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ABBL

Green ICT survey

Public report for the banking sector

October 2023

MAKING AN IMPACT THAT MATTERS since 1845

Preface

Ananda KAUTZ

Head of Innovation, Payments and Sustainability
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“Assessing the banking sector's green ICT maturity and CO2 footprint is an essential step for a more sustainable future. We shall continue to innovate and embrace eco-friendly technologies to reduce our sector's carbon footprint.”

Sébastien GENCO

Partner, Technology Consulting
Deloitte Luxembourg

“Cognizant of the impact that the financial sector wields on our environment, the green transformation of ICT isn’t a choice; it is an imperative. As a company, Deloitte is resolute in our mission to lead the transition towards green ICT. Advocating for innovation and responsible practices will not only benefit our clients but also the planet.”

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Executive summary (1/2)

Low carbon emissions, including green Information and Communications Technology (ICT), is increasingly gaining momentum in Europe. More than just a trend, green ICT is a **critical practice** focused on minimizing environmental impact through efficient energy use, lower carbon emissions, and waste reduction in the ICT domain. To gain a better insight on the green ICT landscape in the banking sector, Deloitte, in cooperation with the Luxembourg Bankers' Association (ABBL), launched a **green ICT survey** in June 2023, targeting **credit institutions.**

The high-level scope of the green ICT survey is divided into 2 parts: **Green ICT maturity assessment and ICT CO2 emissions calculation**. Both parts are further categorized into the following individual ICT areas to support building an overview on green ICT practice and related CO2 emissions in the **Luxembourg banking sector**: ICT procurement, ICT governance, End-user devices & printers, Cloud computing, SaaS, Software & e-services, Data center and Network.

We observe a relatively **slow development regarding green ICT adoption** and commitment. With an **average green ICT maturity score of 2.3 over 5**, banks showcase the **general awareness** of green ICT, yet do not consider it their immediate priority. Although this awareness is visible, banks **require further support** in launching green ICT initiatives and effectively integrating them in their day-to-day operations.

Based on the survey results, the following **key findings** were derived:

- **Overall:**
  - Average green ICT maturity for the banking sector is not driven by the number of employees and the surveyed banks' revenue
  - Surveyed banks showcase a better scoring in terms of maturity in End-user devices & printers and Data center areas, with both areas representing surveyed banks' highest priority related to green ICT
- **ICT procurement:** Environmental criteria are mostly taken into consideration by the surveyed banks when procuring an ICT equipment and selecting an ICT supplier, but it is not yet a key criterion for ICT software procurement
- **ICT governance:** Most of the surveyed banks still need to introduce green ICT roles in their organizational chart and dedicate a budget for green ICT in order to accelerate its adoption
- **End-user devices and printers:** Recycling of IT equipment is a common best practice followed by majority of the surveyed banks in Luxembourg
- **Cloud computing:** Majority of the surveyed banks still need to track and monitor their CO2 emissions in the cloud
- **SaaS:** Consideration of environmental impact in SaaS selection is still an area for improvement for many surveyed banks
- **Software & e-services:** Green principles require further integration in banks' software development methodology
- **Data center:** Green principles for the data centers are applied by majority of surveyed banks
- **Network:** Surveyed banks' network devices and connectivity are decommissioned when they are no longer used
- **ICT CO2 emissions:** Individual screens, shared printers and laptops represent 3 biggest sources of CO2 emissions amongst the surveyed banks. Moreover, CO2 emissions from end-user devices per employee are not driven by the number of employees.

Executive summary (2/2)

Based on the feedback provided by the surveyed banks, they require **further support to accelerate green ICT adoption**, specifically in terms of green ICT awareness, implementation guidelines and services providers, governance, procurement, as well as disposal of hardware and end-user devices. While more and more organizations recognize the important role green ICT plays in their sustainability strategies, our survey demonstrates that the banking sector in Luxembourg is only **at the start of incorporating the concept of green ICT into sustainability transformation journey.**

Implementing **green ICT practices** can be a challenging process, but banks can already start becoming more **sustainable** today by following these steps:

- Identify **environmental criteria** that are most relevant for your organization in terms of ICT equipment management, ICT supplier selection and software development and procurement and review such criteria on a **regular basis.**
- Redefine your organizational structure, IT strategy, and IT governance to incorporate **green ICT budget, green related IT policies and roles**, etc. and perform **continuous improvement.**
- Introduce **more effective device disposal and recycling practices**, specifically for mobile phones.
- Gain a **deeper insight** into your **cloud-related carbon footprint** and introduce a process of implementing **corrective actions.**
- Establish a **monitoring framework** to ensure the consideration of **environmental impact** in software development and SaaS selection.
- Design an **effective process** for locating and **decommissioning** unused or unnecessary devices and connections to **optimize** your data center and maximize **energy saving.**
- Build a strong **awareness** of efficient green ICT practices, important **regulations and market benchmarks**, including key providers and solutions.
- Engage with your customers to **promote green ICT practices** beyond your bank – increase their understanding of your environmental projects, promote **sustainable digital banking** options and help them **track their carbon footprint** related to their banking decisions.
- Incorporate **paperless banking** into your green ICT transformation journey and promote **automated processes** to further reduce your carbon footprint by digitalizing your document management and transactions and developing **sustainable banking applications**.

Introduction

Introduction (1/2)

Low carbon emissions, including green Information and Communications Technology (ICT), is increasingly gaining momentum in Europe. More than just a trend, green ICT is a critical practice focused on minimizing environmental impact through efficient energy use, lower carbon emissions, and waste reduction in the ICT domain. It can help promote sustainability while at the same time improving efficiency, reducing costs, and ensuring companies remain competitive in a rapidly evolving technological landscape.

The EU's Green Deal aims to make Europe the first climate-neutral continent by 2050 and to transform the EU into a modern, resource-efficient and competitive economy, where economic growth is decoupled from resource use. Green ICT will play a key role in achieving EU's Green Deal objectives through many initiatives, such as smart building, monitoring of IT carbon footprint, recycling of IT devices, etc.

Luxembourg's climate law, enacted on 15 December 2020, targets a 55% reduction in national greenhouse gas emissions by 2030 compared to 2005 levels, with the aim of achieving "net zero emissions" by 2050. Moreover, in 2021 Luxembourg introduced a carbon tax in its "Luxembourg's integrated national energy and climate plan" (PNEC), to reduce the consumption of fossil energy. Since then, the rates have seen an increase from EUR 20/ton of CO2 in 2021 to EUR 30/ton of CO2 in 2023, and this upward trend is expected to continue in the coming years. Based on that, all entities in Luxembourg must actively reduce greenhouse gas emissions across various sectors, with a focus on ICT as a significant GHG emissions source, alongside eWaste, which is the fastest-growing waste category.

Luxembourg is pushing to integrate sustainability through digital transformation. However, the journey toward green ICT has just started and it requires continuous efforts to keep up with rapid technological changes.

To gain a better insight on the green ICT landscape in the banking sector, Deloitte, in cooperation with the Luxembourg Bankers' Association (ABBL), launched a green ICT survey in June 2023, targeting credit institutions based in Luxembourg.

The key objectives of this survey are:

- Evaluating banks' green ICT maturity in Luxembourg
- Capturing the current ICT CO2 footprint of the Luxembourg banking sector
- Identifying priorities for the banking sector in terms of green ICT and highlight the support required

In addition to building a strong overview of the banking sector in terms of green ICT practices, the survey also allows participants to:

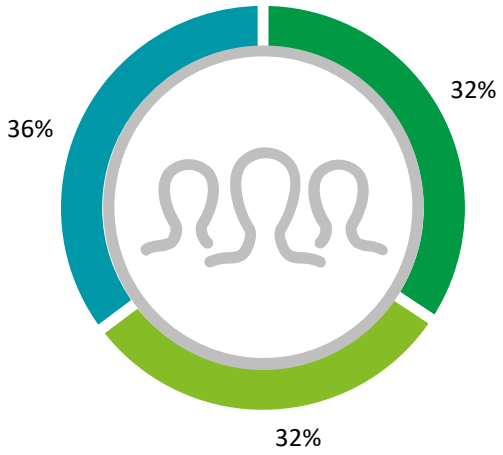
- Establish a baseline for their ICT-derived CO2 footprint
- Understand their current green ICT maturity
- Recognize their position compared to their peers in the banking sector
- Identify their pain points and areas of improvement
- Enhance their presence in the market by starting their green ICT journey ahead of others while leveraging the survey results
- Contribute to the greenhouse gas (GHG) reduction target set by Luxembourg's government in its 15 December 2020 climate law

Introduction (2/2)

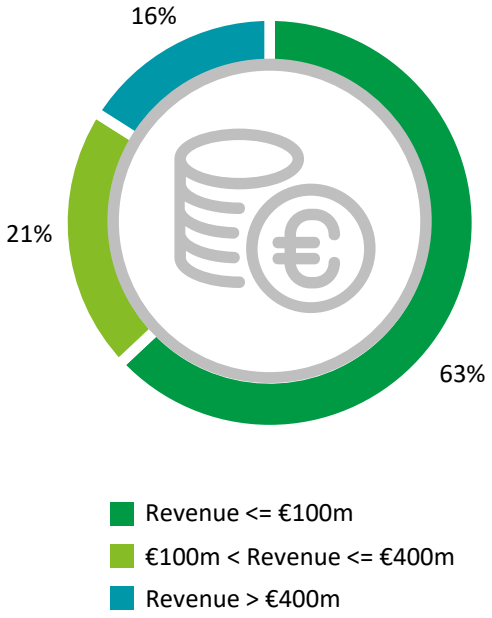
Deloitte received responses for the survey from 19 credit institutions in Luxembourg, which are members of ABBL. The figures below provide an overview of the profile of the survey participants.

We thank all the respondents for their time and participation in this survey.

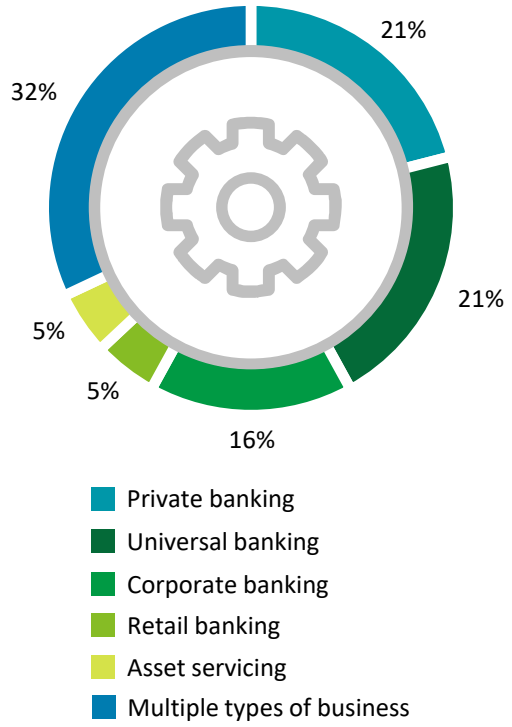
Survey participants distribution by number of employees



Survey participants distribution by revenue (€)



Survey participants distribution by type of business



Scope & methodology

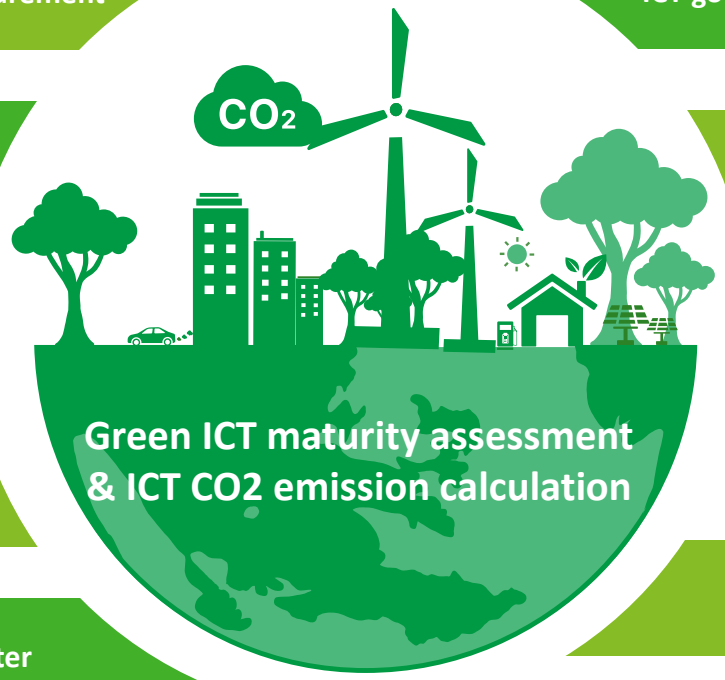
The framework of this green ICT survey assesses 8 different areas, which take into consideration both green ICT maturity and ICT CO2 emissions

ICT procurement – Assessing the consideration of environmental criteria in ICT supplier selection, ICT equipment, software procurement and outsourcing of ICT services.

End-user devices & printers – Assessing the consideration of environmental impact in IT equipment replacement/ disposal, recycling practices of printers and end-user devices, such as mobile phones and laptops, and green practices for power and printer management.

SaaS – Assessing the consideration of environmental impact when selecting and procuring Software as a Service (SaaS).

Data center – Assessing the application of green practices in data center, such as energy saving, efficient facility management, and unused software/hardware decommission.



ICT governance – Assessing the presence of green ICT governance such as green ICT related policies and processes, budget, strategy, roles, awareness programs, etc.

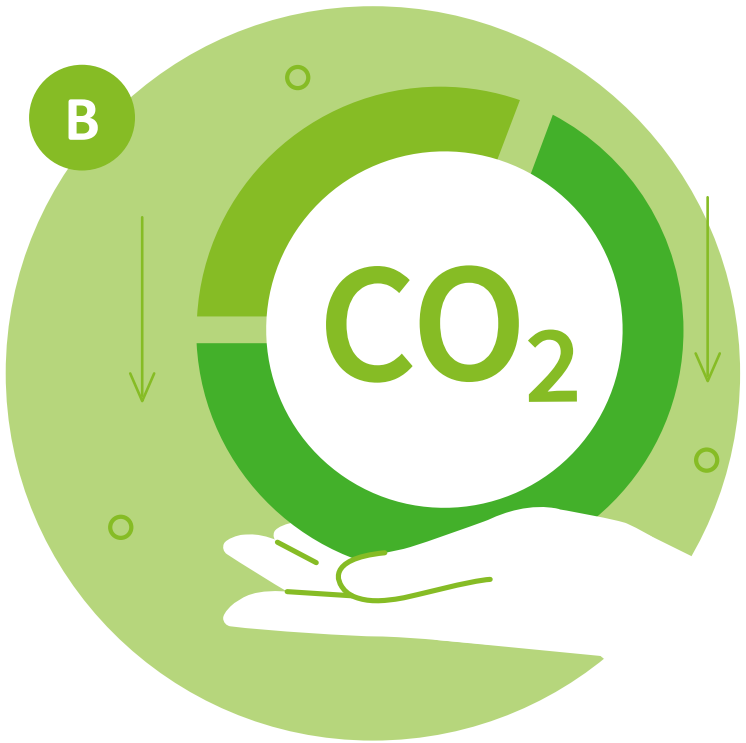
Software & e-Services – Assessing the integration of green principles in application and E-service development.

Cloud computing – Assessing the consideration of environmental impact in cloud provider selection process, the responsible use of cloud resources according to needs, and the monitoring of the CO2 footprint at the cloud service provider.

Network – Assessing the integration of green principles in network management and consideration of environmental impact in network connectivity implementation.

The high-level scope of the survey addresses 2 parts

Green ICT maturity assessment



ICT CO2 emissions calculation

Both parts are further categorized into individual ICT areas to support building an overview on green ICT practice and related CO2 emissions in the Luxembourg banking sector.

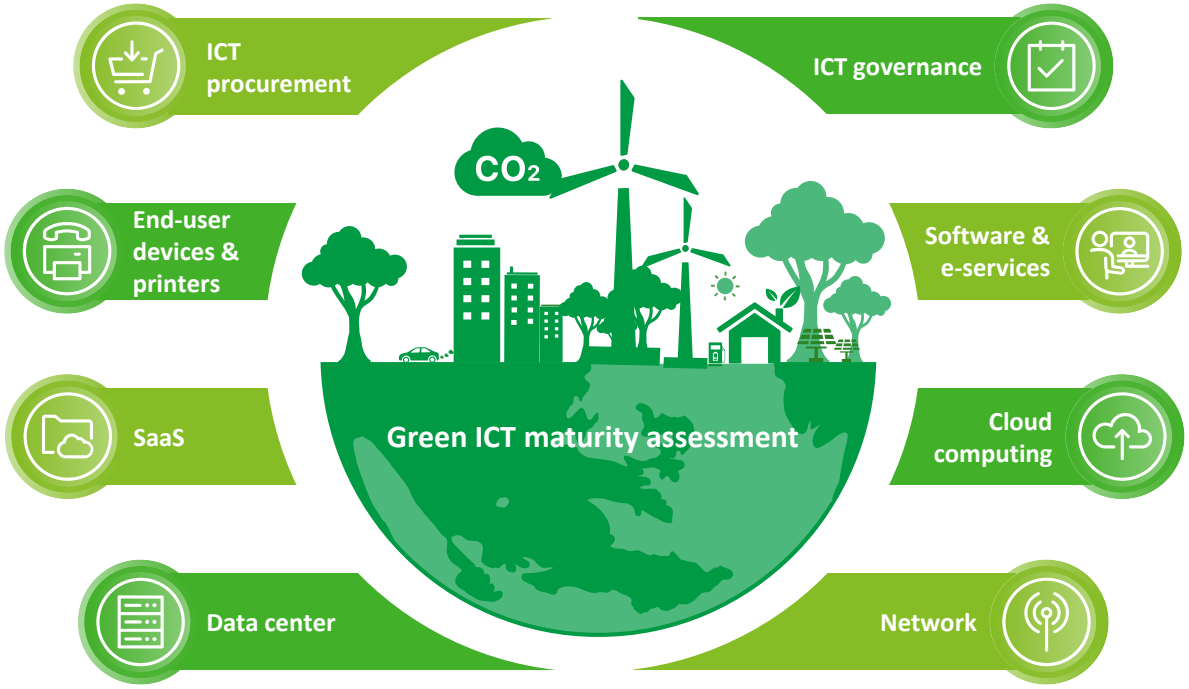
Scope & methodology – Part A

We have considered the following scope and methodology to assess the green ICT maturity of the survey's participants:

Part A

Scope

Our green ICT maturity assessment will focus on the policies, processes, methodologies and practices adopted by the IT department to help realizing a green ICT function and to reduce the CO2 footprint derived from the IT ecosystem. This assessment aims to evaluate the green ICT maturity level of the survey's participants across multiple ICT areas, as defined in the framework below.



Methodology

For each of the 8 areas described in the previous page, participants were presented with 2 to 17 questions. Based on their responses, an average score between 0 to 5 is assigned to each answer. Such scores, calculated at a response level, are then consolidated based on the average for each of the 8 areas defined in the framework. Finally, the averages per area are used to calculate the overall ICT maturity average at a banking sector level, which incorporates all areas. Scores between 0 and 5 are interpreted in accordance with the following levels:

Level 5 – Optimized	Highly efficient and optimized green ICT practice with continuous improvement and advanced monitoring.
Level 4 – Managed	Presence of green ICT practice across multiple areas with proper governance and oversight in place.
Level 3 – Initial	Basic or partial implementation of green ICT foundations/ initiatives.
Level 2 – Developing	Plan in place to implement green ICT foundations/initiatives across the organization.
Level 1 – Aware	Presence of an organizational awareness of green ICT concept. However, no concrete actions have been taken at this stage.
Level 0 – Absent	Lack of awareness of green ICT, with the concept not being incorporated even into long-term organizational strategy.

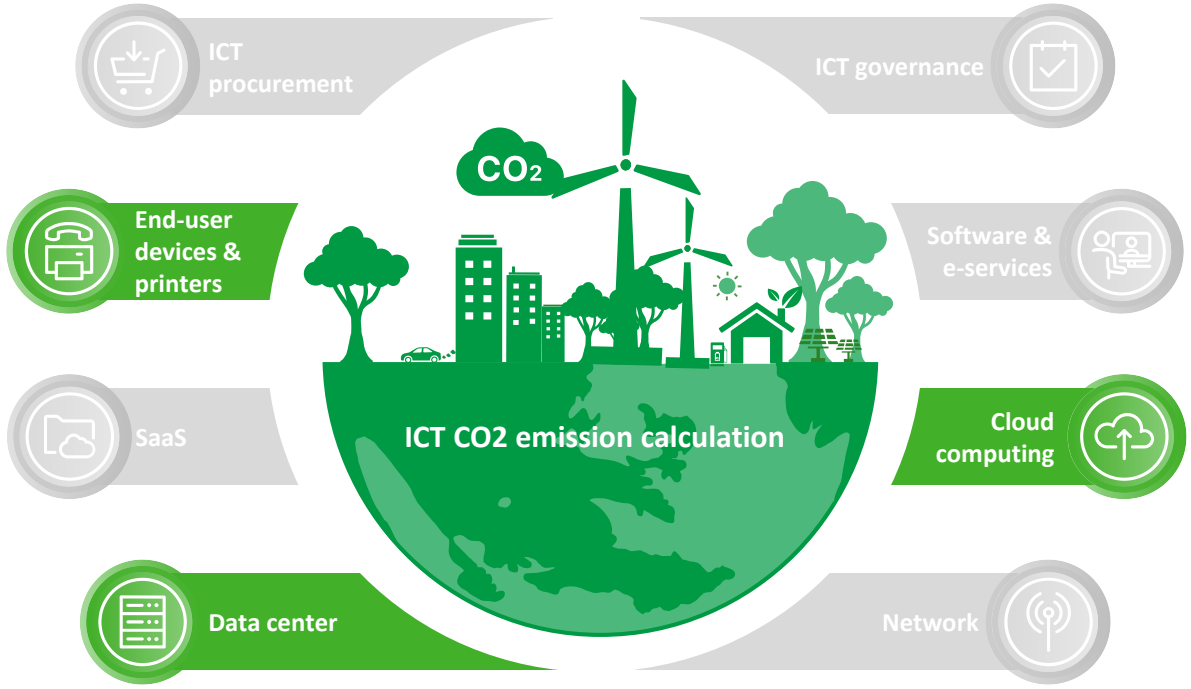
Scope & methodology – Part B

We have considered the following scope and methodology to calculate ICT CO2 footprint of the survey's participants.

Part B

Scope

Our objective was to establish a baseline for the current CO2 footprint of the ICT function within the banks participating in this survey. The survey focuses on calculating the CO2 emissions of end-users' IT devices, data center, and the cloud hosting the participant's applications and data.



Methodology

Initially, the goal was to calculate CO2 emissions for end-user devices, cloud, and data centers, but due to the absence of data from survey's respondents on data center and cloud CO2 emissions, we will now solely concentrate on assessing CO2 emissions from end-user devices.

- Our calculation of CO2 emissions is driven by two key factors – the quantity of devices provided to the employees by each bank and the average value of emissions per device type, as defined by ADEME* (Agence de la transition écologique) impact CO2 database.
- For laptops, mobile phones, desktop computers, individual screens, and individual printers, we utilized the data supplied by ADEME to calculate their respective CO2 emissions.
- For shared printers, we determined the CO2 emissions based on data provided by the printer brands. We conducted a sampling process and calculated the average emissions value from the collected data.
- The following formula is used for each equipment: Number of equipment X ADEME Value
- The calculation of CO2 emissions for end-users' devices is for one year of use
- The ADEME Value takes the full lifecycle of the equipment except the end of life because the value is negligible. The lifecycle includes the stages of raw material production, supply and processing, as well as assembly & distribution and usage of the finished device.

Equipment	CO2 emissions (Kg CO2e)
Laptop	139,29
Desktop	425,36
Mobile phone	30,66
Individual screens	251,26
Individual printers	75,68
Shared printers	3375

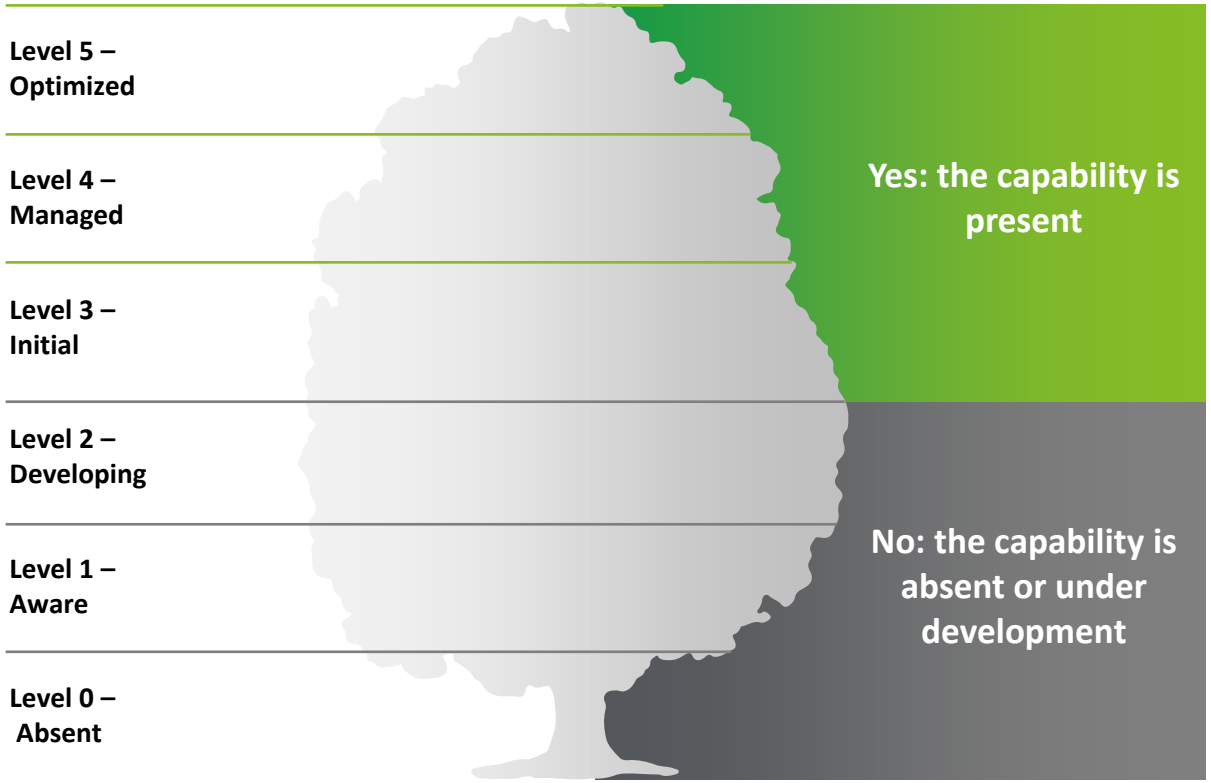
*https://www.ademe.fr/; https://impactco2.fr/

Assumptions

We have considered the following assumptions to conduct and extract the results of our survey:

- Our survey targeted ABBL Category A members, which include credit institutions.
- Given that the survey was sent out to CIOs, CISOs and Heads of Innovation and Digital, it is assumed that it has been filled out by the concerned teams and their leaders.
- The scope of the survey is focused solely on operations conducted in Luxembourg even for international banks.
- Calculations of CO2 emissions for cloud services and data centers were excluded from the survey, due to a lack of available data related to data center and cloud emissions at surveyed banks.
- To facilitate the calculation of CO2 emissions for end-user devices:
  - We assumed that the difference in models does not have an impact on the corresponding CO2 emissions, given that the value taken from ADEME takes into consideration the average for the market brands.
  - To simplify the calculation of CO2 emissions for end-user devices and avoid requesting too much information from the participants, 1 year was taken as the assumed lifespan for each device.
    This lifespan encompasses all stages of the device's lifecycle, including: the production of raw materials, the supply of raw materials, the processing of raw materials, the assembly and distribution of the finished device and usage of the finished device. Although disposing the device is also a stage within its lifecycle, it is not included in the scope of the survey. This is justified by the fact that the share of CO2 emissions associated with the disposal of the device (i.e., end of life) is relatively insignificant, when comparing to emissions associated with other lifecycle stages.

- For the Key Findings section, the values displayed on the graphs and shown as “Yes” and “No” refer to the below levels:



Key findings

Overall

Green ICT maturity per area

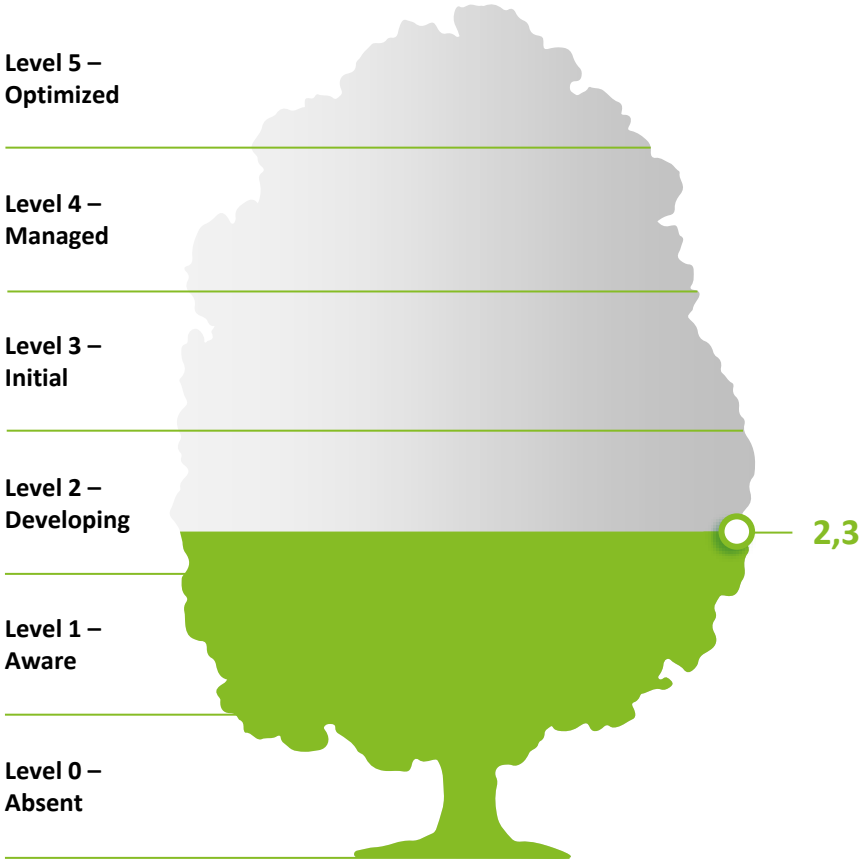
ICT CO2 emissions

Support required

Some banks are already implementing green ICT practices, while the majority are still planning for it

ICT procurement | ICT governance | End-user devices & printers | Cloud computing | SaaS | Software & e-services | Data center | Network

Average green ICT maturity for the surveyed banks



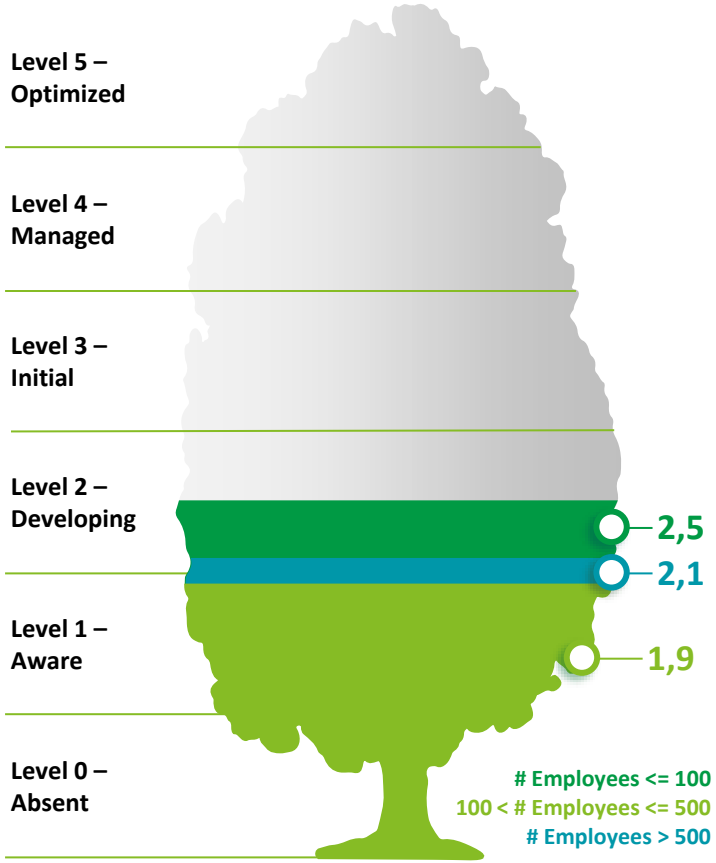
OBSERVATIONS

- **We observe a relatively slow development regarding green ICT adoption and commitment.** With an average score of 2.3 over 5, banks showcase the general awareness of green ICT, yet do not consider it their immediate priority.
- This is driven both by green ICT being still an emerging concept in Luxembourg and banks requiring more awareness of the benefits that green ICT can bring to them (e.g., cost saving, more efficient resource allocation, adoption of sustainable mindset across organizations, waste reduction, etc.).
- Nonetheless, some banks have started developing green ICT initiatives. Examples of initiatives that are being implemented at this stage include but are not limited to the integration of green principles in IT procurement, eco-friendly device disposal, use of green energy providers for data centers and adoption of power management processes to reduce power consumption.

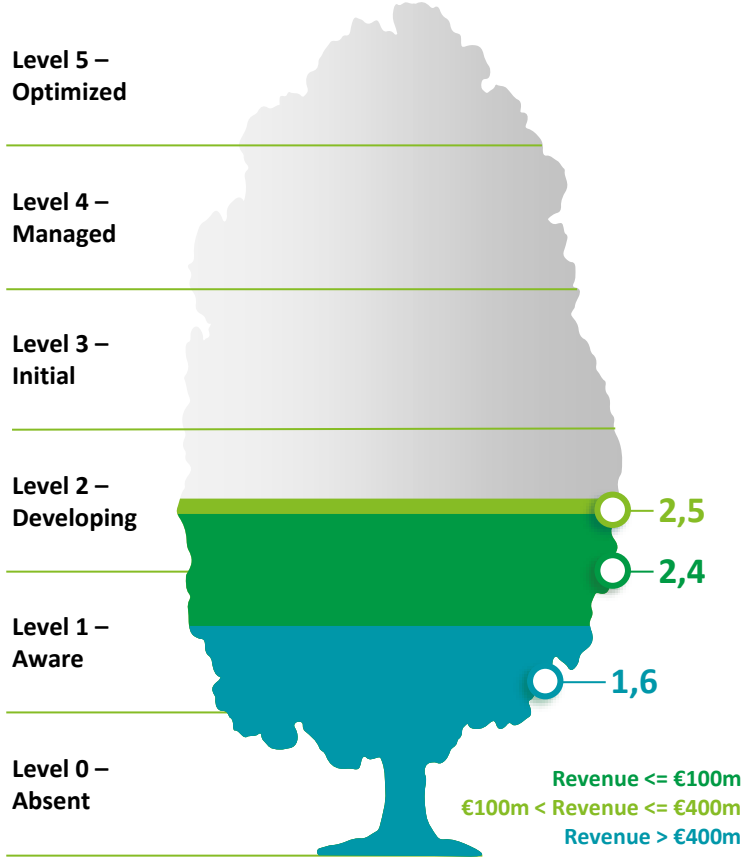
The average green ICT maturity is not driven by the number of employees and the banks' revenue

ICT procurement | ICT governance | End-user devices & printers | Cloud computing | SaaS | Software & e-services | Data center | Network

Average green ICT maturity for surveyed banks per number of employees



Average green ICT maturity for surveyed banks per revenue (€)

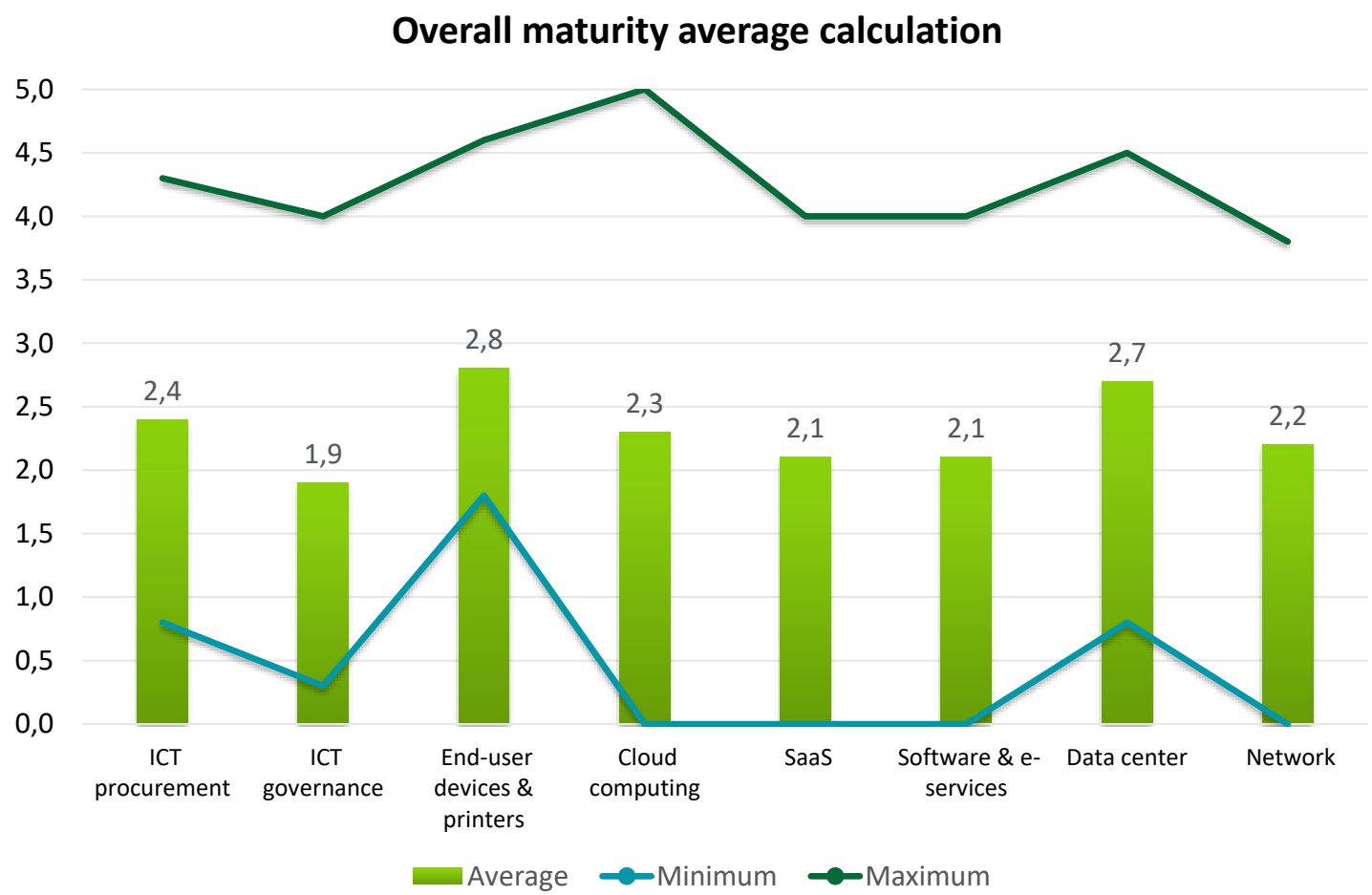


OBSERVATIONS

- When filtering survey participants by the number of employees, banks with 100 employees or less showcase higher average green ICT maturity than bigger banks. Nonetheless, the concept of green ICT and related initiatives are still under development in Luxembourg for banks regardless of the number of employees.
- When filtering survey participants by their revenues, banks with a revenue of more than €400m have lower average green ICT maturity than banks with lesser revenues.

Banks showcase a better scoring in terms of maturity in End-user devices & printers and Data center areas…

ICT procurement | ICT governance | End-user devices & printers | Cloud computing | SaaS | Software & e-services | Data center | Network

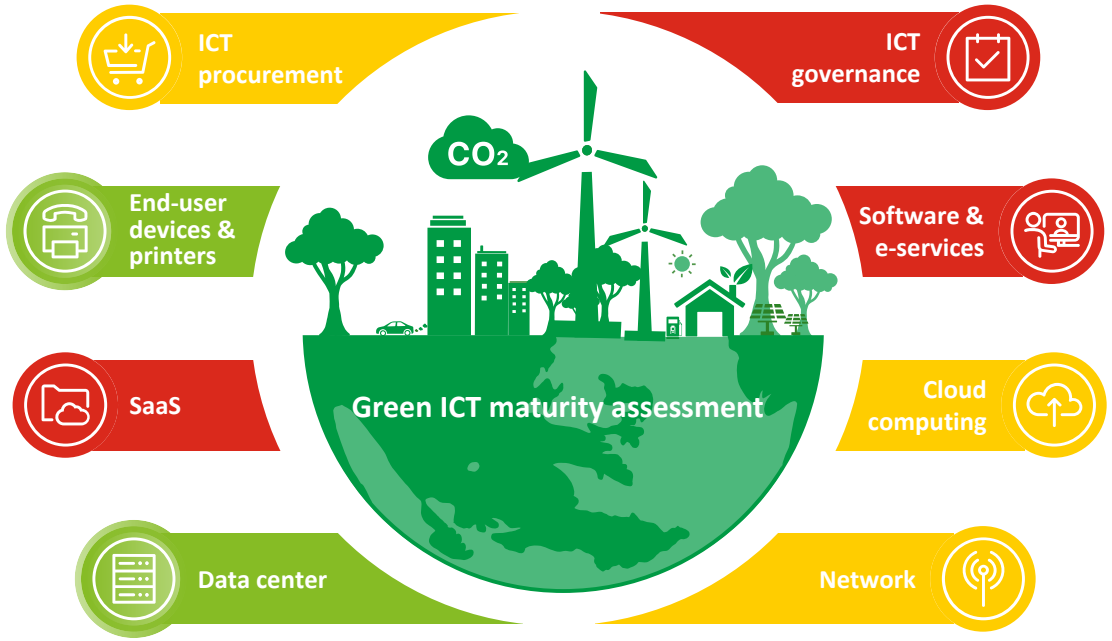


OBSERVATIONS

- End-user devices & printers and data center areas have a higher maturity for the surveyed banks.
- However, for the other areas, maturity is still at a development stage. Specifically, IT governance, SaaS and software & e-services represent less mature areas, with IT governance having the lowest average maturity amongst all areas. This is driven by a lack of green ICT roles and green ICT budget within Luxembourg's banking sector.
- IT procurement is positioned in the middle in terms of maturity, relative to other areas. This position is explained by banks' successful application of environmental criteria in some areas (e.g., ICT supplier selection) and lack of such criteria in other areas of green ICT (e.g., ICT software procurement).

…However, banks' priorities are heterogenous across the different areas of assessment

The following heatmap represents an indication of client priority given for each of the ICT areas and should be interpreted in accordance with the color code provided below.



Not considered	Green ICT area is not on the banks' radar yet.
Low priority	Green ICT area is not considered a key priority with majority of practices yet to be developed.
Medium priority	Green ICT area is partially prioritized with some practices being implemented and others still in development.
High priority	Green ICT area is highly prioritized with good practices being implemented.

OBSERVATIONS

- ICT governance, SaaS and software & e-services act as low priority areas of green ICT. This is represented by a lack of ICT roles, insufficient consideration of environmental impact in SaaS selection and limited integration of green principles in software development.
- In contrast, ICT procurement, cloud computing and network are perceived as medium priority areas of green ICT. For ICT procurement, environmental criteria is mostly considered when procuring an ICT equipment. For cloud computing, banks are aware of the practice of requesting CO2 footprint report, but it is not their immediate priority. For network, efficient device decommission process is implemented, yet the number of other initiatives for this area is limited.
- End-user devices & printers and data center are considered to be high priority areas, having more advanced green ICT practices than other areas. Banks focus on implementing effective recycling processes and use green principles in their data centers.

Key findings

Overall

Green ICT maturity per area

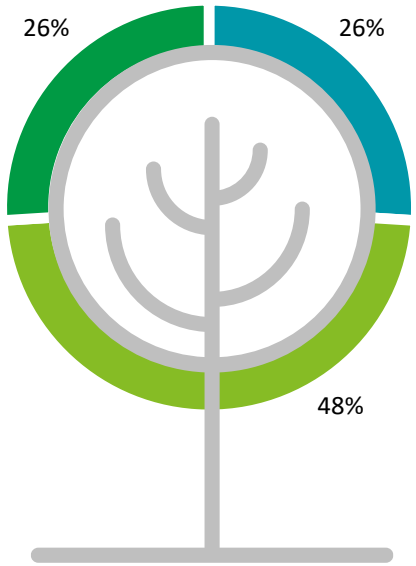
ICT CO2 emissions

Support required

Environmental criteria are mostly taken into consideration when procuring an ICT equipment and selecting an ICT supplier, but it is not yet a key criterion for ICT software procurement

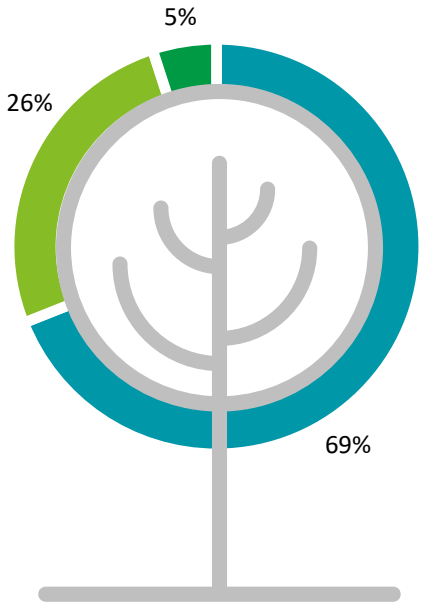
ICT procurement | ICT governance | End-user devices & printers | Cloud computing | SaaS | Software & e-services | Data center | Network

Do you take environmental criteria into consideration when procuring ICT equipment?



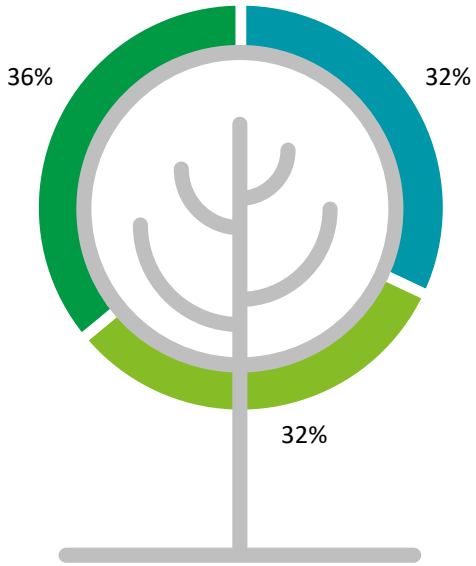
- No
- Yes, for some equipment
- Yes, for all equipment

Do you take environmental criteria into consideration when procuring ICT software?



- No
- Yes, for some software
- Yes, for all software

Do you take environmental criteria into consideration when qualifying and selecting ICT suppliers?



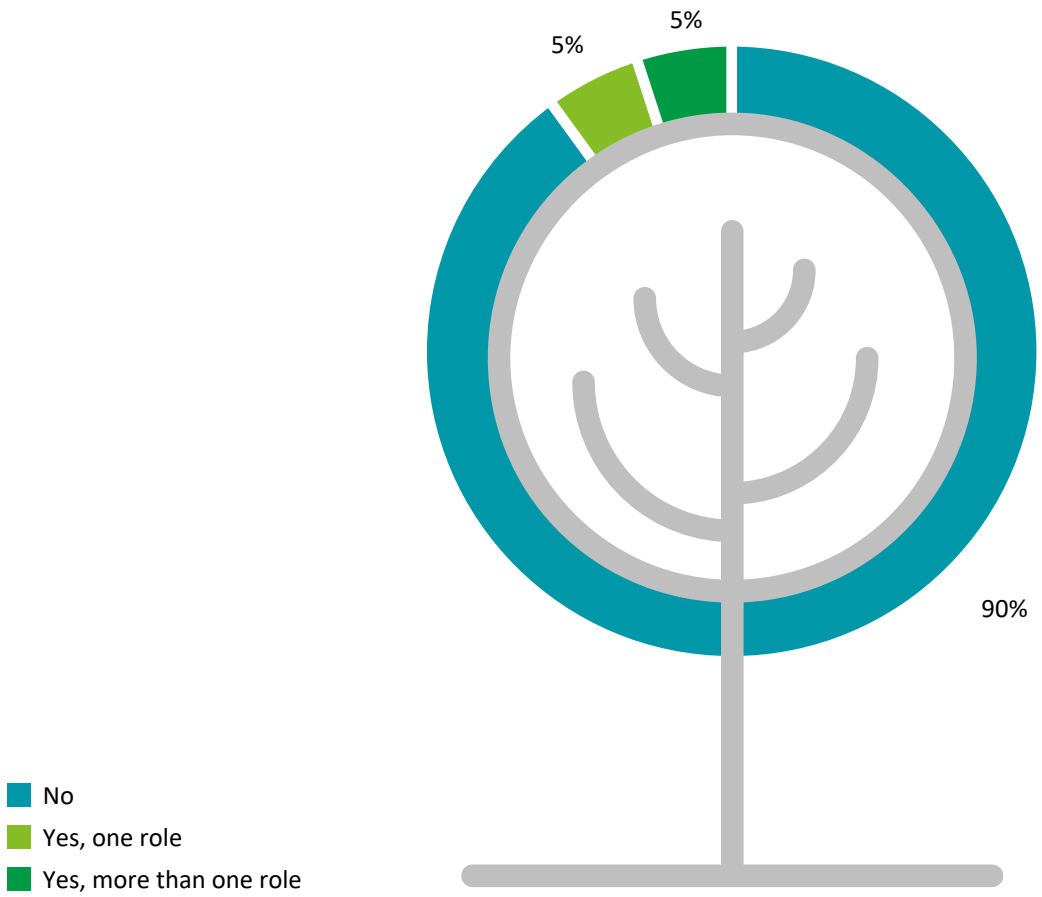
- No
- Yes, occasionally
- Yes, regularly

OBSERVATIONS

- Our analysis estimated that approximately a quarter of the banks still do not consider environmental criteria as a key factor when procuring ICT equipment.
- While majority of the banks in Luxembourg incorporate environmental criteria to some extent when procuring ICT equipment, none of the surveyed banks review the applied criteria on a regular basis.
- 69% of surveyed banks still do not apply environmental criteria in their software procurement process. While some of such banks are working towards incorporating environmental criteria in the ICT software procurement, majority of them do not yet have specific plans in place.
- Although most of the banks apply environmental criteria in the ICT supplier selection process, the share of banks, which are still yet to do so, is significant. Only a small fraction of surveyed banks, which apply environmental criteria when selecting ICT suppliers, review such criteria regularly.

Most of the surveyed banks still need to introduce green ICT roles in their organizational chart

Do you have any green ICT roles as part of your organizational structure?



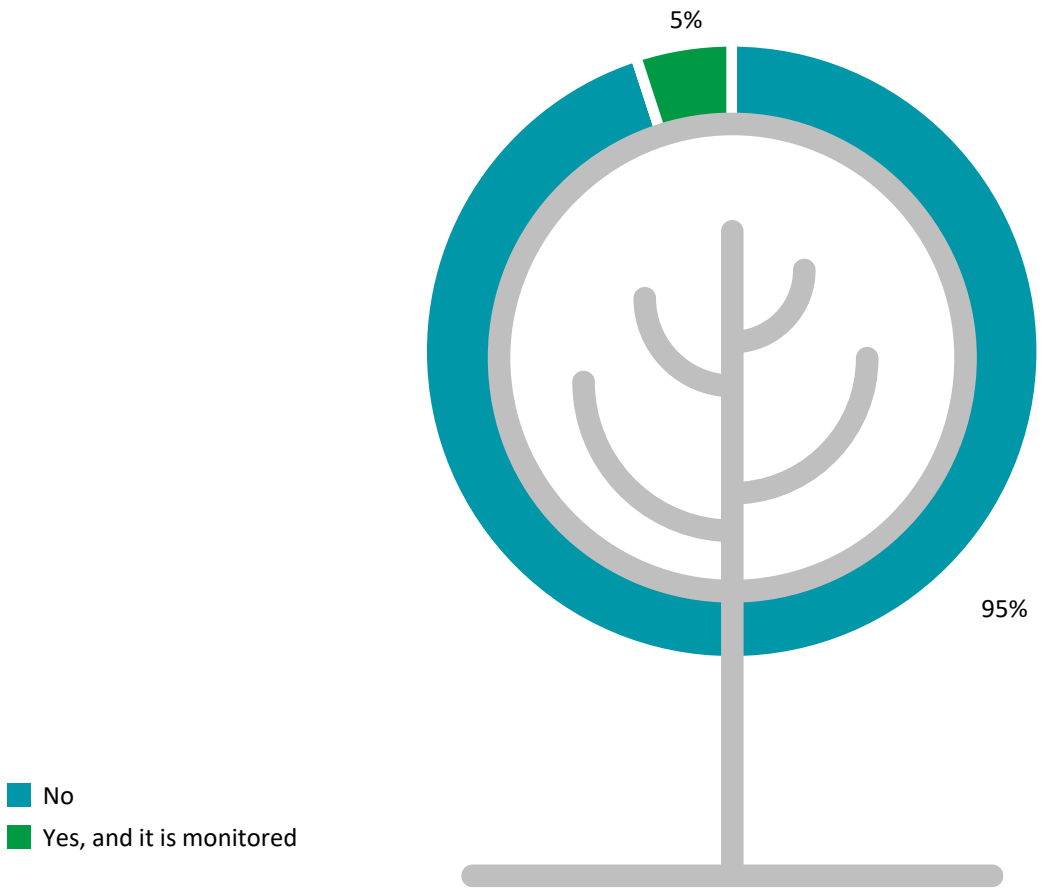
OBSERVATIONS

- Green ICT roles are still not incorporated into the organizational structure of most banks.
- Majority of the survey participants have not established concrete plans to address the issue of green ICT roles in the short-term.
- While some banks have green ICT roles within their organization, there is a lack of processes for monitoring performance associated with such roles.

Most of the surveyed banks still need to dedicate a budget for green ICT to accelerate its adoption

ICT procurement | **ICT governance** | End-user devices & printers | Cloud computing | SaaS | Software & e-services | Data center | Network

Do you have an allocated green ICT budget for 2023?

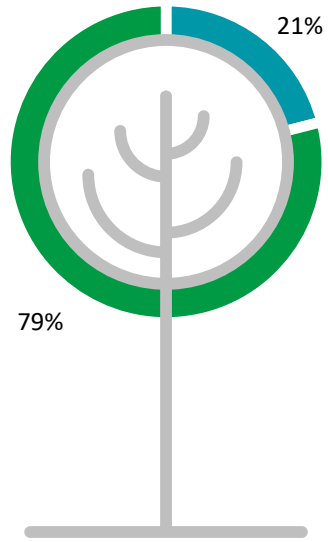


OBSERVATIONS

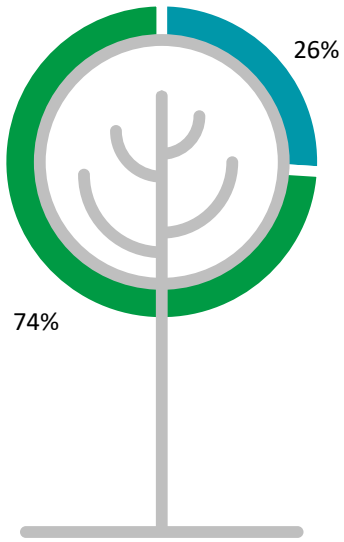
- Almost all surveyed banks have no allocated green ICT budget for 2023. This represents a significant obstacle for launching green ICT initiatives, establishing green ICT roles and expanding the adoption of green ICT within the organization.
- Although 5% of surveyed banks indicated that they allocated a green ICT budget, the practices for evaluating and adjusting such budget are still yet to be designed and implemented at a strategic level.

Recycling of IT equipment is a common best practice followed by majority of banks

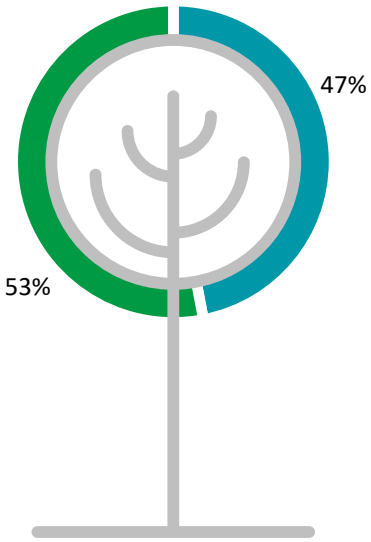
Do you recycle your printers?



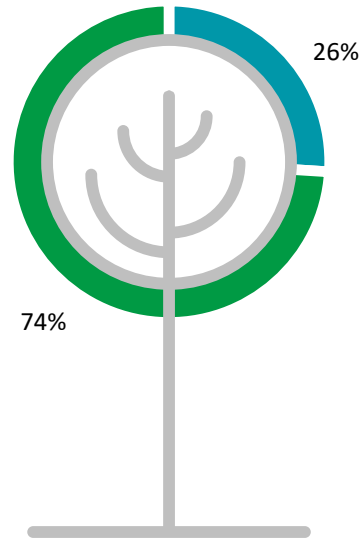
Do you recycle your ICT hardware (e.g., storage, server, firewall, etc.)?



Do you recycle your mobile phones?



Do you recycle your laptops?



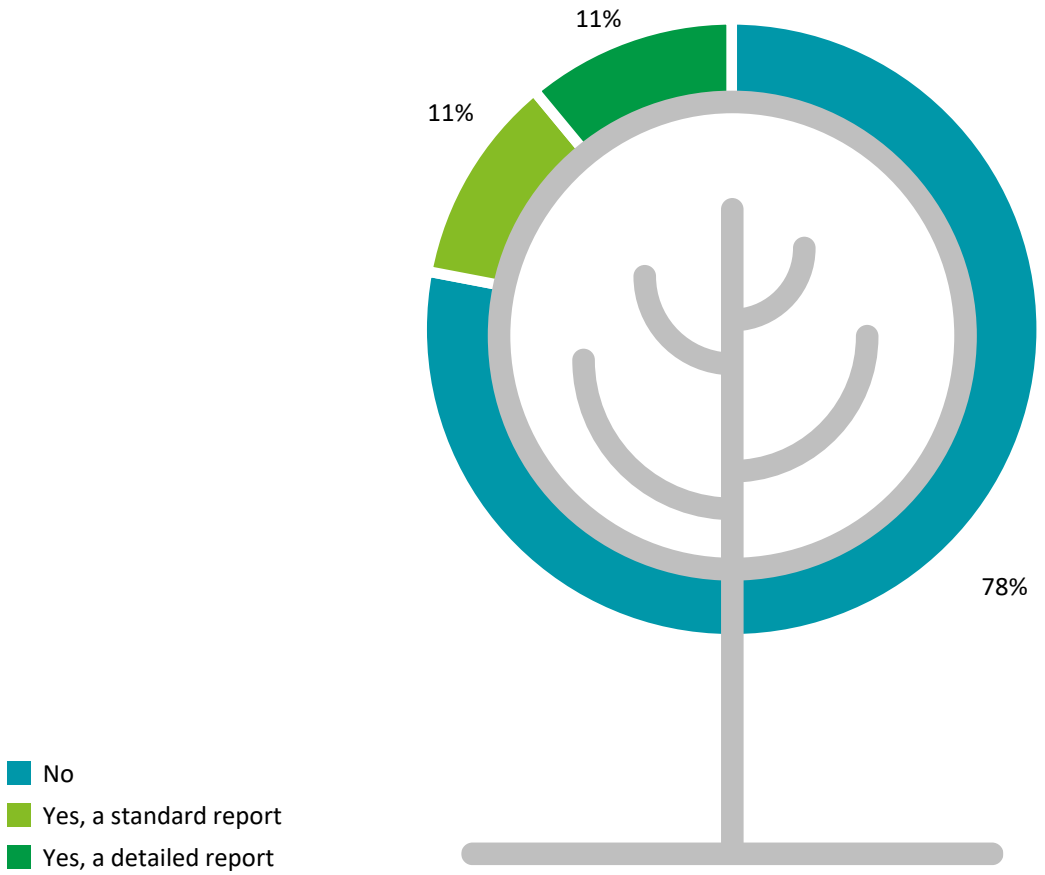
No
Yes

OBSERVATIONS

- The importance of recycling IT equipment is widely recognized by Luxembourg-based banks, with most of them making the effort to recycle printers and ICT hardware.
- Although 74% of the surveyed banks recycle their laptops, almost a half of them do not recycle their mobile phones. This indicates a strong need for increased awareness on the benefits of recycling practices for mobile phones, as well as the role such practices play in the scope of the overall green ICT strategy and energy saving. It is worth highlighting that the low percentage of mobile phones recycling can be justified by some banks selling the mobile phones to their employees after a certain number of years.
- In addition to this, we noticed that almost all surveyed banks are applying best practices to implement energy efficient printer management techniques. Moreover, all surveyed banks optimize their computer's power consumption by implementing power management techniques.

Majority of banks still need to track and monitor their CO2 emissions in the cloud

Do you request a CO2 footprint report from your cloud service provider?

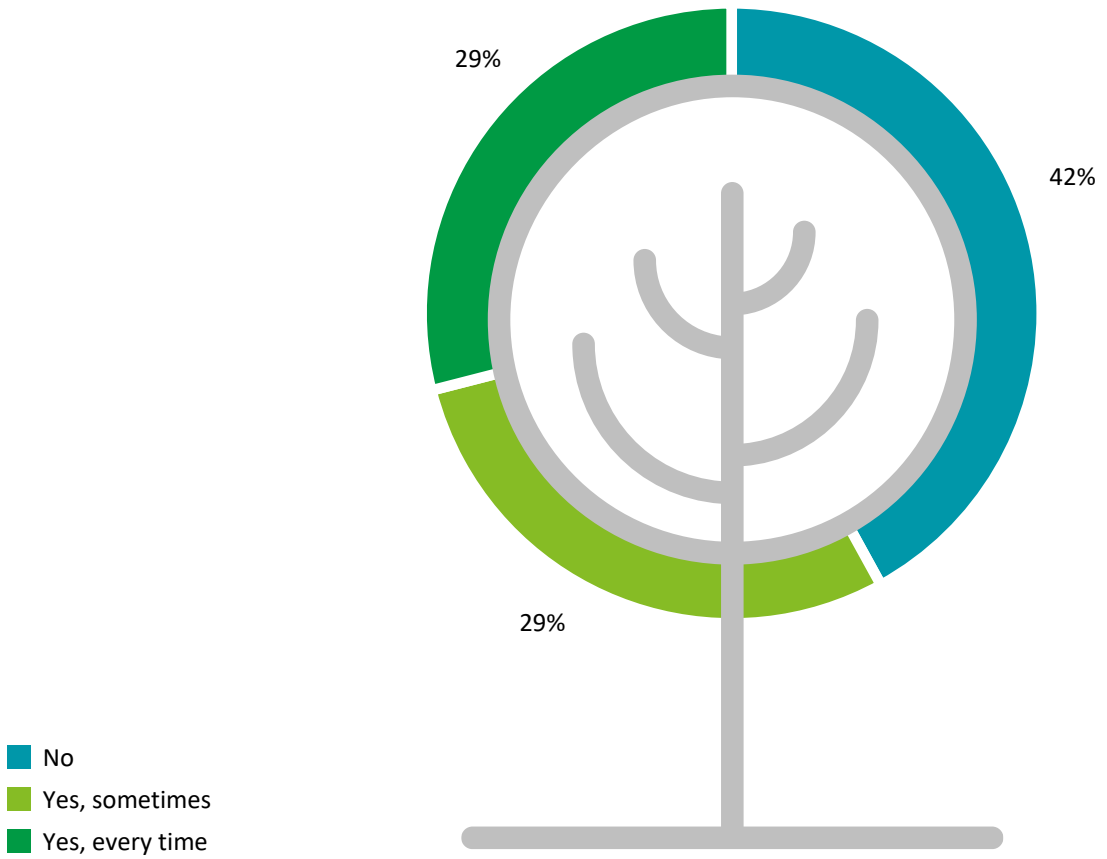


OBSERVATIONS

- 78% of surveyed banks still do not request a report on the CO2 footprint from their cloud provider. This can act as a blocker for an accurate estimation of banks' CO2 emissions and prevent them from carrying out important strategic adjustments. Banks should have more responsibility on their CO2 emission related to their applications and services even if it is hosted in the cloud.
- Even for survey participants, who receive standard or detailed CO2 footprint reports from their cloud providers, no follow-up procedures on corrective actions have been established.

When looking at SaaS solutions, banks are not yet fully considering the environmental impact as a selection criteria

Do you take environmental impact into consideration when choosing a software as a service (SaaS)?

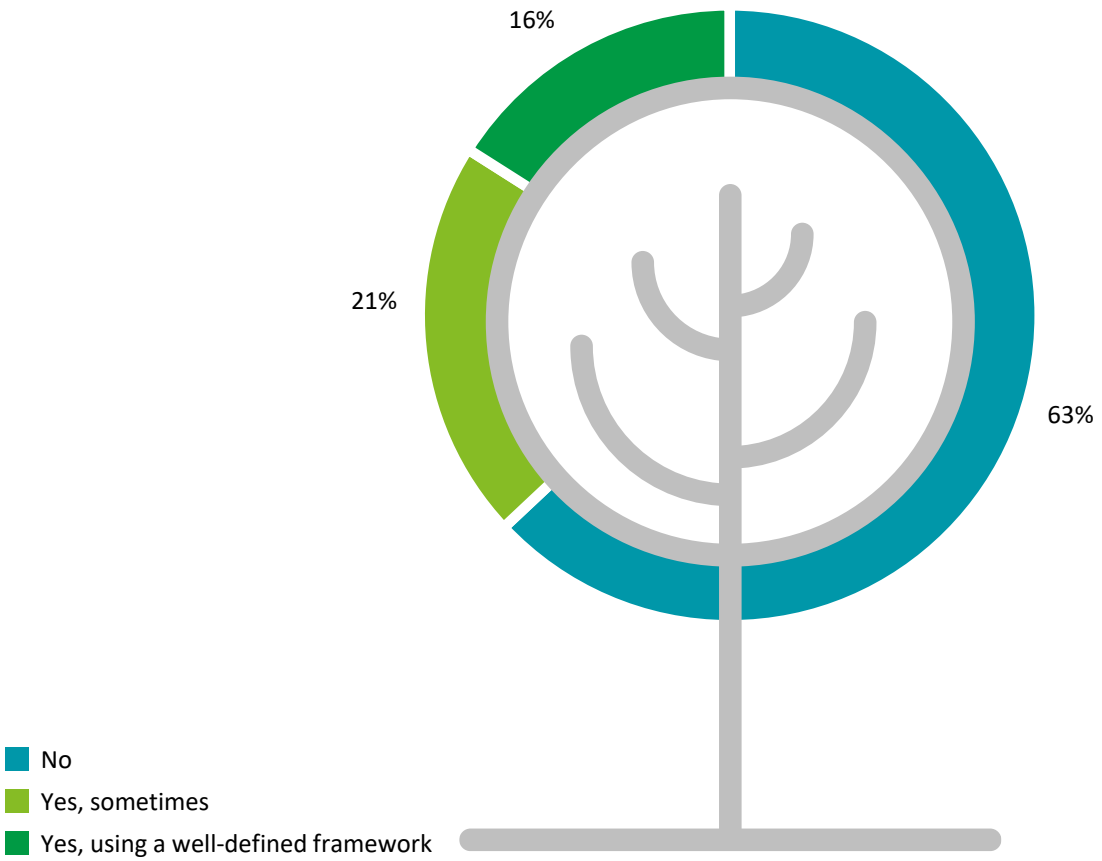


OBSERVATIONS

- While 58% of survey participants take into account environmental impact when selecting SaaS, 42% of surveyed banks do not consider environmental impact during SaaS selection process, which is significant. This indicates a need for a better understanding of how the choice of SaaS affects the banks' carbon footprint and the general sustainability strategy.
- Even for banks that consider environmental criteria when selecting SaaS, such criteria is neither regularly reviewed, nor prioritized over other criteria.

Green principles require further integration in banks' software development methodology

Do you integrate green principles for the development of your applications / eServices?

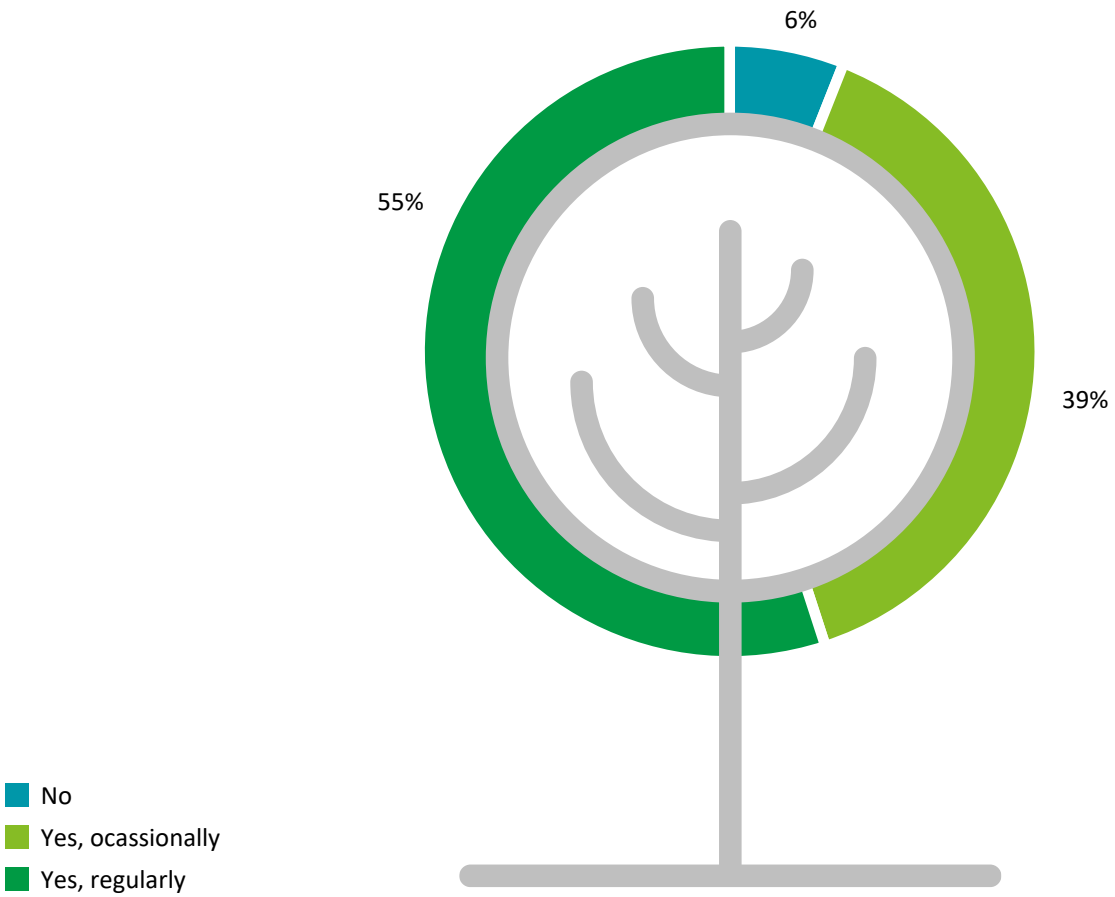


OBSERVATIONS

- Most of the banks in Luxembourg do not incorporate green practices, such as reduction of web page size and data storage and prioritization of mobile development with responsive approach, in their software development practices. Greater awareness on the benefits of such sustainable practices is required to improve the general sustainability in the software development domain within the banking sector in Luxembourg.
- While some banks integrate green principles when developing their applications and eServices, only a fraction of them have a well-defined framework for such procedures. Yet, none of them have monitoring practices to ensure that green principles are effectively applied.

Banks’ IT hardware is decommissioned when it is no longer used in the data center…

Do you decommission unused hardware (servers, storage, switches, etc.) within your data center?

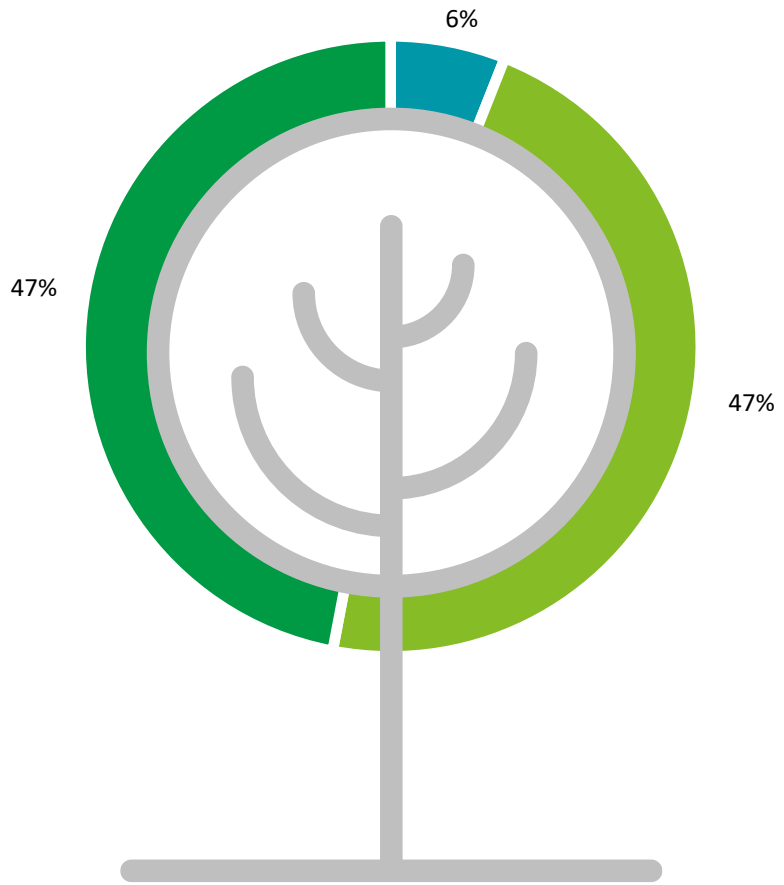


OBSERVATIONS

- 94% of surveyed banks demonstrate commitment in reducing their environmental impact by decommissioning unused hardware from their data centers. Moreover, most of the surveyed banks decommission their unused hardware regularly.
- Even though 6% of surveyed banks do not currently decommission their unused hardware from data centers, they are already in the progress of applying such practices in their workplace.

…So are network devices and connectivity

Do you decommission unused network devices/connectivity?

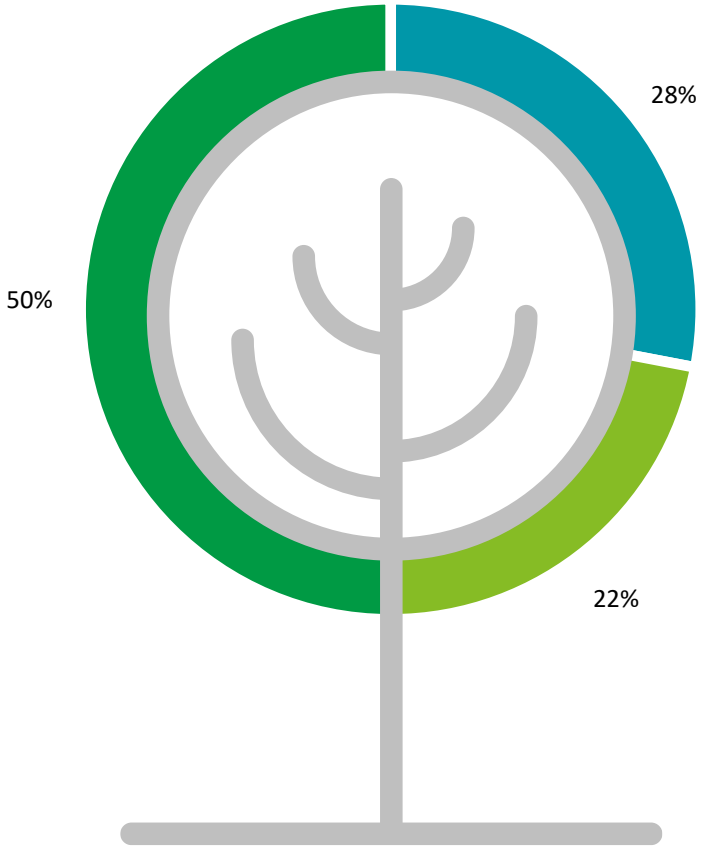


OBSERVATIONS

- 94% of surveyed banks decommission their unused network devices. Moreover, 47% of surveyed banks have a defined process for a frequent unused network device decommission.
- While 94% of surveyed banks have an established process and policy in place for network device decommission, none of them use any tools to identify unused network devices and connectivity more effectively.

Green principles for the data centers are applied by majority of banks

Do you tend to apply green principles for your data center (e.g., efficient lighting, low-impact cooler, reduced space, green power sources, green disposal, etc.)?



OBSERVATIONS

- Most banks incorporate green principles, such as green power sources and efficient utilization of space, to some extent in their data center management. A half of the surveyed banks apply green principles in all aspects of data center management.
- Nonetheless, survey participants can further improve the application of such principles with the introduction of centralized tools for CO2 emissions measurement and monitoring, which are not yet established in Luxembourgish banks.

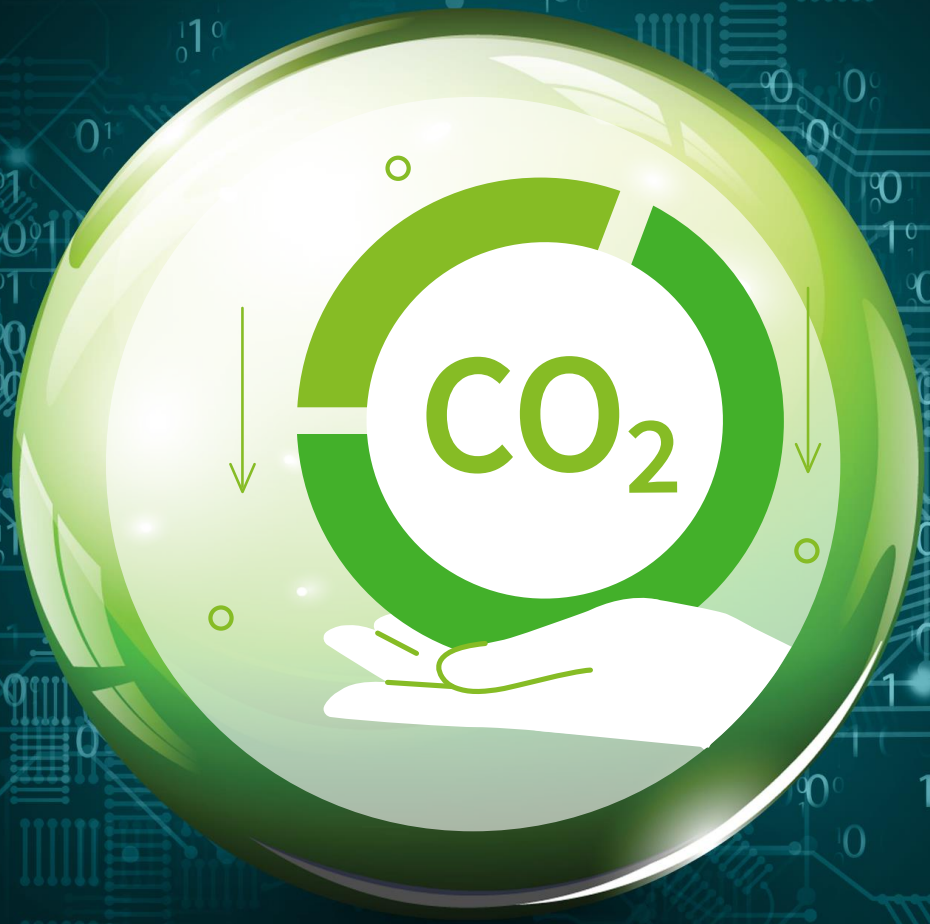
Key findings

Overall

Green ICT maturity per area

ICT CO2 emissions

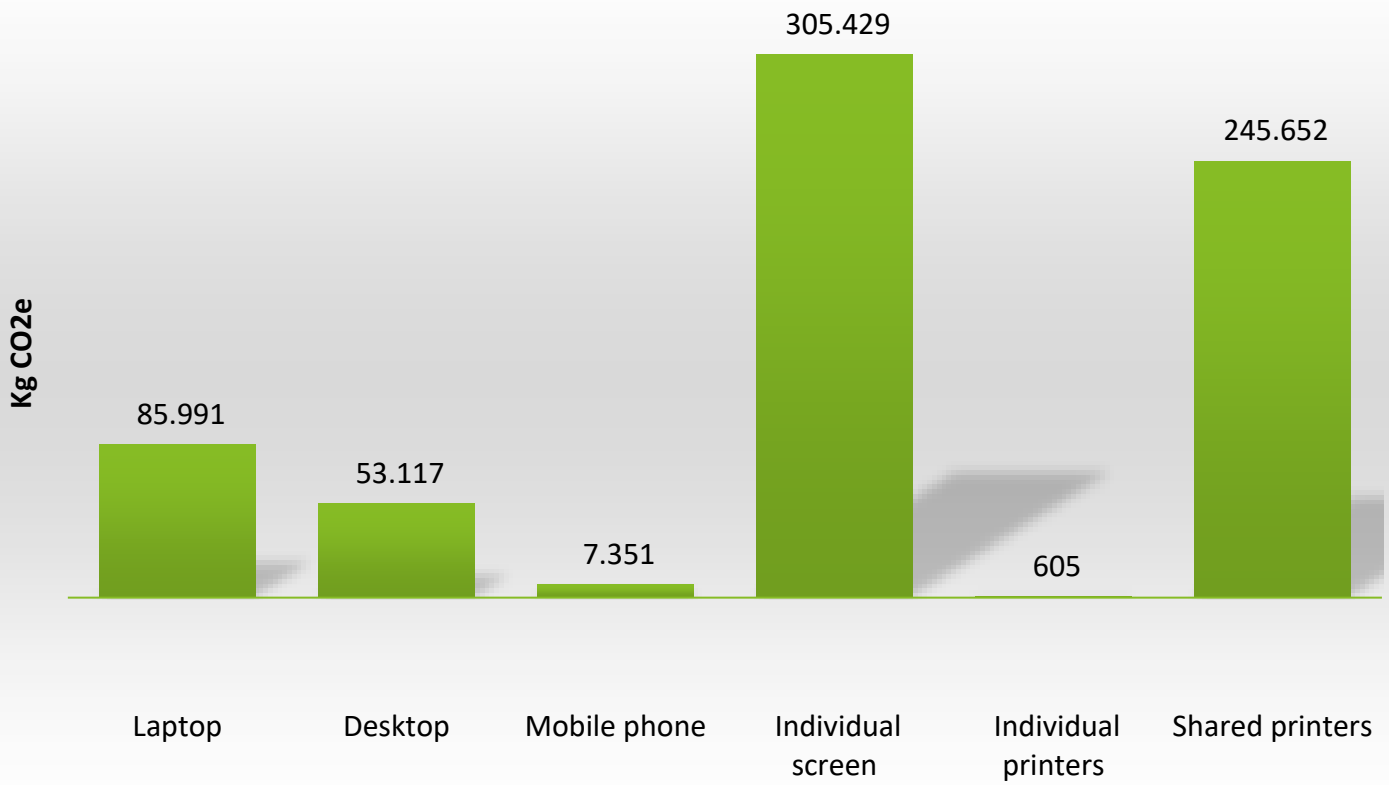
Support required



Individual screens and shared printers represent the 2 main sources of CO2 emissions…

ICT procurement | ICT governance | **End-user devices & printers** | Cloud computing | SaaS | Software & e-services | Data center | Network

Average CO2 emissions for IT equipment in Luxembourg's banking sector

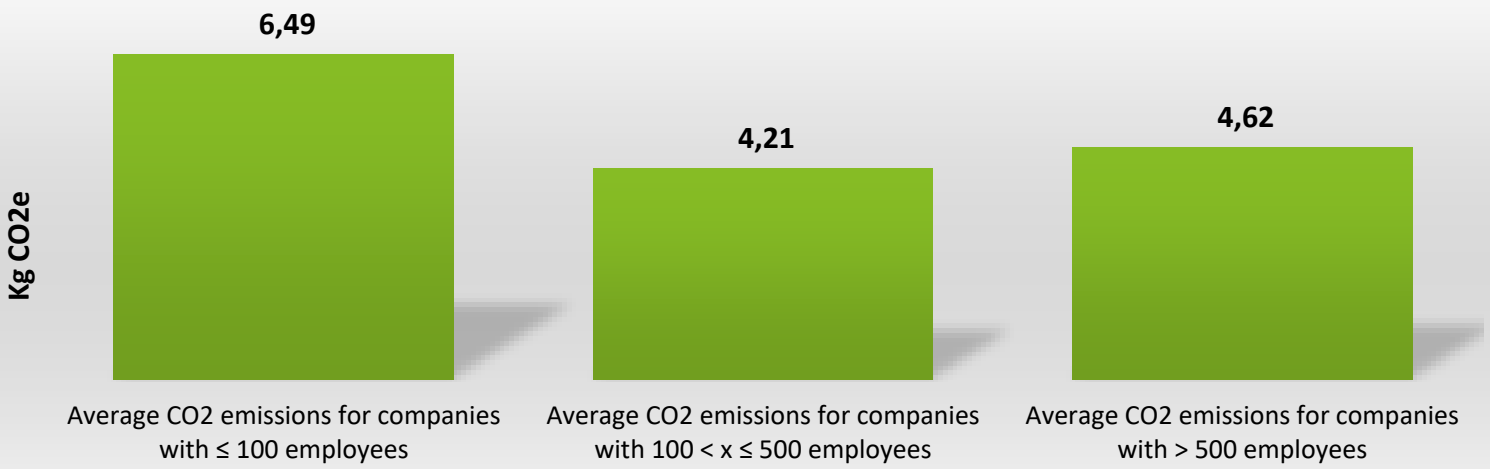


OBSERVATIONS

- On average, individual screens act as the biggest source of CO2 emissions for the surveyed banks. This is justified both by individual screens having higher CO2 emissions than other devices and banks providing high quantity of individual screens to their employees.
- While shared printers represent the greatest source of CO2 emissions according to ADEME, they are not the main emission point for the surveyed banks due to their reduced number across banks.
- Although desktops act as the second highest source of CO2 emissions according to ADEME, the average emissions from desktops for the surveyed banks are lower than for other device types. This can be explained by the fact that not all banks provide desktops for employees.
- Individual printers are the lowest source of CO2 emissions for the surveyed banks mainly because majority of them do not provide individual printers to employees. In contrast, mobile phones act as a smaller source of CO2 emissions because of their low amount of CO2 emissions per device.

…But the CO2 emissions from end-user devices are not driven by the number of employees

Average CO2 emissions for all end-user devices per employee (with number of employees filter)



OBSERVATIONS

- Banks with 100 employees or less experience higher CO2 emissions compared to medium and large banks from the end-user devices per employee. This is explained by:
  - The higher number of devices provided per employee for smaller banks compared to the medium and large banks.
  - The ratio of the number of desktops / shared printers to the number of employees is higher for smaller banks compared to the medium and large banks. As desktops and shared printers represent the biggest sources of CO2 emissions amongst end-user devices, the average CO2 emissions are impacted by the ratio of the number of these devices to the number of employees.

Key findings

Overall

Green ICT maturity per area

ICT CO2 emissions

Support required

Banks require further support to accelerate green ICT adoption

As a part of our survey, we have captured the surveyed banks' needs and suggestions in terms of green ICT adoption and implementation. In the below diagram, we have summarized their key priorities and the type of support needed:

Awareness of Green ICT

- Leverage benchmark analysis to compare a particular bank with the market average
- Identify a list of main providers in green ICT domain
- Get further knowledge of relevant green ICT market regulations
- Maximize awareness regarding best green ICT practices

Green ICT implementation

- Benefit and follow a practical guide to implement green ICT concepts within the bank
- Receive expert opinion on selecting the best solutions and tools related to green ICT
- Align with potential partners on the possible methodologies to implement green ICT

Green ICT governance

- Recruit dedicated human resources to facilitate green ICT implementation
- Get HR support related to adoption of green ICT practices
- Allocate funding for green ICT initiatives

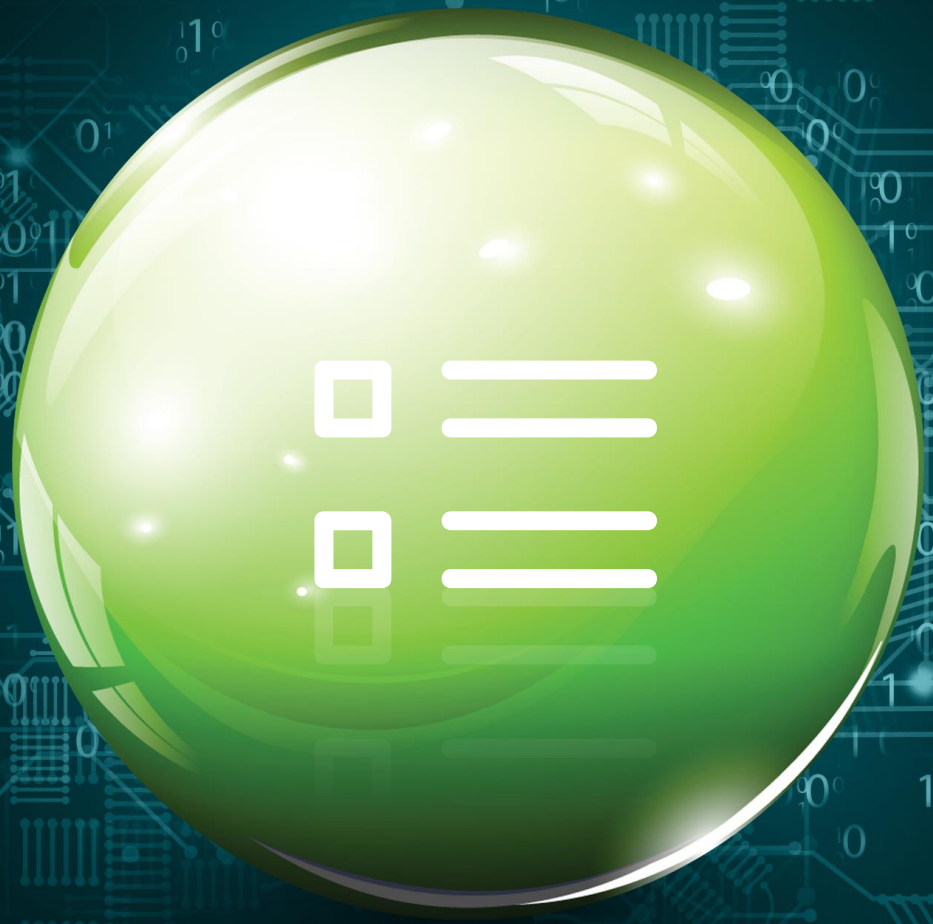
Green ICT procurement

- Define and apply environmental criteria when selecting and purchasing hardware
- Adopt best practices and guidelines for selecting energy-saving and low emission software

Hardware and end-user devices

- Stay up to date with the latest trends in terms of hardware recycling, printer management green practices and eco-friendly use of laptop and mobile phones

Conclusion



Green ICT represents an essential part of a sustainability transformation journey

Sustainable transformations, including green ICT, require organizations to adapt their business models and ways of working. To successfully navigate the green ICT journey, organizations need to address the following factors, including:

1. *Green ICT should be fully integrated into their regular operations*

While representing an important transformational step, innovation no longer acts as a sufficient market differentiator. Internal adoption of green ICT practices at all organizational levels promotes efficiency and sustainable change management. Recognizing green ICT as a strategic priority can support organizations in becoming more competitive, complying with sustainability regulations and delivering excellence to all stakeholders.

2. Green ICT is no longer an option but an expectation

With the rapidly increasing environmental awareness, customers expect organizations to have sustainable practices reflected in their ways of working. For green ICT, this includes concepts like circular IT equipment management, eco-friendly data centers and use of carbon-neutral cloud services, among others. Customers seek visibility and transparency from organizations on addressing sustainability challenges and expect to be an essential part of such transformations through customer engagement.

3. Green ICT acts as a key cost advantage

In the current fast-paced environment, organizations need to adapt quickly to retain their competitive edge. In addition to fostering a sustainable mindset amongst internal and external stakeholders, green ICT practices enable efficient resource allocation, promote longer equipment lifecycles and facilitate effective IT procurement. These benefits allow organizations to significantly reduce their costs, which represents a crucial advantage in today's vibrant markets.

Banks should further advance their level of green ICT adoption by taking concrete actions

While more and more organizations recognize the important role green ICT plays in their sustainability strategies, our survey demonstrates that the banking sector in Luxembourg is only at the start of incorporating the concept of green ICT into sustainability transformation journey. Although the general awareness of green ICT initiatives is visible, banks require further support in optimizing such initiatives and effectively integrating them in their day-to-day operations. For example, the surveyed banks indicated the areas of industry awareness of green ICT, IT procurement and governance and end-user device management as key priorities in terms of knowledge and support when moving forward.

Implementing **green ICT practices** can be a challenging process, but banks can already start becoming more **sustainable** today by following these steps:

- Identify **environmental criteria** that are most relevant for your organization in terms of ICT equipment management, ICT supplier selection and software development and procurement and review such criteria on a **regular basis.**
- Redefine your organizational structure, IT strategy, and IT governance to incorporate **green ICT budget, green related IT policies and roles**, etc. and perform **continuous improvement.**
- Introduce **more effective device disposal and recycling practices**, specifically for mobile phones.
- Gain a **deeper insight** into your **cloud-related carbon footprint** and introduce a process of implementing **corrective actions.**
- Establish a **monitoring framework** to ensure the consideration of **environmental impact** in software development and SaaS selection.
- Design an **effective process** for locating and **decommissioning** unused or unnecessary devices and connections to **optimize** your data center and maximize **energy saving.**
- Build a strong **awareness** of efficient green ICT practices, important **regulations and market benchmarks**, including key providers and solutions.
- Engage with your customers to **promote green ICT practices** beyond your bank – increase their understanding of your environmental projects, promote **sustainable digital banking** options and help them **track their carbon footprint** related to their banking decisions.
- Incorporate **paperless banking** into your green ICT transformation journey and promote **automated processes** to further reduce your carbon footprint by digitalizing your document management and transactions and developing **sustainable banking applications**.

Let’s talk

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