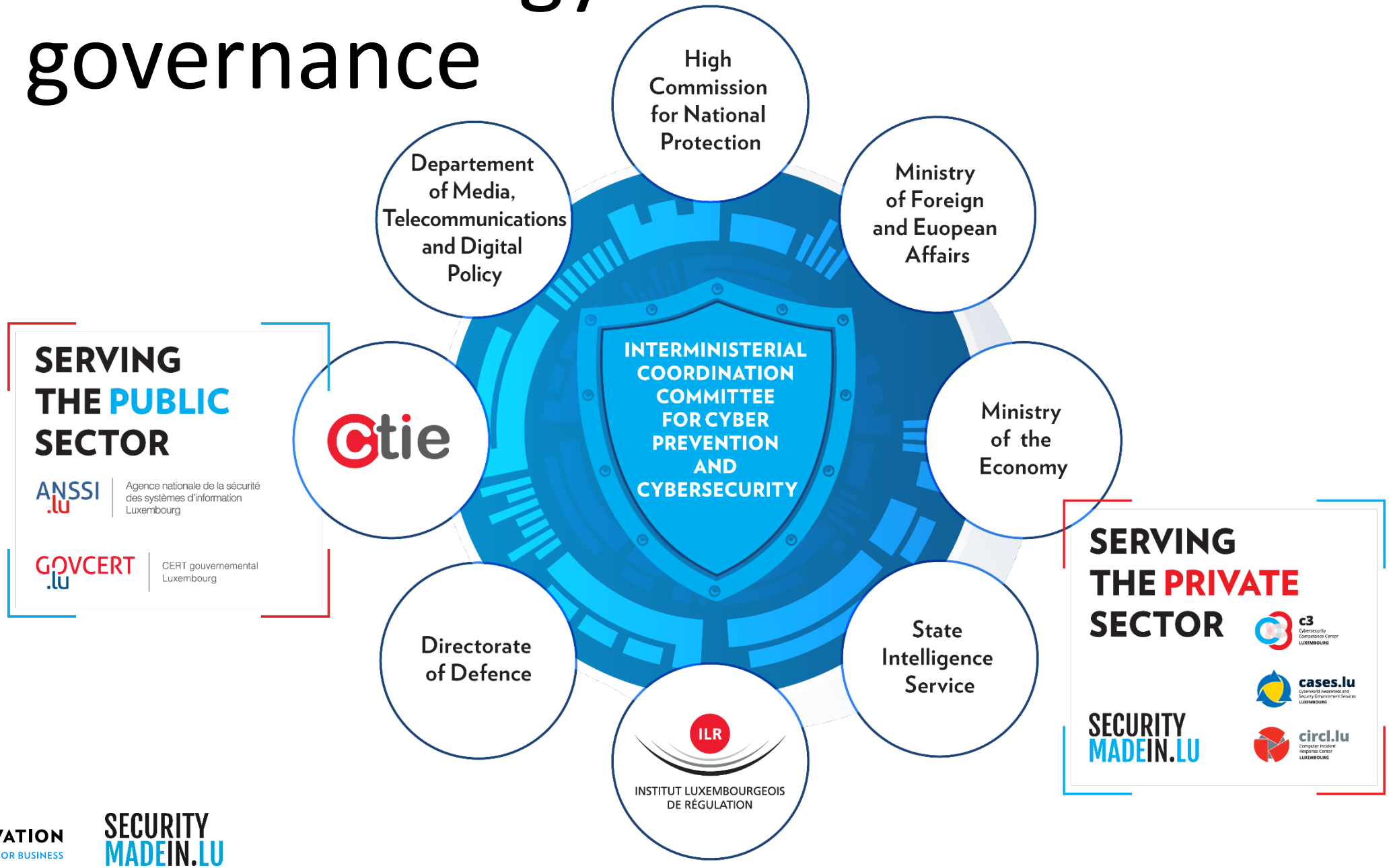

Authorities & Regulators

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INSTITUT LUXEMBOURGEOIS DE RÉGULATION

CSSF Commission de Surveillance du Secteur Financier

circl.lu Computer Incident Response Center LUXEMBOURG

CNPD COMMISSION NATIONALE POUR LA PROTECTION DES DONNÉES

ILNAS
Institut luxembourgeois de la normalisation, de l'accréditation, de la sécurité et qualité des produits et services

CSSF Commission de Surveillance du Secteur Financier

National Actors

Education & Research

BEE SECURE

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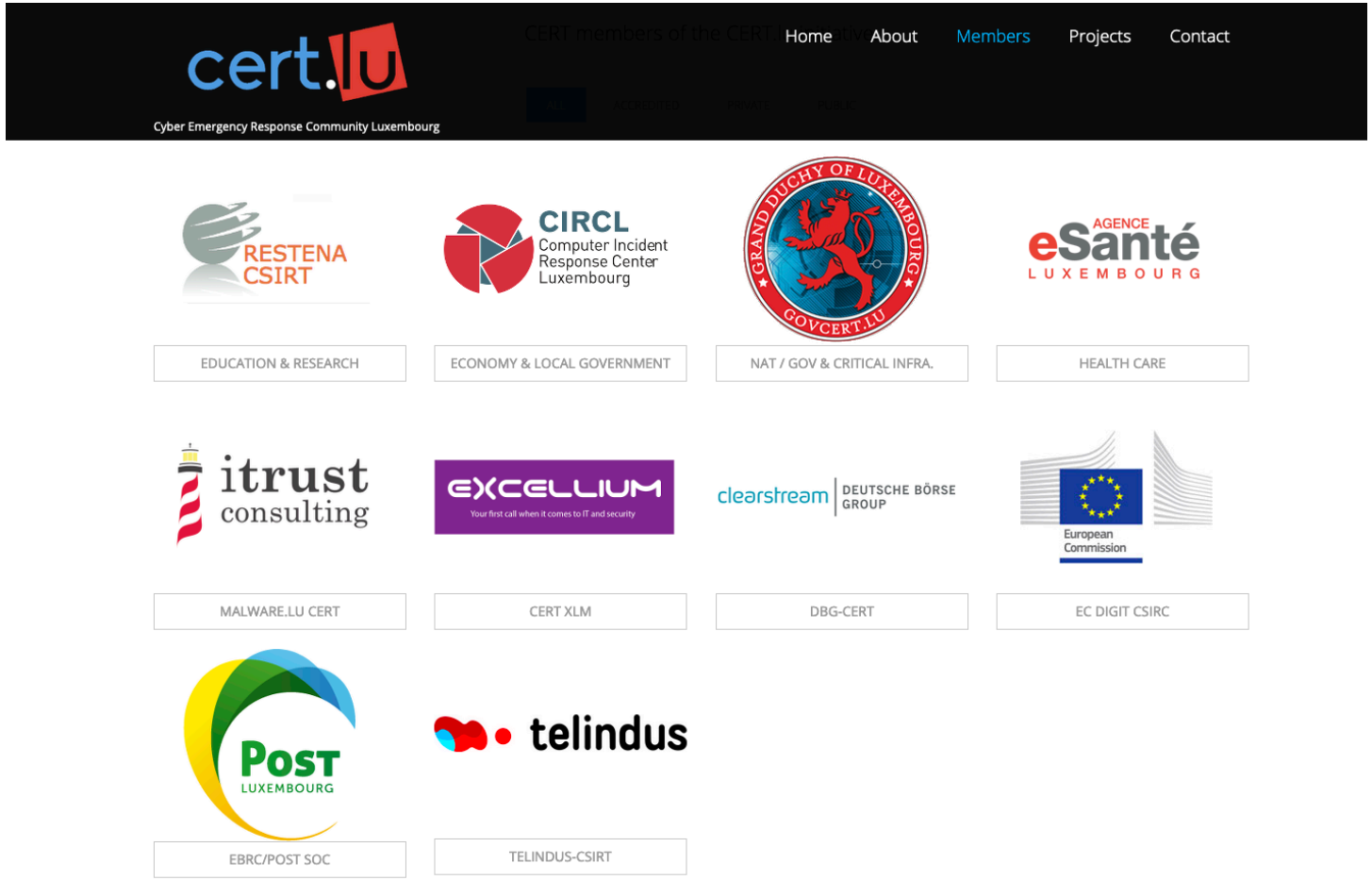
Public-private cooperation in action



Cybersecurity Market Overview & Mapping

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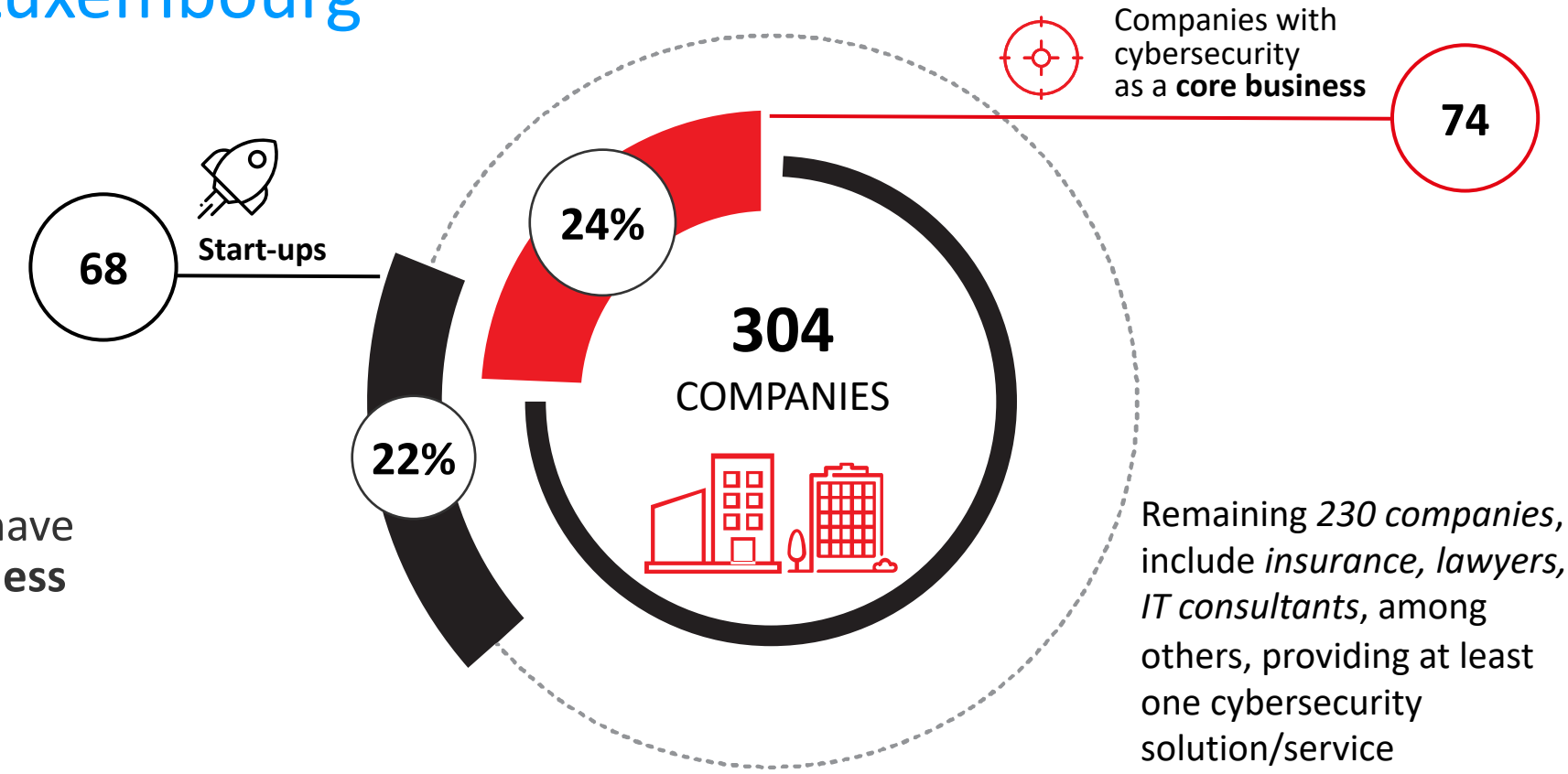
A strong ecosystem

In 2019, **304** companies are active in cybersecurity in Luxembourg

Listing criteria:

- have a *legal entity* in Luxembourg
- provide *at least one* cybersecurity *service or solution*

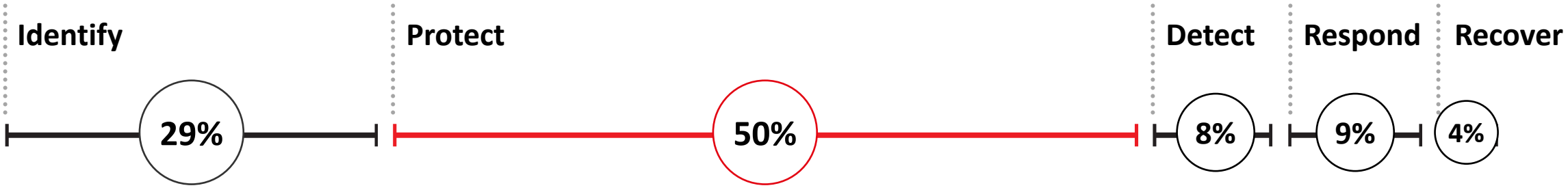


Almost ¼ of the companies have cybersecurity as a **core business**
(i.e. main revenues come from cybersecurity activities)

Remaining *230 companies*, include *insurance, lawyers, IT consultants*, among others, providing at least one cybersecurity solution/service

Cybersecurity solutions

Luxembourg offers a diversified solutions portfolio, yet focused on protection



- Luxembourg is mostly positioned on the risk identification and systems protection markets.
- Solutions for each stage of the *cyber-risk management value chain*, are available.

** Based on the categories from the ECSO Cybersecurity Radar Market*

Top solutions on the national market

The **Top 7** solutions cover 60% of the market

1. **Governance, risk & compliance**
2. **Identity & access management**
3. **Data security**
4. **Asset management**
5. **Penetration testing**
6. **Backup & storage**
7. **Awareness & training**

- Top 7 solutions out of 57 types of solutions available on the national market
- *On average*, companies provide **5** cybersecurity solutions
- The importance of the *governance and risk & compliance* solutions can be explained by the high number of companies targeting the finance and banking sectors
- GDPR boosted the *data security* services within the ecosystem

Focus on the Core Businesses

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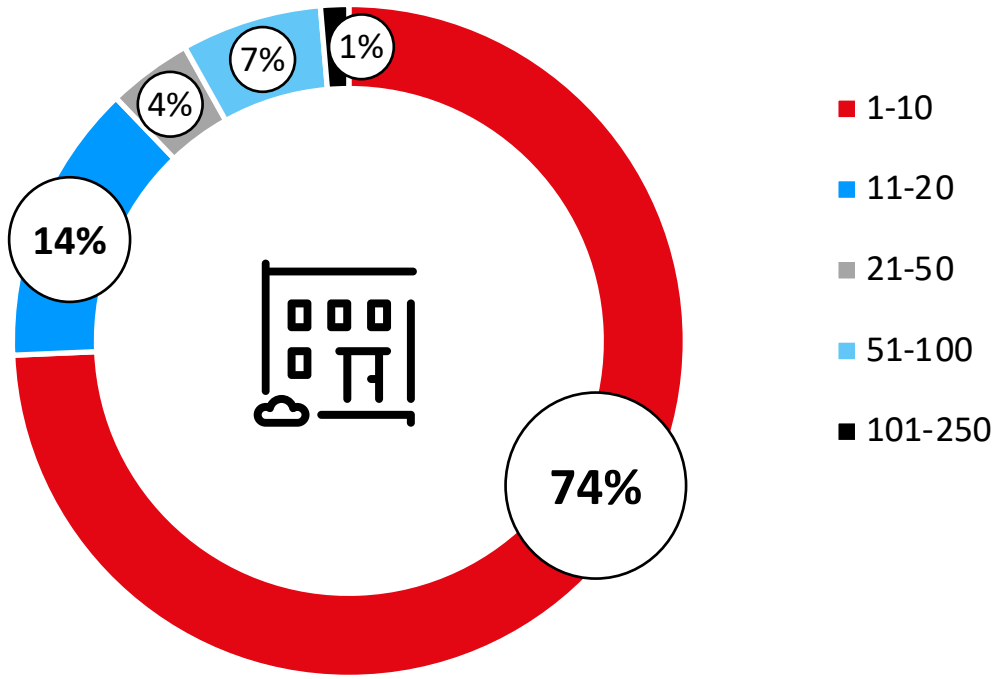
The role of small businesses

Small enterprises are at the heart of the core cybersecurity ecosystem

- Among the 74 companies having cybersecurity as core business, **¾ have less than 10 employees**
- In average, a company having cybersecurity as core business employs 13 people

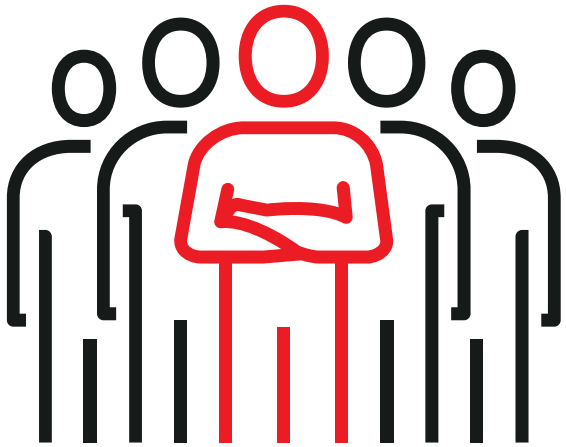
Size of the companies having cybersecurity as core business



Employment

Human capital of core business entities

- In total, the core business ecosystem represents almost **1000 employees***



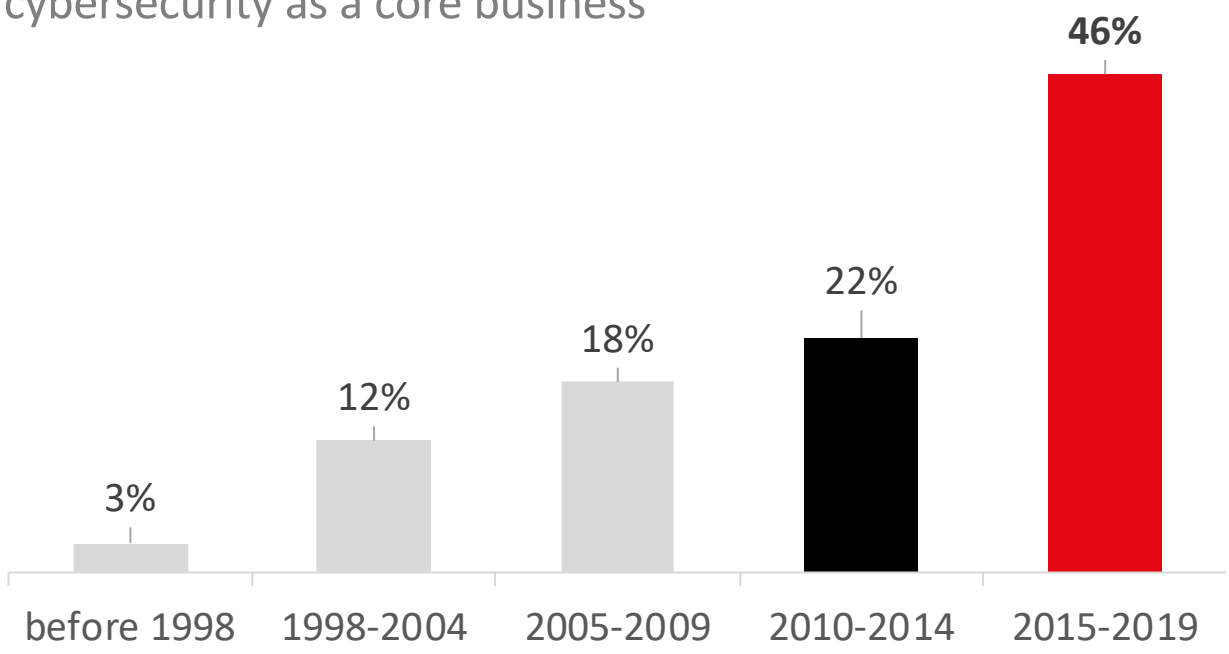
*932 employees is the exact number estimated by LXI, based on most recent available figures from Editusdata and the Luxembourg Business Register

Growth of the core ecosytem

A young sector, strongly growing over the last 5 years

- The emergence of the Luxembourg cybersecurity ecosystem started around *20 years ago*
- With an exponential growth the **last 5 years**:
  Almost half of current companies having cybersecurity as core business were *created over the past 5 years*

Creation date of current companies having cybersecurity as a core business



Start-ups in the Cybersecurity Ecosystem

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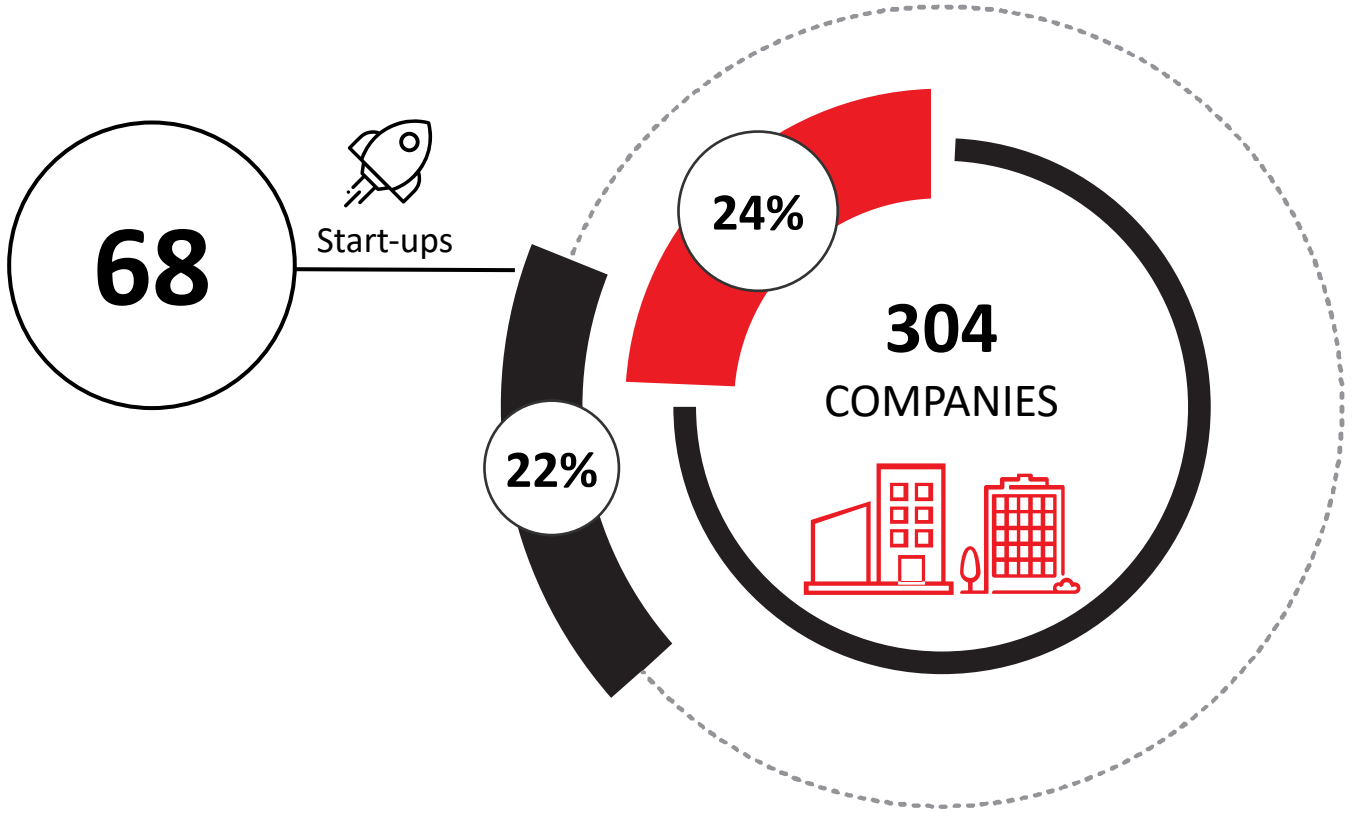
A growth supported by start-ups

Around 1/5 of the cybersecurity ecosystem are start-ups

Start-up definition*

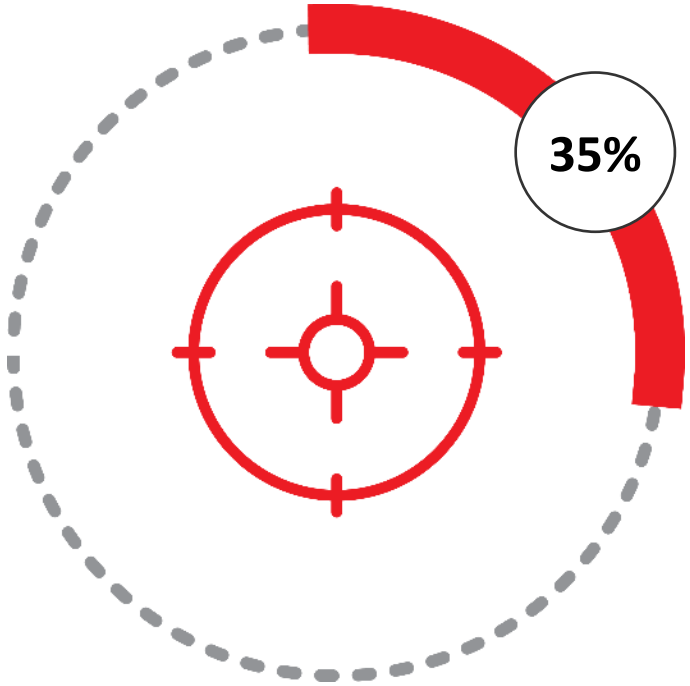
- < 5 years old
- < 100 employees (worldwide)
- Have an innovative product, service or business model



based on the EU Start-up Monitor Definition; The criteria related to employees was added to exclude LU subsidiaries from large corporate groups.

Cybersecurity start-ups

24 start-ups have cybersecurity as a core business



ADRONH FUNDAMENTAL SECURITY
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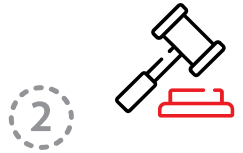
Hacknowledge
aps
SILENT BREACH
Hotshot
Expeto
SECOURRIEL Contract ready messaging
CYBERHEDGE
LUXIDENTITY
passbolt
DiscoverIT
NETLUX
ALZETTE
L7 DEFENSE
REMPART INTERNATIONAL
GRC LUXEMBOURG Information System Governance Risk & Compliance
keexle End-to-end encrypted Transfer, Collaboration & Cloud
RawSec
International Certification Trust Services (ICTS)
LUXKO

Specialisation of start-ups

- In total, *42 different types of solutions* are delivered by start-ups
- The *top 3 solutions* cover 55% of the solutions provided by the start-ups
- Start-ups offer *in average* 3 to 4 types of services or solutions
- In total, *17%* of the cybersecurity solutions of the entire cybersecurity ecosystem (i.e. 304 companies) are *delivered by start-ups*

Top 3 solutions provided by start-ups

1 **Identity & access management**



2 **Governance, risk & compliance**

3 **Encryption**

A welcoming environment for start-ups

57% of start-ups are or have been hosted in a Luxembourg incubator

lux future lab
Powered by BGL BNP Paribas

the LHoFT
Luxembourg House of Financial Technology

technoport®
business incubator | coworking | fab lab

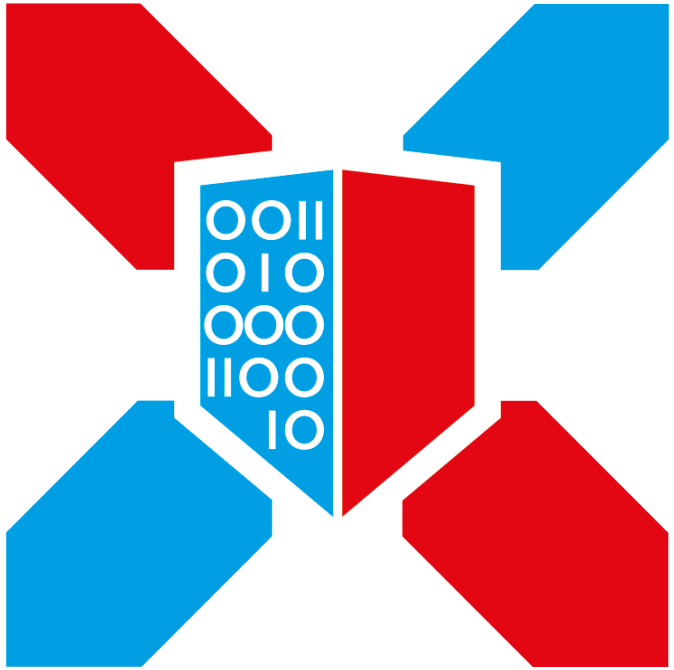
TOMORROW STREET

Conclusion

Lessons learned of the past 20 years

- ✓ Building a culture of security, takes time (more than 20 years)
  - ✓ Pragmatism and persistence are key
  - ✓ Have a strategy, start small, scale fast
- ✓ Early involvement of the Government was important to ignite
- ✓ A focus on the economic parts of cyber was key
- ✓ Clear limits of Gov involvement to *foster* not *hinder* market competition
  - ✓ Live the concept of “co-competition”
  - ✓ Be a *partner* for private actors
- ✓ Cooperation and collaboration at all levels (governance, operational, sector specific)

Thank you!



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