



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG

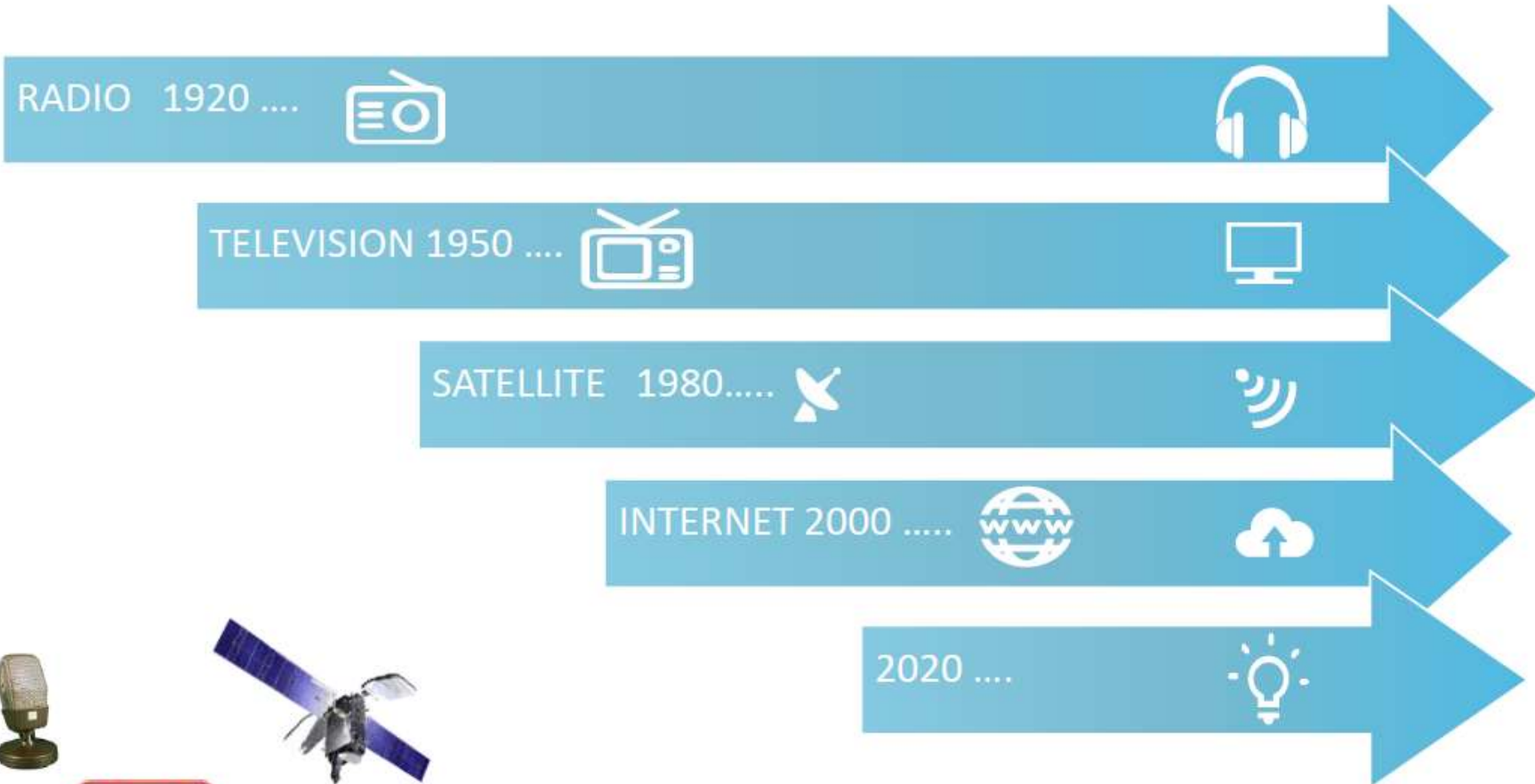


Digital
Lëtzebuerg

The Luxembourg ICT Sector

25th of May 2016

A CENTURY OF INNOVATION



Digital
Lëtzebuerg

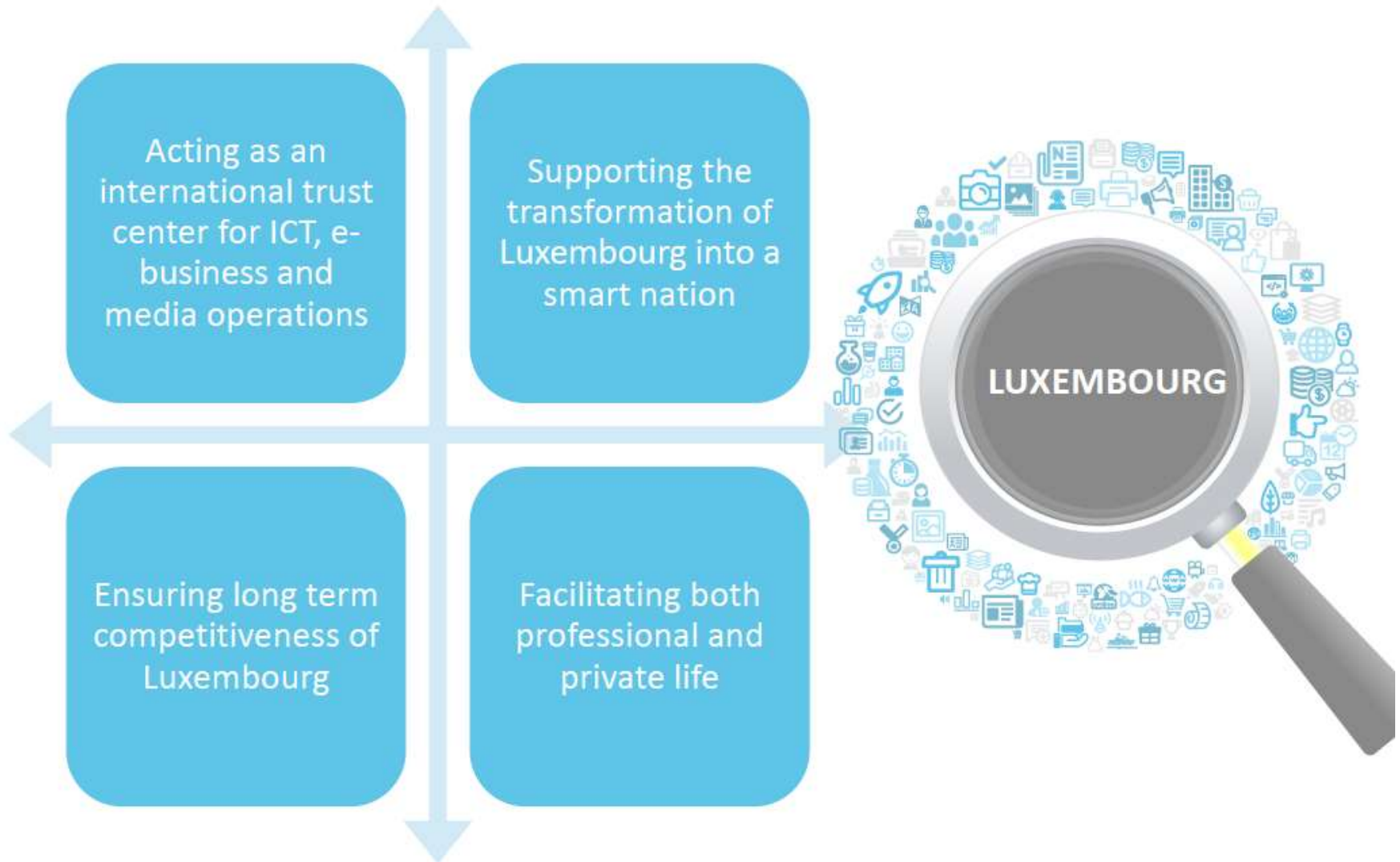
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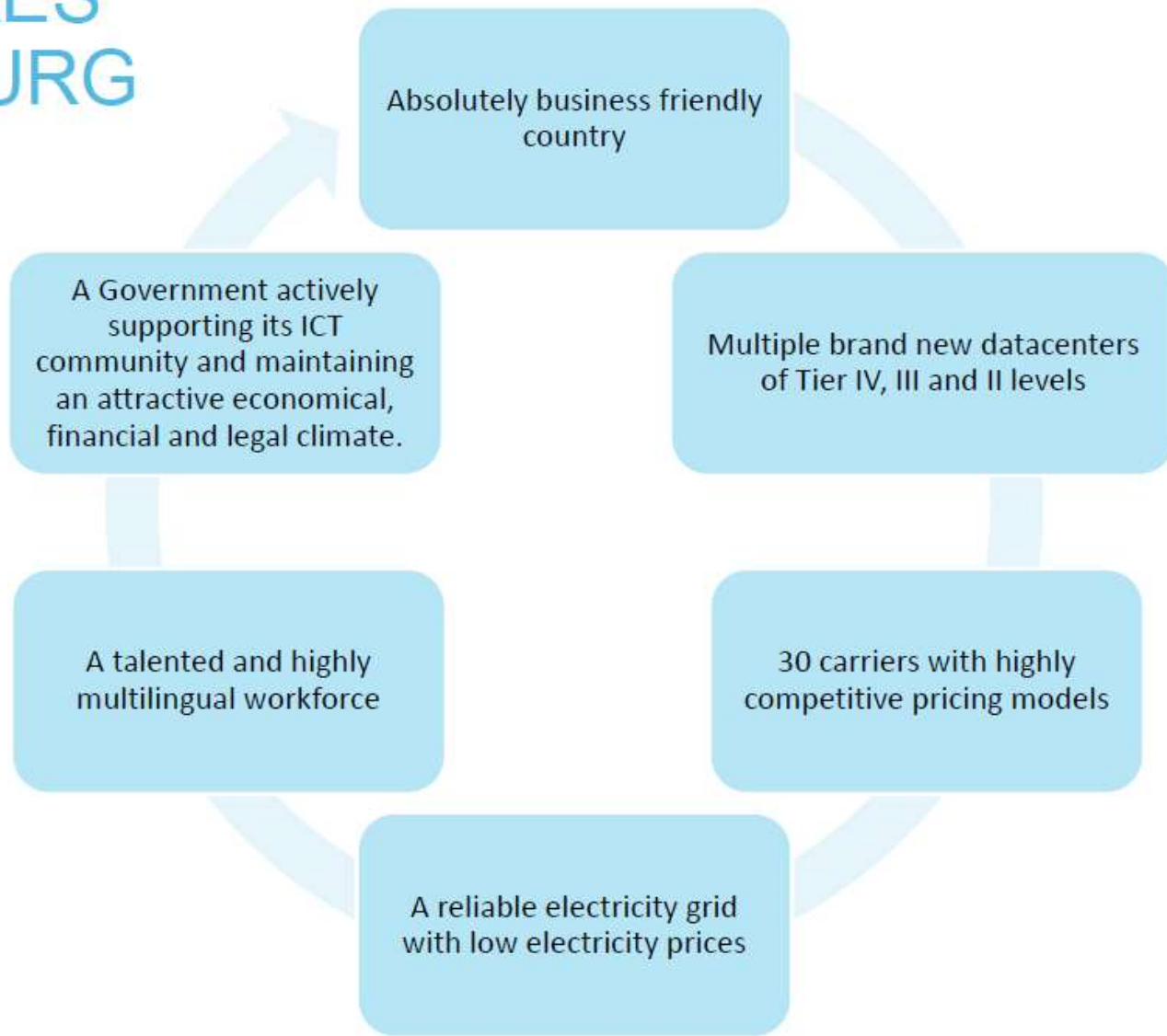
DIGITAL LUXEMBOURG STRATEGY





Business Environment

WHAT MAKES LUXEMBOURG A PRIME LOCATION FOR HOSTING DIGITAL ASSETS?



OUR GOVERNMENT ACTIVELY SUPPORTS ICT

Easy contact with Luxembourg Government officials

- Absence of red tape and complex decision lines
- Straightforward approach

Ongoing Government investments to support the Industry

- Building uncompromised, highest quality datacenters
- Dark fiber program and facilitating MAN's
- Most reliable electricity grid in the EU
- Created a research-oriented University
- Supports Internet Exchange
- Advanced cybersecurity protection tools put at disposal of companies

ICT has highest priority at Government level

- Prime Minister and Vice-Prime Minister are directly in charge of ICT
- Global support network of trade and investment offices

STABLE AND FAVOURABLE BUSINESS ENVIRONMENT



NETWORK READINESS INDEX 2015



143 countries were compared and Luxembourg ranks:

#1 :International Internet bandwidth

#1 Internet & telephone competition

#2 Laws relating to ICTs

#3 Intellectual Property protection

#4 Government success in ICT promotion

#5 Importance of ICTs in Government's vision

#9 Overall ranking globally 2015

•Source: World Economic Forum – Network readiness index 2015 publication
The World Economic Forum's **Networked Readiness Index (NRI)** measures the propensity for countries to exploit the opportunities offered by information and communications technology (ICT). It is published annually. The NRI seeks to better understand the impact of ICT on the competitiveness of nations

INTERNATIONAL & SKILLED WORKFORCE

A multilingual workforce:
Its residents are familiar with the German, Anglo-Saxon and Latin languages and cultures

Choosing Luxembourg allows to tap into an international workforce coming from the Greater Region (11,5 Mio.) resulting in +/-160,000 daily commuters into Luxembourg



The brightest talent from across Europe is attracted to Luxembourg, mixing with our own talent to become the most international city of the EU, offering a multinational and multilingual melting pot of skills with an overall positive attitude.

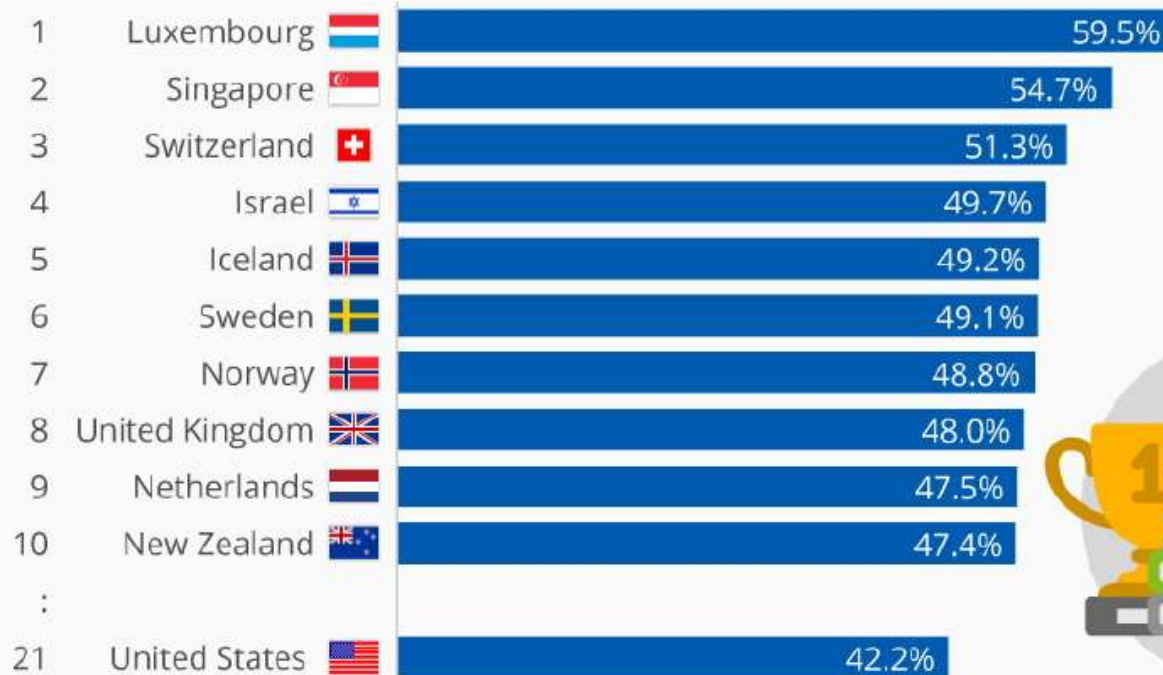
EU's most international country
46% of the population (563,000) are non-nationals
71% of total workforce are non-nationals (372,000)

Source: <http://www.statistiques.public.lu/fr/actualites/population/travail/2015/03/20150316/20150316.pdf>

RECRUITING TALENT

The World's Top Countries For High-Skilled Employment

Countries with the largest share of people in high-skilled employment in 2015*



Luxembourg successfully attracts a young, highly educated and technology savvy workforce from around the globe



* Persons employed in occupations with third-level education requirements as a % of total employed, both sexes



Sources: World Economic Forum, International Labour Organization



GLOBAL BRANDS

e-Payment



Fintech



Online gaming & publishers



e-commerce



Industry



GLOBAL FASHION GROUP

Institutional



GLOBAL BRANDS

Domain names and registrars



Int. Telecommunications



Network & CDN



Cloud storage



Media



E-health - Biotech



Monetizing



Cloud Service Brokerage



Identity management



Satellite connectivity



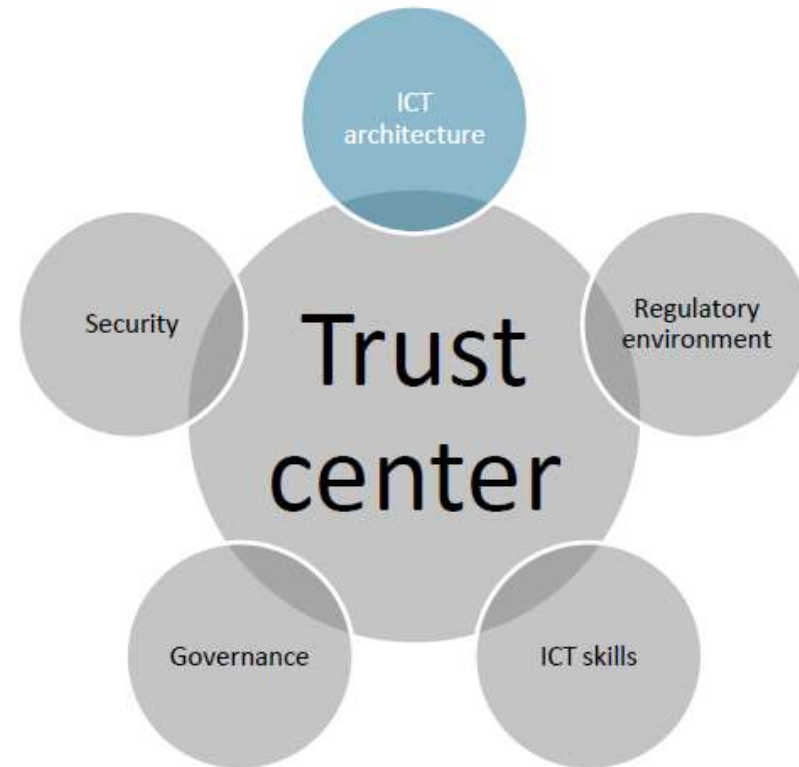
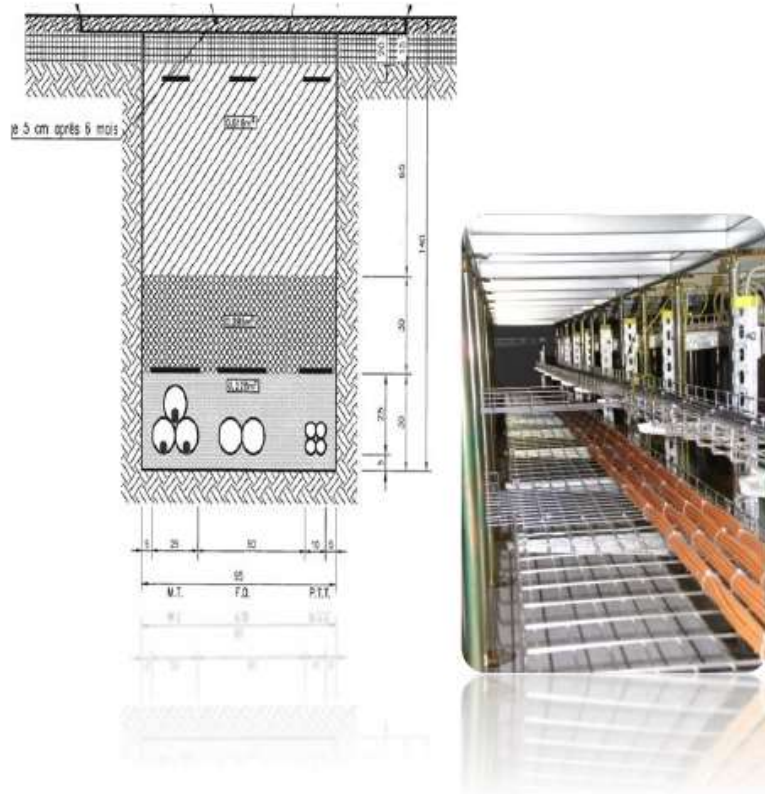
SCADA





Trust Center Luxembourg

TRUST CENTER: ICT ARCHITECTURE



Redundancy, uncompromised quality, security

TRUST CENTER: SMART REGULATORY ENVIRONMENT

Responsive and Innovation-friendly regulator

Protection of electronic transactions
(LuxTrust)
PCI DSS level 1

Banking regulator CSSF recognized virtual currencies as scriptural currencies

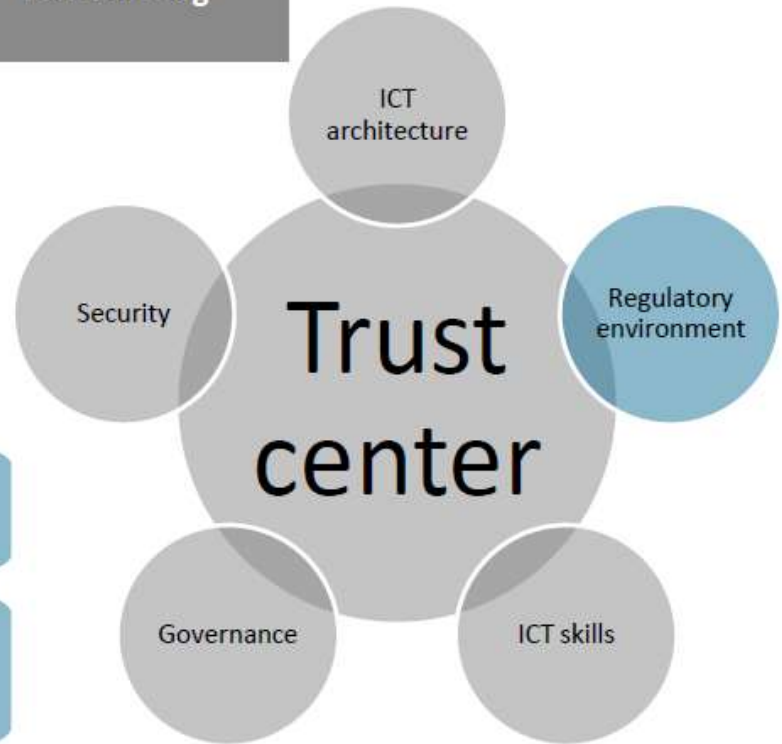
CSSF invites virtual currency operators to submit their business plans and projects to determine which regulations and licenses apply

Cloud-friendly legislation – 1st country offering data reversibility

The choice of cryptology is free in Luxembourg

Secure electronic archiving procedures: new 2015 legislation

Virtual currencies subject to lighter regulation than banks in Luxembourg



Luxembourg as first mover

Luxembourg issued the first payment institution license in Europe to a virtual currency operator

Luxembourg was the first country to implement the EU payment services directive + a statement on the EU-regulated framework and passporting

TRUST CENTER: THE UNIVERSITY OF LUXEMBOURG

Key advantages from collaboration with these above University institutes

- Direct opportunity for company to outsource research with best international talents on applied and market-driven research
- Development of new Intellectual Property
- Plan medium term recruitment with transfer of resources



The University of Luxembourg (UL) created its first interdisciplinary research center – the Interdisciplinary Centre for Security, Reliability and Trust (SnT)

- Over 20 strategic partners
- Over 180 researchers
- **Key topics:** applied security, software verification, automation

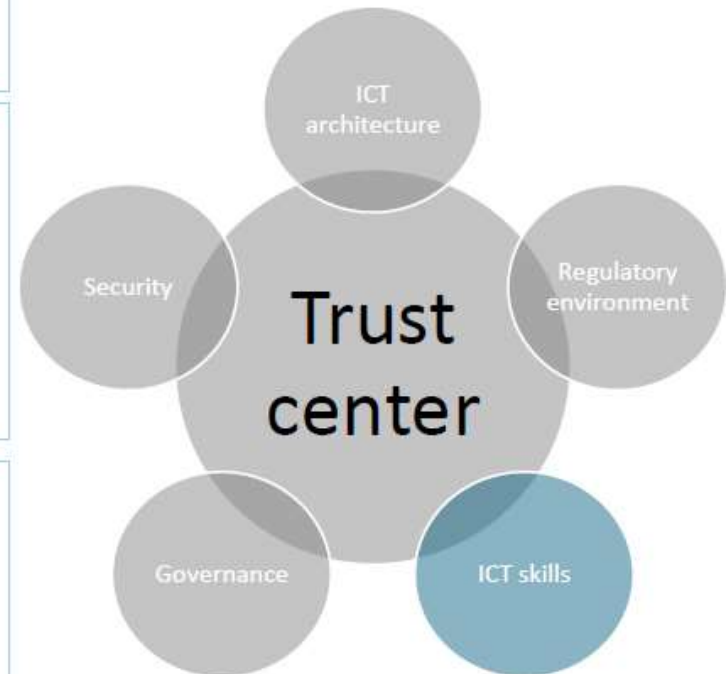


Luxembourg Centre for Systems Biomedicine

- 18 strategic partners
- Over 170 researchers in biomedicine and bioinformatics
- **Key topics:** Parkinson, Bioinformatics, Alzheimer



Value collaboration with new generation world class research institutes



Sources: PwC Luxembourg, Université de Luxembourg



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SECURITY MADE IN LUXEMBOURG

Provisioning of “Security as an infrastructure” services



- Cird: The Computer Incident Response Center Luxembourg (CIRCL) is a government-driven initiative designed to gather, review, report and respond to computer security threats and incidents.



- Cases: Security portal for companies and citizens and public administrations of Luxembourg



- Aware: department of security made in Lëtzebuerg regrouping all of our projects dedicated to the general public

Communication infrastructure:

- Provisioning of highly resilient local loops (operator and LU-CIX levels)

Datacenter infrastructure

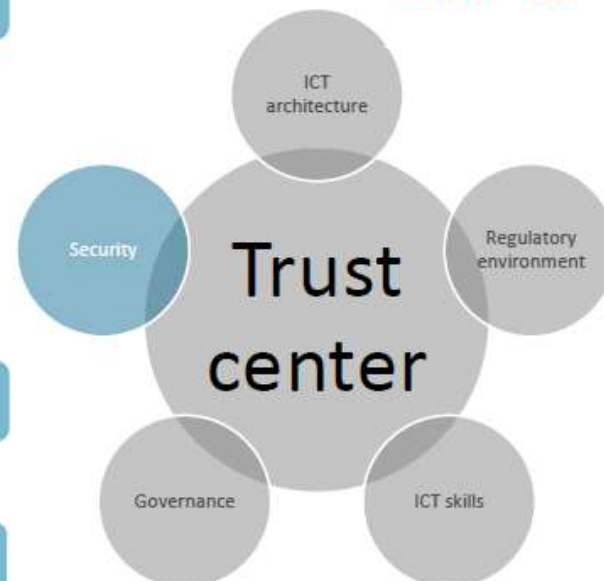
- Accreditation and certification schemes (ISO27001, ...)

Luxtrust in the era of eIDAS

Incident response teams: CERT.LU community

- 6 private CERT's
- 4 governmental sponsored CERT's

SECURITY
MADE IN.LU



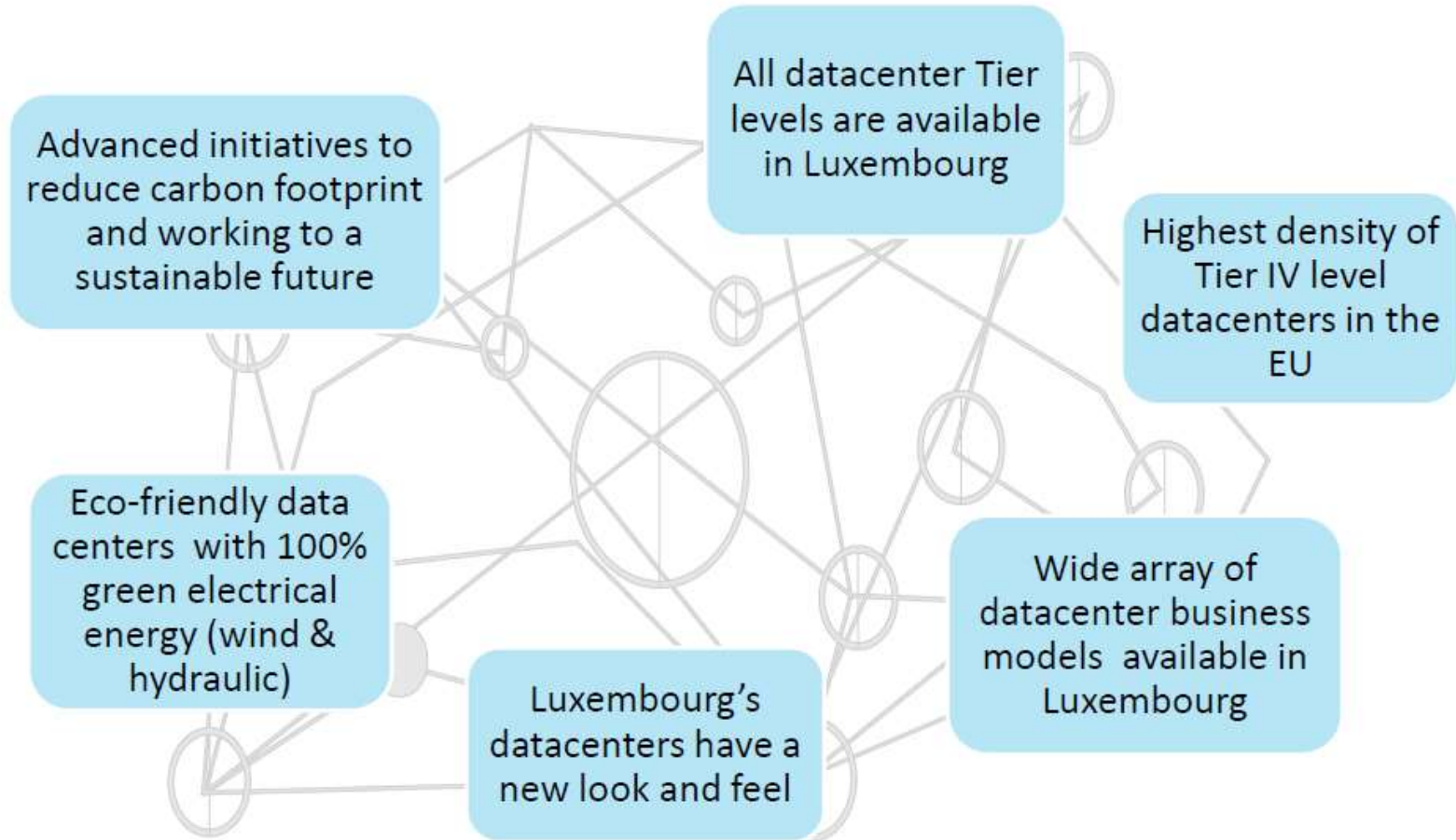
Provisioning of
“Security as an
infrastructure”
services





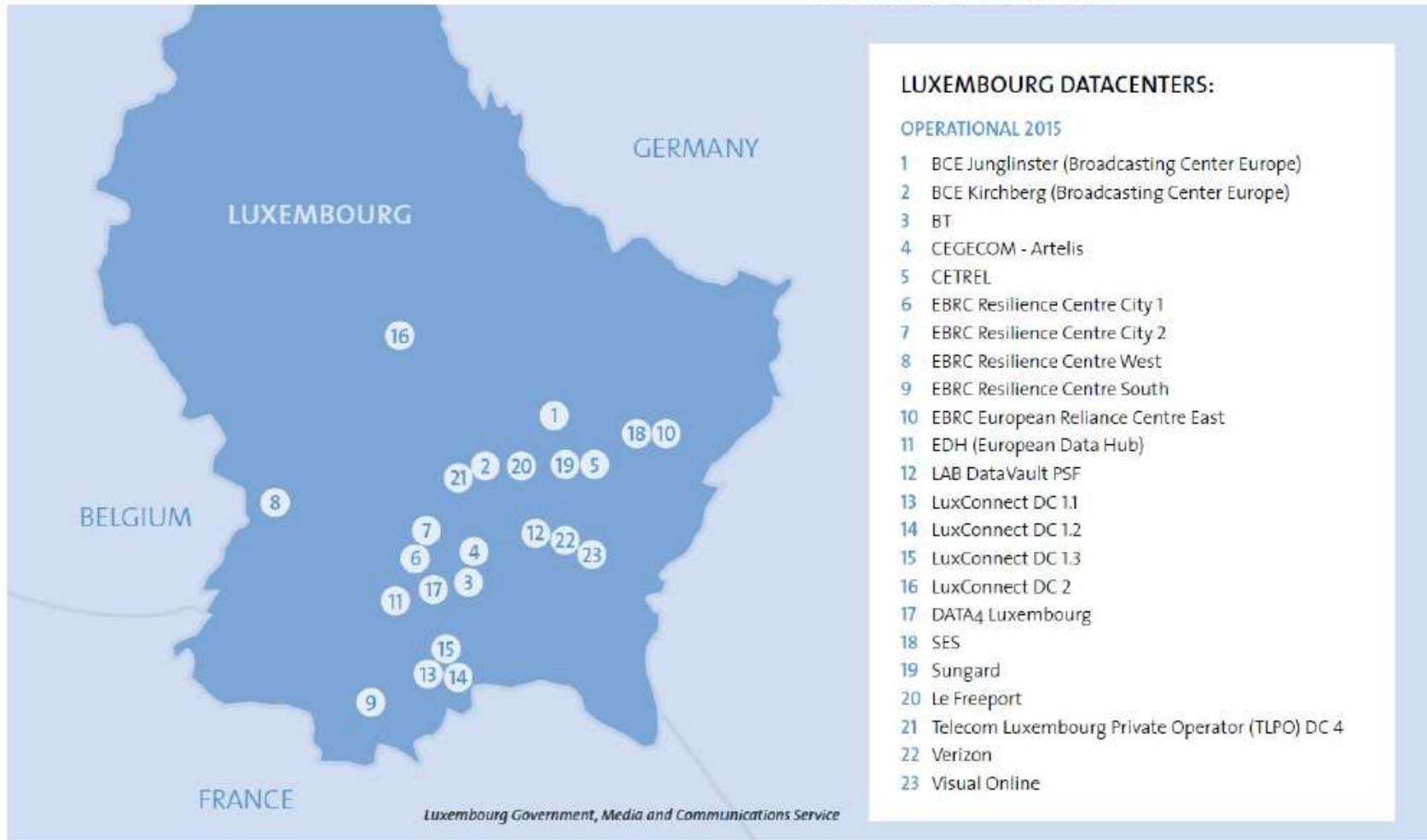
Luxembourg Datacenters

WORLD CLASS DATACENTERS AT YOUR SERVICE



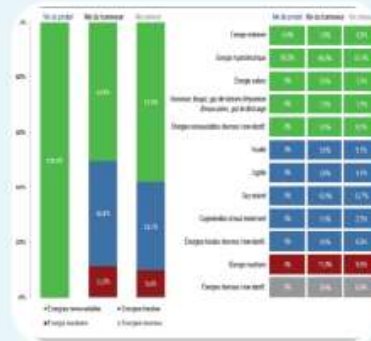
DATACENTERS

46,761 m²
FLOORSPACE – 23
DATACENTERS



ELECTRICITY POLICY

RELIABILITY OF THE ELECTRICITY SUPPLY



Unparalleled security of supply

Luxembourg is connected to the European grid via two fully independent circuits, each of them capable of assuming the entire electricity needs of the whole country

Green energy

Several Luxembourg data centers are powered by 100 % green electrical energy (wind or hydraulic)

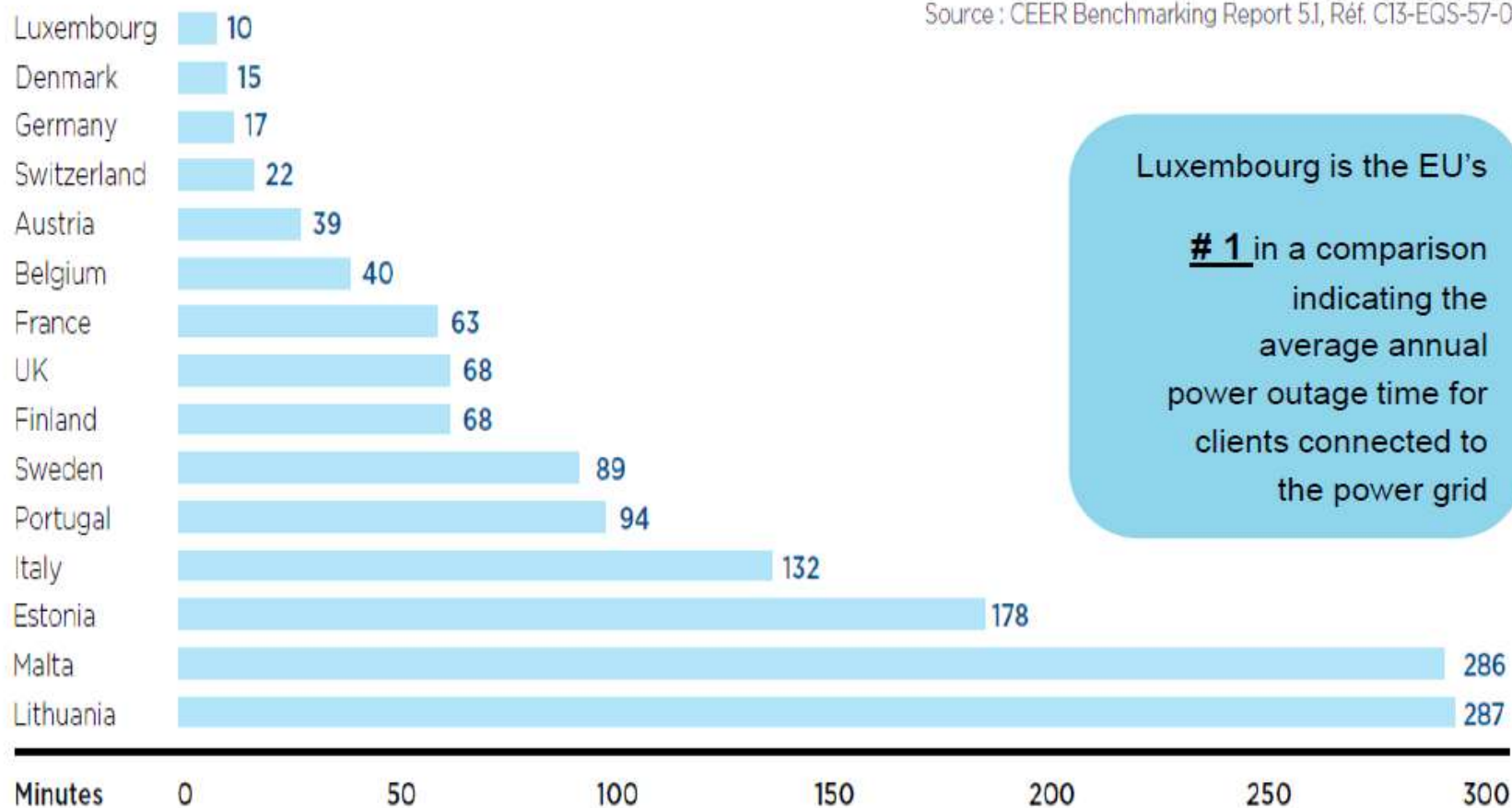
- Long term agreements

Network stability

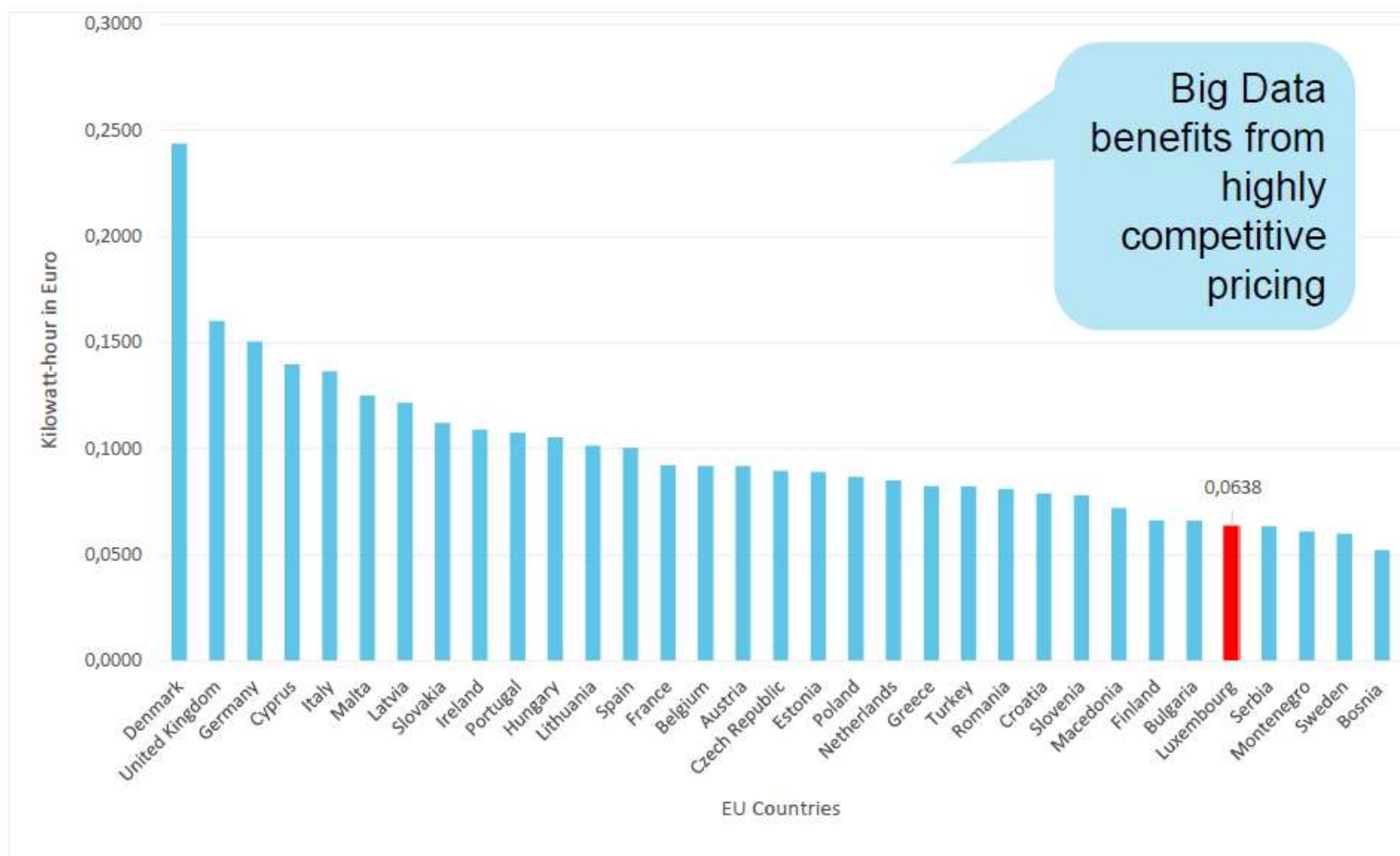
Continuous investment has been made in order to ensure Luxembourg has a modern infrastructure with a focus on network stability, resulting in virtually no service interruptions for many years

RELIABILITY OF THE ELECTRICITY SUPPLY

Source : CEER Benchmarking Report 5.1, Réf. C13-EGS-57-03



OPTIMAL ELECTRICITY PRICING



Source: Eurostat: Industrial customers Band IE : 20 000 MWh < Consumption < 70 000 MWh Euro - All taxes and levies included – 1st semester 2015

Connectivity



NATIONAL BANDWIDTH STRATEGY

Available in Luxembourg since 2015

- 100 Mbps download/50 Mbps upload (100% coverage)
- 1 Gbps download/ 500 Mbps upload (min. 50% coverage)

By end of 2020 Luxembourg is committed to deliver:

- Nationwide coverage ultra high-speed broadband
- 1 Gbps download and 500 Mbps upload (100% coverage)

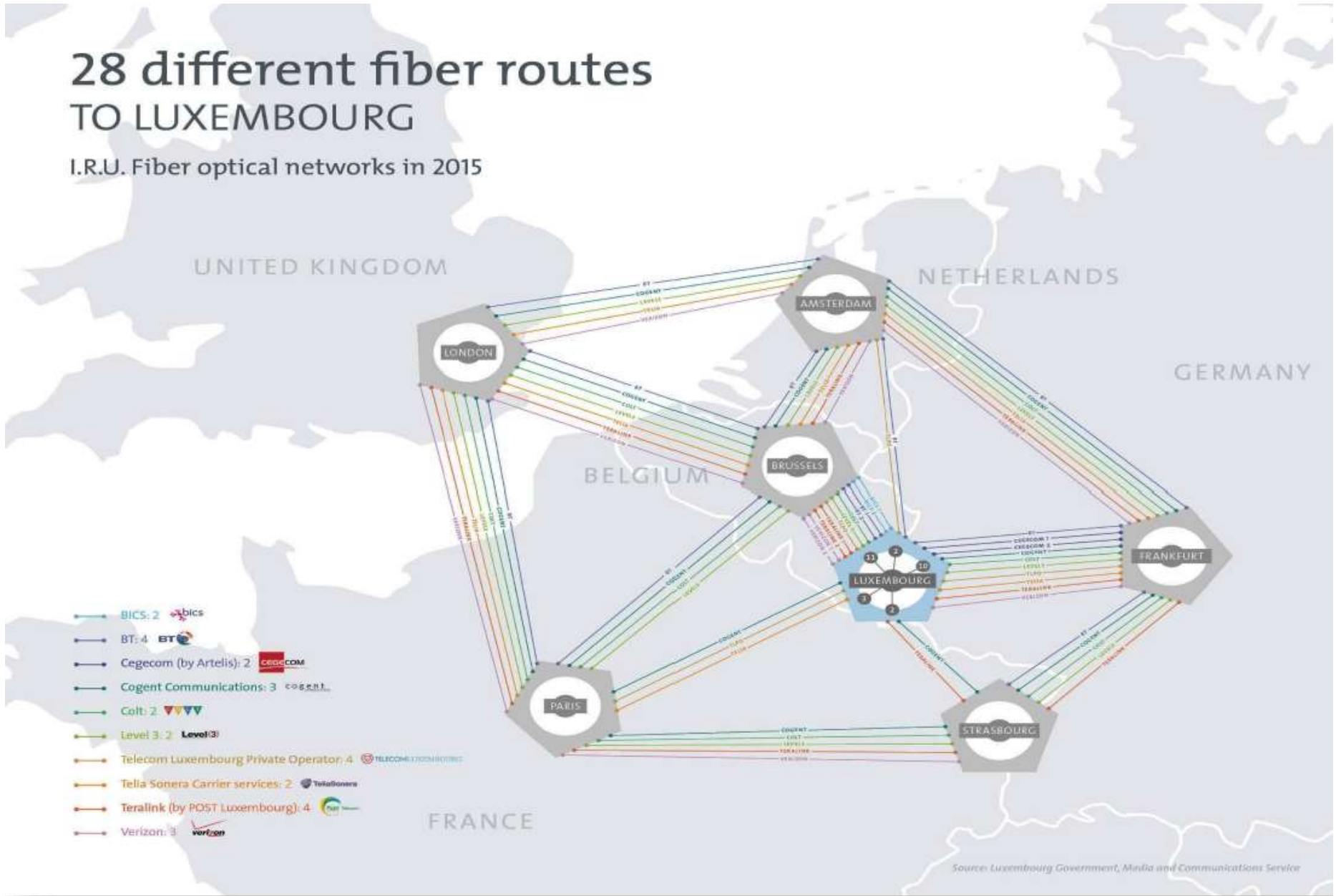
EU targets 2020

- High-speed broadband
- min. 30 Mbps download

Our aim: to become best-in-class globally

28 different fiber routes TO LUXEMBOURG

I.R.U. Fiber optical networks in 2015



29 CARRIERS WITH INTL FIBRE OPTIC NETWORKS

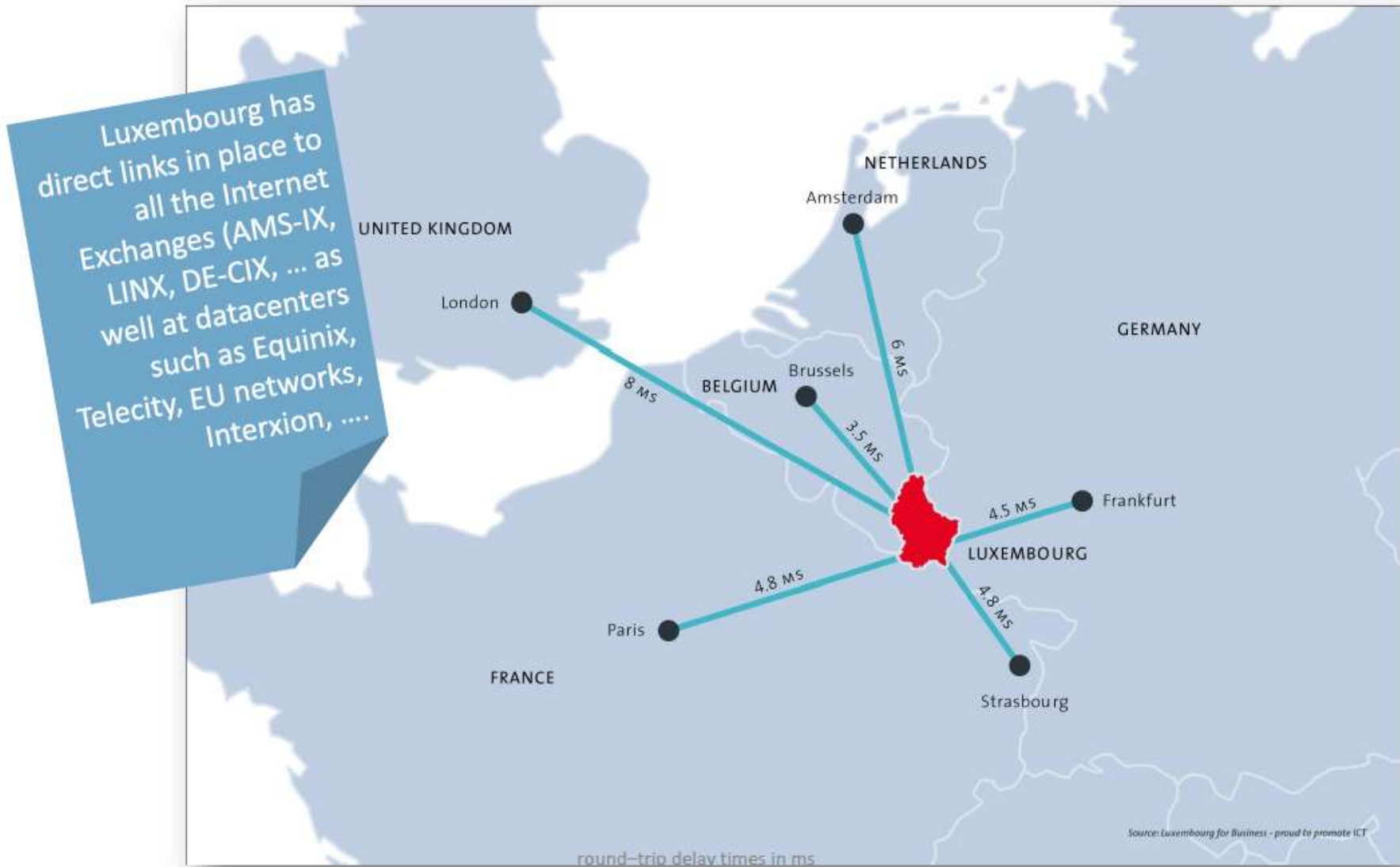
Tier 1 carriers providing services in Luxembourg



A wide choice of international fibre-optic networks carriers



ULTRA LOW LATENCY HUB



LUXEMBOURG'S COMMERCIAL INTERNET EXCHANGE

Smart

- Supported by Luxembourg government
- Internet exchange
- Business community

Central

- In the center of Europe's "golden ring"
- Strategic location right in the middle of all the major European IXs

Neutral

- 59 members
- Hosted at 8 different carrier-neutral data centers
- Carrier independent

Pan European

- LU-CIX members can peer with ECIX and France-IX members
- 59 AS on LU-CIX and more than 350 AS on partner IXs





Some photos courtesy of www.luxembourgforbusiness.lu/en/news-benchmarks