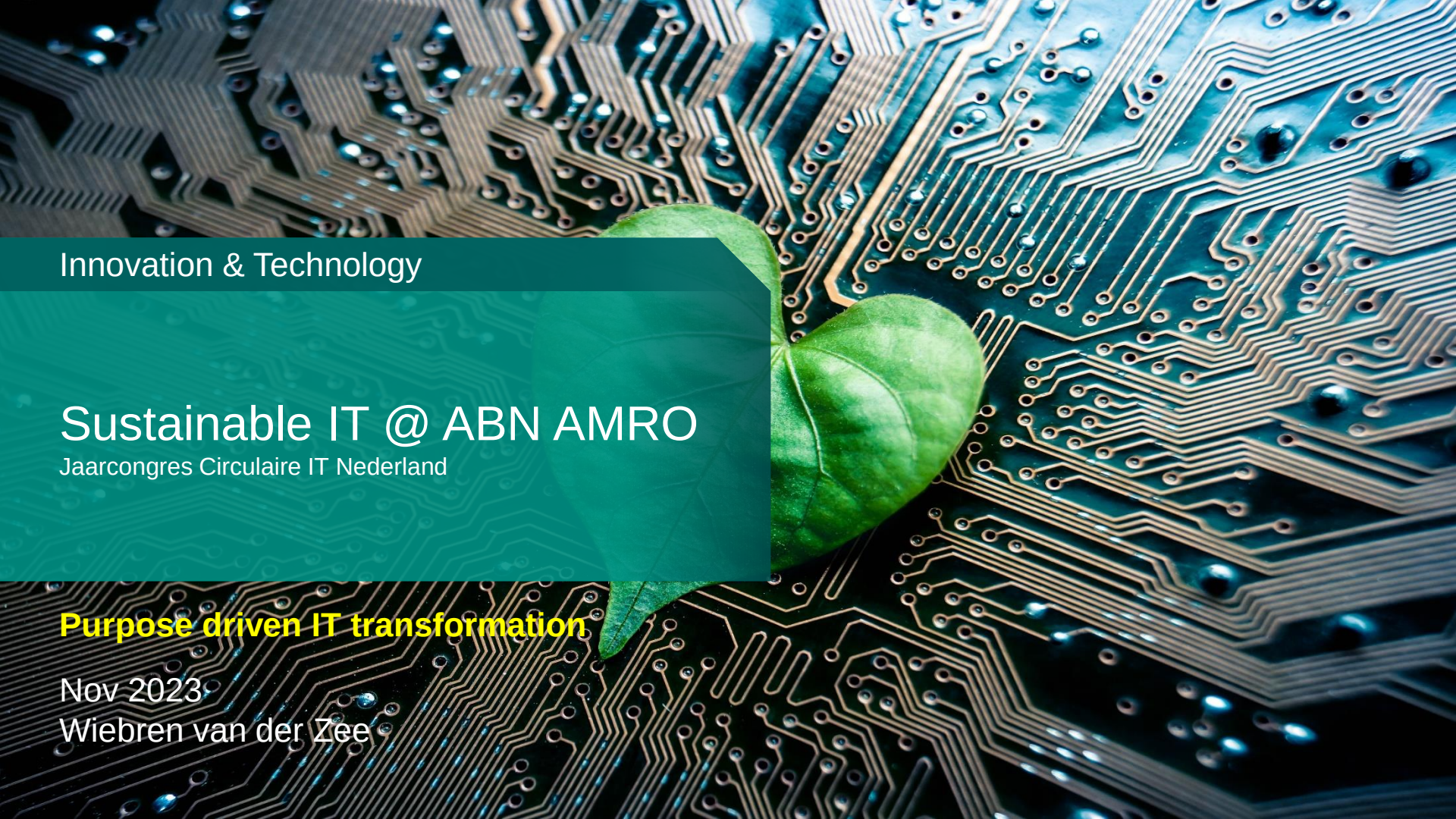


Innovation & Technology

Sustainable IT @ ABN AMRO

Jaarcongres Circulaire IT Nederland

Purpose driven IT transformation

Nov 2023

Wiebren van der Zee

1. Personal Intro

Wiebren
van der Zee
ABN Amro Bank.
CIO Office
25 years+

Roles
- **Domain Expert - Sustainable IT**
- IT Architecture
- IT Product Development
- IT Operations

Contributions
- Speaker/panelmember
- Member SustainableIT.org
- Boardmember NCDD
- Gartner research input
- Position Paper 2019 (internal) ‘Sustainable IT’

Welcome to Sustainable IT

Reducing the impact of IT

Coalitie Duurzame Digitalisering

Nationale Coalitie
Duurzame Digitalisering

SUSTAINABLEIT .ORG

SustainableIT.org

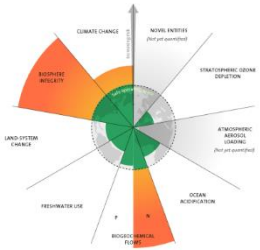
Why?

Crossing boundaries

Creating severe impacts

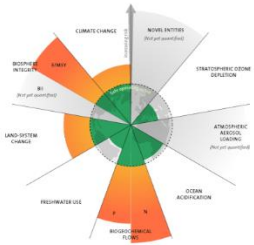
Risking tipping points

2009



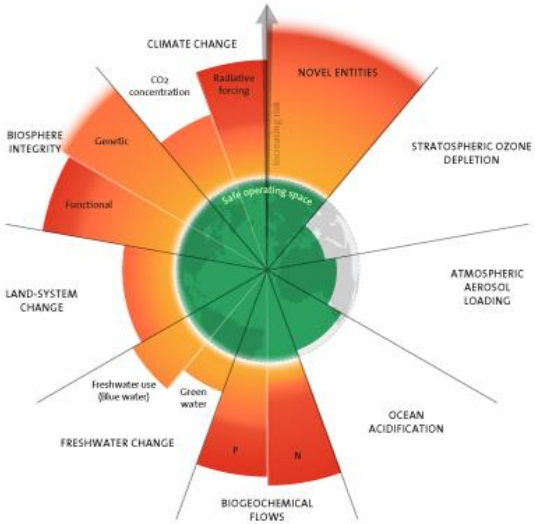
3 boundaries crossed

2015



4 boundaries crossed

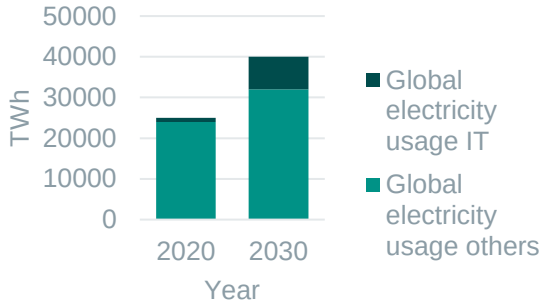
2023



6 boundaries crossed

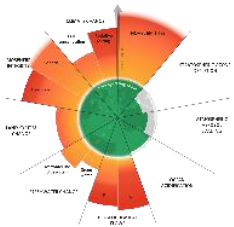
Environmental footprint of IT Sector

Total share of global electricity usage by IT will expand from 4% to 20% by 2030, if IT consumption maintains current trend

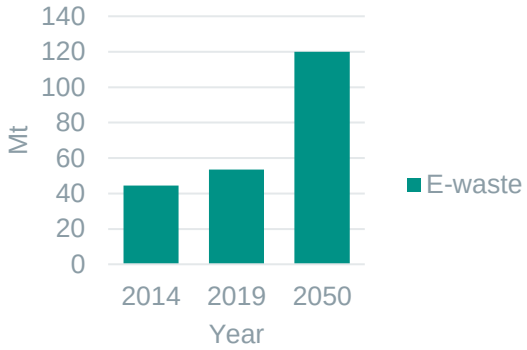


Global **CO2 emissions** 2020 comparison:

- Aviation 2,5%
- ICT 2,1-3,9%



E-waste will increase with 123% by 2050 compared to 2019, if IT maintains current trend



https://www.sciencedirect.com/science/article/pii/S2666389921001884
https://ourworldindata.org/co2-emissions-from-aviation
https://www.sciencedirect.com/science/article/pii/S2352186422002723
https://www.researchgate.net/publication/306120226_The_Internet_Explaining_ICT_Service_Demand_in_Light_of_Cloud_Computing_Technologies

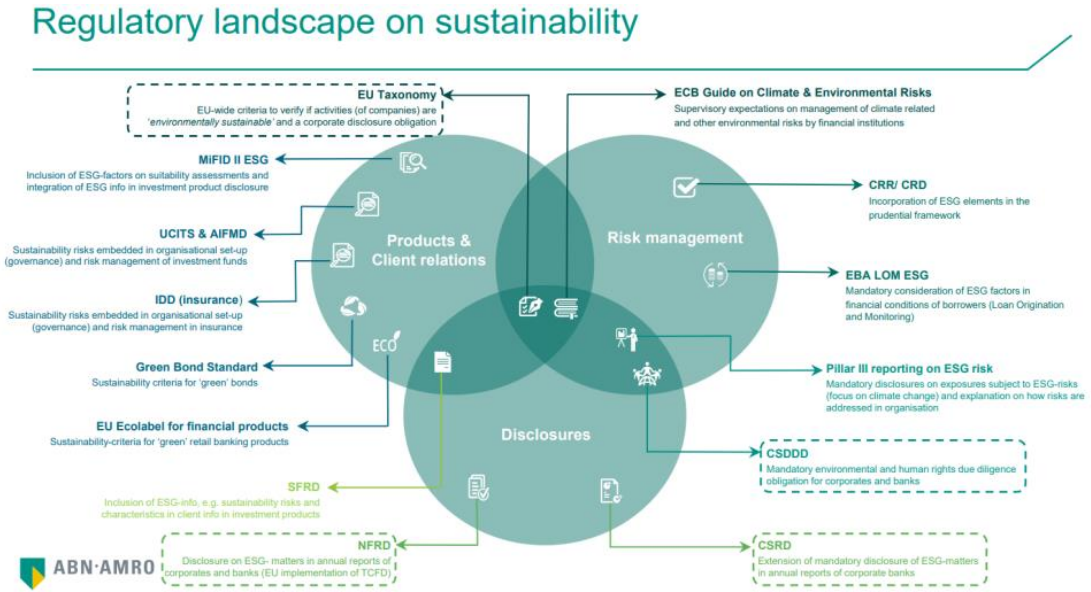
Legislation happening (IT & Business side)

Company
- Climate strategy
- Code of conduct
- Corporate Governance code (2022)

Sector
- ECB guide on Climate & Environmental Risk

Regional/National
- National klimaatplan
- Energiebesparingsplicht/ EML

European
- CSRD if 'Material', report on it, take mitigating actions
  - Our IT is Material so consider it in scope
- CSDDD monitor working conditions and take actions
  - Our IT Supply chains are divers, complex and long...
- EU policies - on datacenters (upcoming)
  - EED specific for DC
  - Green Public Procurement (GPP) Criteria, etc
- Product and Material policies
  - CRMA, Critical raw material act
  - Right to Repair
  - Eco design directives
  - Green Claims Directive, etc



Purpose, Strategy & Call to action

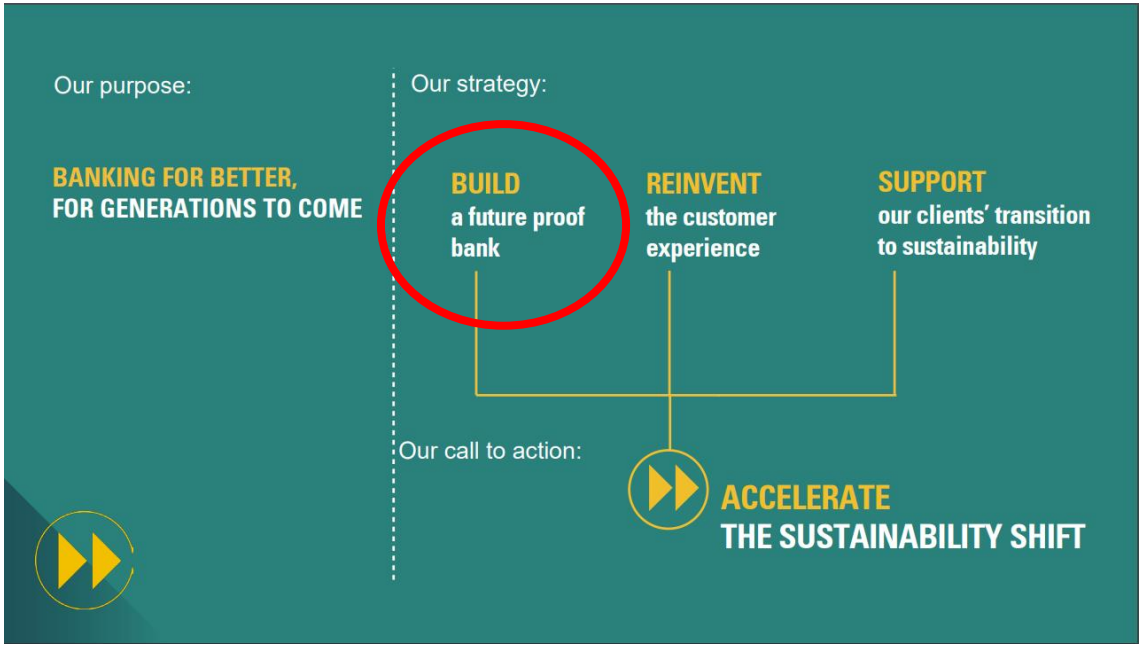
Support for our client's transition

Conditions for our own operations..

Also, our IT Operations!

> We take full responsibility for our own environmental footprint and are committed to ambitious carbon emissions reduction to achieve carbon neutrality across our own operations by 2030

AAB Climate Strategy 2022



Our purpose and strategy - ABN AMRO Bank

- https://intranet.connect.abnamro.com/nl/nieuws/abn-amro-presenteert-klimaatstrategie-in-2022
- ABN_AMRO_Climate_Statement.pdf (ctfassets.net)

ABN AMRO Climate Strategy

Corporate targets & IT is subject to these

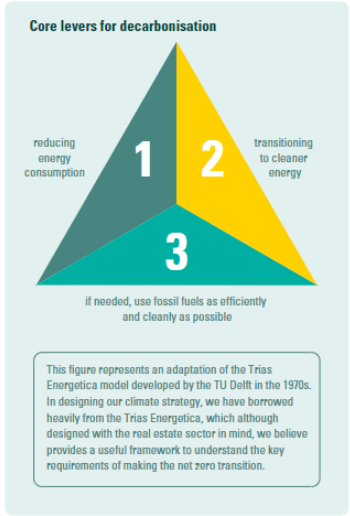
> We take full responsibility for our own environmental footprint and are committed to ambitious carbon emissions reduction to achieve carbon neutrality across our own operations by 2030

Take responsibility

Aligning our portfolio and operations with a net zero trajectory

1. Embed a decarbonisation lens in our engagements with all client segments, starting with Corporate Banking clients
2. Set intermediate portfolio alignment targets for all carbon-intensive sectors in our loan book to achieve net zero by 2050
3. Responsibly bring down the carbon intensity of our client asset portfolios, in line with agreed WACI methodologies, starting with our DPM mandates
4. Achieve net zero operations: we aim to become net zero across our own operations by 2030, against base year 2015

Net zero operations



To achieve net zero, three transitions will need to take place, at the level of the individual clients we work with as well as of the societies in which we operate.

The three global transitions are:

1. Reduction of energy consumption, e.g. by making existing production processes more energy-efficient
2. A rapid move away from fossil fuels towards clean energy such as wind, solar and hydroelectric power
3. Where fossil fuels continue to be used during the transition process, ensuring that their use is as clean and efficient as possible, e.g. by investing in new technologies to mitigate their harmful impact.

In addition to these 3 key transitions, carbon removal solutions are needed to balance residual emissions, especially where technological and financial limitations exist. As these technologies are in their early stages of development, resources are needed to scale them to tackle the short and long-term challenges.

[1] Source: IEA – Net Zero by 2050, A Roadmap for the Global Energy Sector (May 2021).

Reduce energy consumption

More information about AAB Climate strategy

IT Footprint, Handprint & Heart print

IT Footprint

'Sustainability of IT'

(reducing the impact of IT delivery and operations)

IT lowering it's (significant) impact as part of AAB's 'own footprint'. Targets agreed and in place, confirmed and updated by the climate strategy.

Sustainable IT @ ABN AMRO

Nationale Coalitie Duurzame Digitalisering

IT Handprint

'Sustainability by IT'

(contributions to other parts of business operations)

IT assisting to collect and integrate the data needed for Sustainable Financing products, services and reporting

ESG Data Store

ABN AMRO Academy – Sust. Finance

European Green Digital Coalition

IT Heart print

'IT for Society'

(contributions for the good cause)

IT doing good for Society like donating laptops via the AAB Foundations, coding clinics etc.

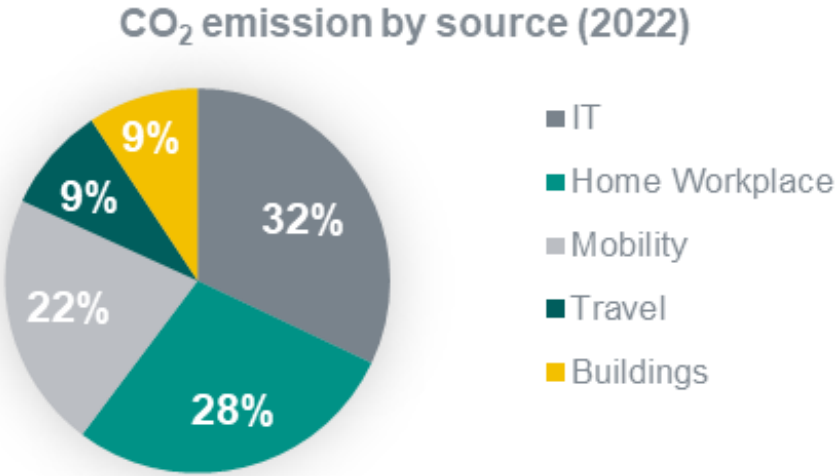
Microsoft and ABN AMRO help refugees build a new career

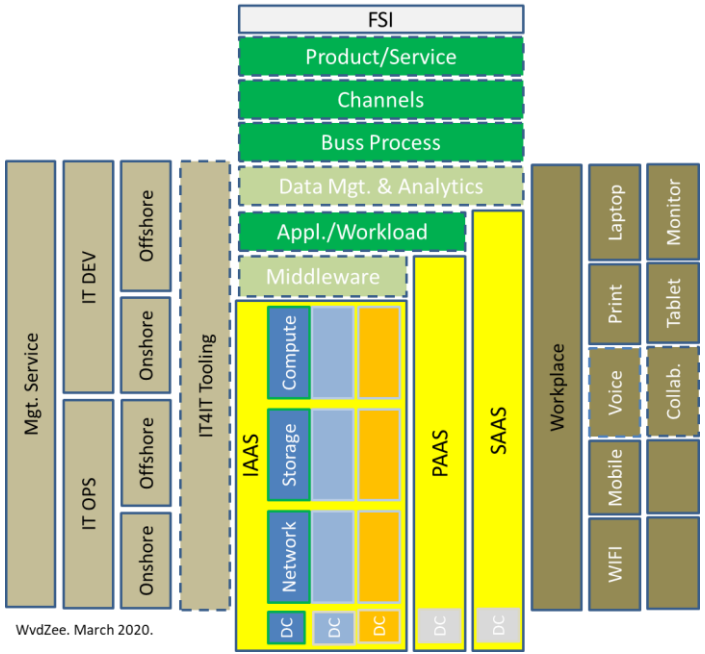
Coding Buddy Program (sharepoint.com)

Tech for Good - SDG Academy

Categories taken from the 'Sustainable IT Playbook' by N. Sundberg

Enterprise IT - Materiality





IT is responsible for the largest part ABN Amro's operational footprint.

Sustainability of IT means addressing the Backend, Frontend and Operating Model of IT.

ABN·AMRO

IT Strategy - Sustainable IT

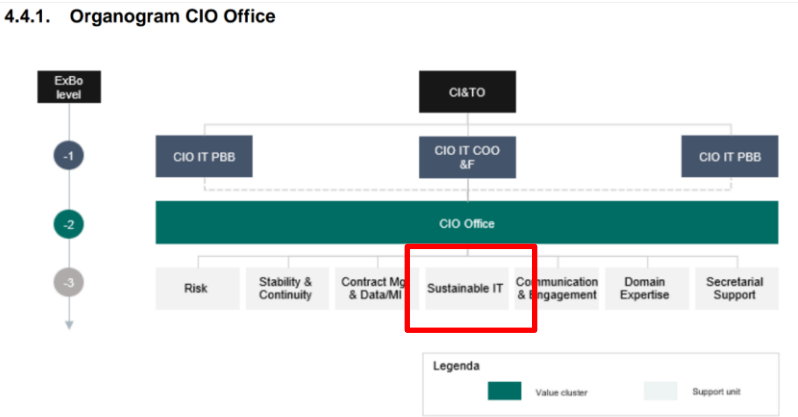
IT Strategy

Sustainable IT a Pillar in the new IT strategy.

To deliver on our net zero ambitions, continuing and expanding on the earlier goals of
50% lowered CO2 footprint by 2025,
100% circular IT assets by 2030.
IT has now entered the implementation phase of its strategic ambition

Organizational change

Sustainable IT positioned in the CIO Office

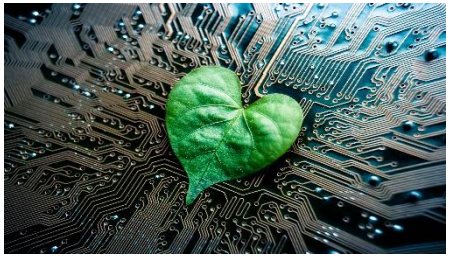


Figuur 5 Nieuwe situatie CIO Office

Implementation phase

Targets are set, the direction is clear.

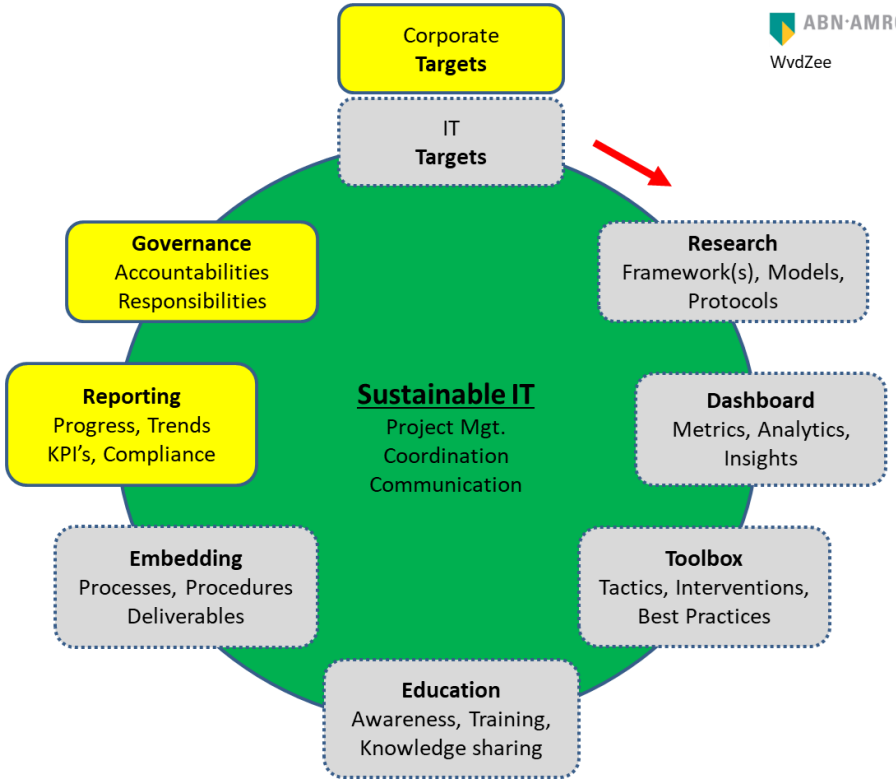
- AAB Homebase > Paris Proof
- IT Homebase > E-reductions/Net Zero/Circular/Social
- Reporting needed & Accountability coming



Sustainable IT - Approach

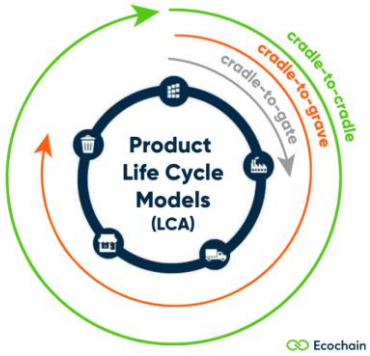
Main elements of ABN AMRO Sustainable IT

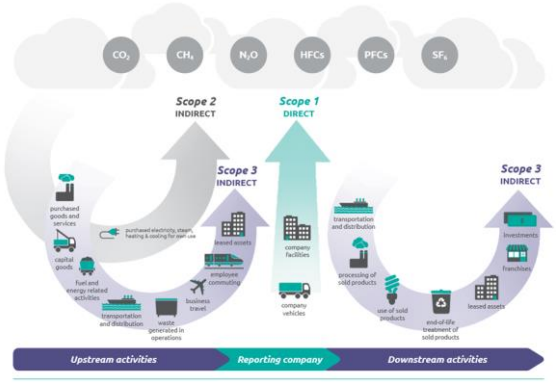
0. Targets
1. Research
2. Dashboard
3. Toolbox
4. Education
5. Embedding
6. Reporting
7. Governance
8. Coordination

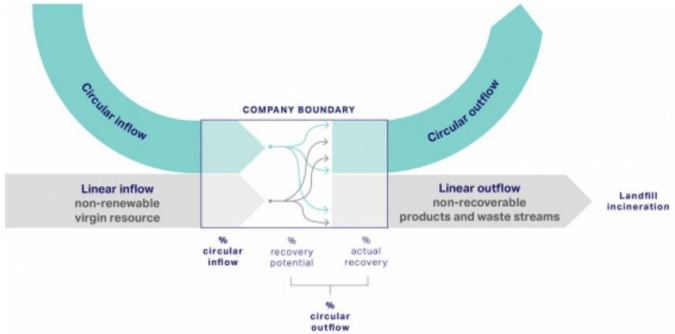


1. Research – Creating transparency on our IT Impact

- **Protocols & Analysis**
  - LCA
  - GHG
  - CTI
- **IT Sustainability**
  - (Architecture) Quality Model (VU)
  - S-rating
  - Maturity model
  - Standards
  - Frameworks
  - etc







LCA = Lyfe Cycle Assessment, Life Cycle Assessment (LCA) - Complete Beginner's Guide (ecochain.com)
CTI= Circular Transition Indicators, Circular transition indicators - World Business Council for Sustainable Development (WBCSD)
GHG = Homepage | GHG Protocol

1. Transparency on our IT Footprint (High level)

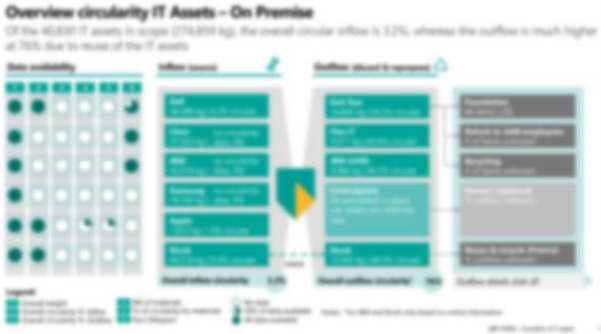
Annual LCA on CO2eq

- Main Categories:
  - IT Assets (DC/Digital workplace)
  - Services (Public Cloud/SAAS)
  - Operating Model (Travel/Commute)
- 2019, 2021 & 2022, 2023 Started

Initial Circularity Analysis (CTI)

- IT Assets
- 2021 Overall (limited data availability & quality)
- 2022 Cisco specific deep(er) dive
- 2023 Follow up CTI Tooling/mgr.

> Will come back on CTI..



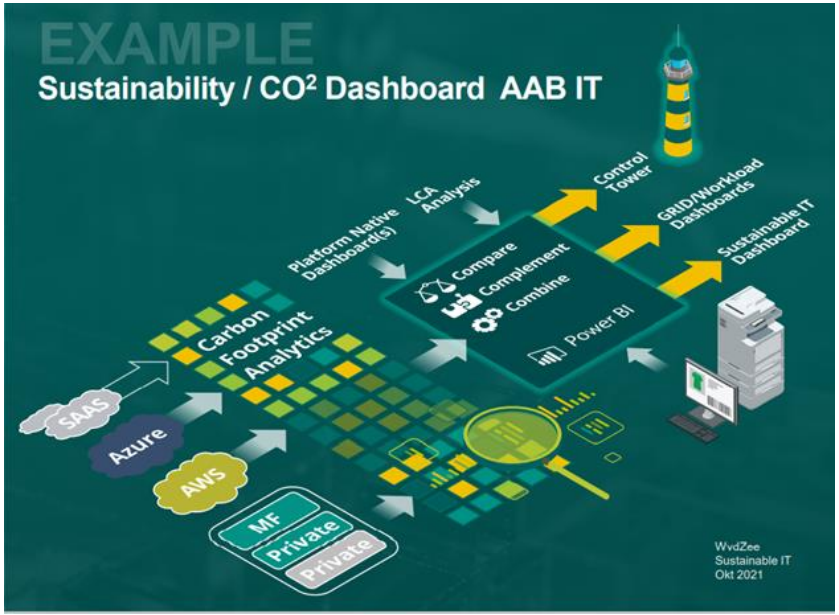
LCA = Lyfe Cycle Assessment, Life Cycle Assessment (LCA) - Complete Beginner's Guide (ecochain.com)
CTI= Circular Transition Indicators, Circular transition indicators - World Business Council for Sustainable Development (WBCSD)

2. Low level insights with the Sustainable IT Dashboard

Finding the hotspots and trends in the IT landscape we created and introduced a near realtime **Sustainable IT Dashboard.**

Showing on a application level **Energy usage** and **CO2 emissions.**

Different views and more Sustainability metrics will follow.
Outputs will be integrated in MI and Tower dashboarding



More info via Product owner: Jasper Behnken

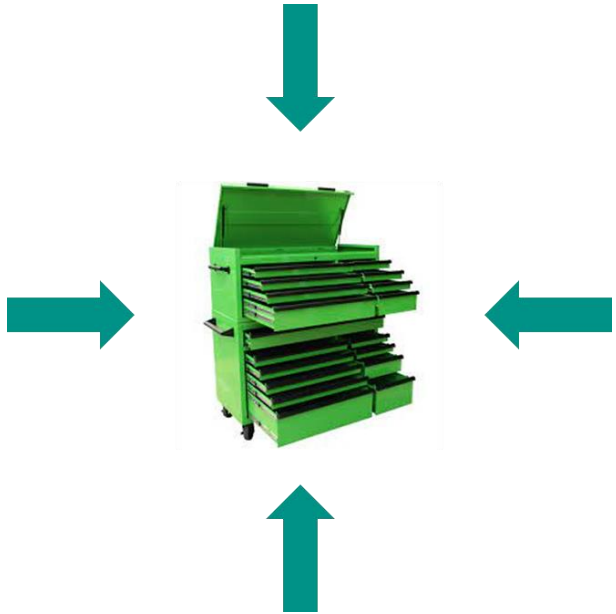
3. DEVELOPING A TOOLBOX OF TACTICS & GREEN CODING PRACTICES

Within IT
- Integrating expertise/knowledge/best practices from IT personnel
- Specific with the **CI (Software development) department,** working on **green coding** aspects in Software design and delivery (Green coding)

Within our IT Ecosystem
- Elaborating with our **IT Partners** to get their insights and best practices..
- Aligning and cooperating with our **Procurement** department
- Learn from **platform best practices**, AWS/Azure/GCS/Salesforce/..

External:
- Cooperations, like with **NCDD, ISIT Europe or SustainableIT.org**
- **Ecochain, Deloitte, KPMG** and **SDIA** for calculating of IT footprints or circularity levels
- Product Certifications (like **TCO certified**/Epeat)
- E-waste compensation (like **Closing the loop**)
- Green Coding tactics from **VU research / ..**
- Dialogues with **other companies** on their best practices
- From Desk research and **Consultancy** firms (like **Gartner**).
- **Green Software foundation**, CNCF, Linux foundation etc
- '**Sustainable IT Playbook**' Niklas Sundberg etc,

Toolbox is published internally on our Sharepoint, (Sustainable IT toolbox)
To be applied during IT Requirement, Solutioning, Procurement, Build and Operation phases.



4. Education

We started multiple initiatives.

- Presentations on Sustainable IT within the bank
- **Workshops** ‘How to reduce your **personal** footprint’
- Workshop ‘How to reduce your **application** footprint’
- **Grid boosting & Energy Challenges**
- Footprint reduction **Hackathons**
- **Circl Academy** track on Sustainable IT

Participation in other initiatives

- **NCDD** workgroups
    - GreenOPS & Architecture
    - DC legislation (for Financials)

Knowledge & Community mgt.

- Teams space
- Sharepoint page
- **Community** Meetings & Events

Welcome to Sustainable IT

5-7. Embedding: IT WOW, Reporting & Governance

Are Roles & Responsibilities defined to reach the Sustainability targets?

Are IT Processes helping to reach the Sustainability targets?

Governance (RASCI) Process	
Reporting Process	
Architecture Process	
Product Development Process	
Risk Mgt. Process	
Procurement Process	
Contract mgt. Process	
Service Level mgt. Process	
Legal Process	
Data mgt. Process	
Capacity mgt.. Process	
Life cycle mgt. Process	
Sourcing (Model)/Vendor Mgt. Process	
HR mgt. Process	
Knowledge mgt. Process	
Data Centre mgt. Process	
Energy mgt. Process	
Tbd. Process	

Illustration only

Do we establish progress towards our Sustainability Targets?

- KPI's, Metric, Analytics, Trends.
- Sustainability Impact Assessment ?
- Reporting
- Compliancy

ISO 14001:2015

CSRD

Auditor(s) & controllers start to verify !

Roadmap to Circularity (abstract)

Circularity roadmap towards 2030
The circularity research has led to a high-level roadmap towards 2030.
The roadmap illustrates that journey and our ambition.

Our approach **aims** for these main steps

- **2024**, Products without a **Bill of Material** (BOM) will no longer make it to the shortlist of a Product owner and Procurement.
- **2025**, Requirement for a **minimum level (%) of circular materials** in the product.
- **2025-2030**, **Raising the level (%)** of circular materials required.

Regulations like the critical raw materials act, product passports and the right to repair will start to underpin this roadmap, as well as IT sector's own ambitions (or compliance to).

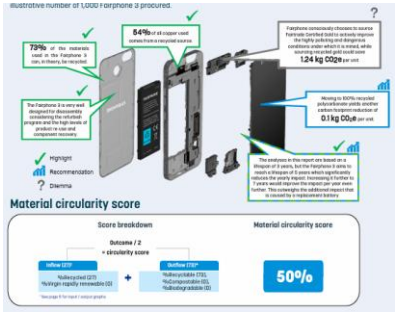
Circularity - Best practices / Use cases / Initiatives

ASUS (2023)
Assessing the circularity of the Zenbook S13 OLED with CTI

Fairphone (2021)
Assessing the circularity of the Fairphone 3 (KPMG/KPN)

- Sector Initiatives - **CEP2030.org**, etc
- Research – **Circular product Design**, etc
- Tooling – **CTI Tooling**, etc

ASUS CTI Analysis (2023)



Fairphone 3 circularity report (2021)

http://www.cep2030.org/
Circular Product Design (tudelft.nl)

https://inergency.com/cti-case-study-asus/
product-circularity-report-fairphone-3.pdf (kpmg.com)

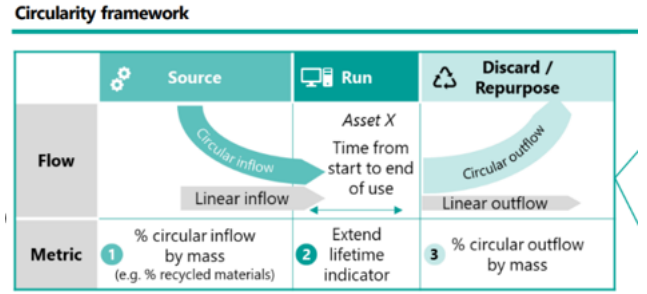
Creating transparency and reporting on Circularity

Circularity Analysis (CTI)

- Inflow > BOM > Where do the materials come from?
- Run > Longevity > How long are they in use ?
- Outflow > ITAD > where do they end up ?

CSRD

- **Report** on resource usage and circular economy
- ESRS E5



CTI= Circular Transition Indicators, Circular transition indicators - World Business Council for Sustainable Development (WBCSD)
https://www.efrag.org E5

Recap: Sustainable IT @ ABN AMRO

2019 Purpose & SDG's

"**Banking for better for generations to come**"
'Accelerate the sustainability shift'

Added with?

SAGA - Sustainable IT - 1528

2020 - IT Internal Targets
50% Lowered **CO2** footprint by 2025
100% **Circular** IT Assets by 2030

2022 – Climate Strategy

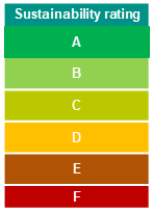
"We take full responsibility for our own environmental footprint and are committed to ambitious carbon emissions reduction to achieve carbon neutrality across our own operations by 2030"

2023 - IT Strategy
Part of IT Recharge

CSRD
CSDDD
EED

Additional **Energy** Targets
DW: **Comply 'Paris Proof' building limits**
DC: **Maintain downward Trend**
Applications: **Reduce ~10% /year/Grid**

Research → Awareness → Approach → Design → **Implement** (KPI's, Monitoring & Reporting) → **Adopt** (Embed, Steer, Improve) → **Results** (Energy/CO2 reductions, Circularity increases, Awards)



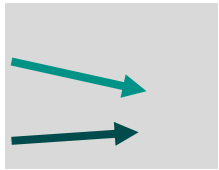
Research

Sustainable IT Dashboard


Toolbox & Ref cards

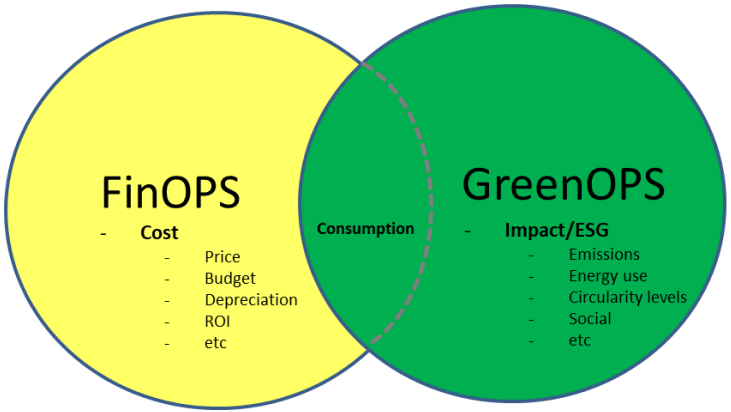

Education

Embedding


Reporting


Awards

Appendices



Sustainability = ~~Cost~~ = Innovation

WvdZee

INTRODUCED THE S-RATING MODEL

A **basic workload Sustainability rating model** has been developed for IT products and is (sofar) based on **resource efficiency**

We aim to place this in the **Design Drivers** for Business (like the CIA ratings)

An advanced IT Sustainability Model is being developed together with the VU in a PhD approach.

Ps. Model was used by Gartner, SDIA and some other companies and institutes.

Sustainability Rating – S

Enhancement to workload classification structure: CIA-P-S

Sustainability Rating	Resource Dynamics Archetypes/Characteristics Applicable on Product, Workload and/or Business process level	Typical Backgrounds, Exceptions, conditions
0 Label A	**'Default-off'** Resources scaling back to 0, when no demand present/needed** Resources dynamically (de)allocated when workload in use*	○ Continuous Rightsizing (CR) on Prod ○ Compute scaling down to 0 ○ Data (I/O, Storage) scaling down to 0 * Functional demand by sessions/transactions/analytics/.. ** Excl. listener/log/orchestrator/backup(s)
1 Label B	**'Default-off'** Resources not scaling back to 0, when no demand present/needed** Resources dynamically (de)allocated when workload in use*	○ Non-Continuous Rightsizing (CR) on Prod ○ Compute scaling down to 0 ○ Data not scaling down to 0, persistent storage
2 Label C	**'Partly-off'** - minimal 3 of 3: 1. No permanently allocated DTA resources 2. No permanently allocated DR resources 3. No permanent allocated Peak load resources	○ Resources reside in shared platform (resource pool) ○ On demand automated (de)provisioning
3 Label D	**'Partly-off'** - minimal 2 of 3: 1. No permanently allocated DTA resources 2. No permanently allocated DR resources 3. No permanent allocated Peak load resources	○ Resources reside in shared platform (resource pool) ○ On demand automated (de)provisioning
4 Label E	**'Partly-off'** - minimal 1 of 3: 1. No permanently allocated DTA resources 2. No permanently allocated DR resources 3. No permanent allocated Peak load resources	○ Resources reside in shared platform (resource pool) ○ On demand automated (de)provisioning
5 Label F	**'Default-on'** All workload resources permanently allocated and active.	○ All Resources are continuously allocated and active. ○ Incl. DR/Peakload/DTA (Development, Test, Acceptance)

WvdZee Febr. 2020

ABN·AMRO

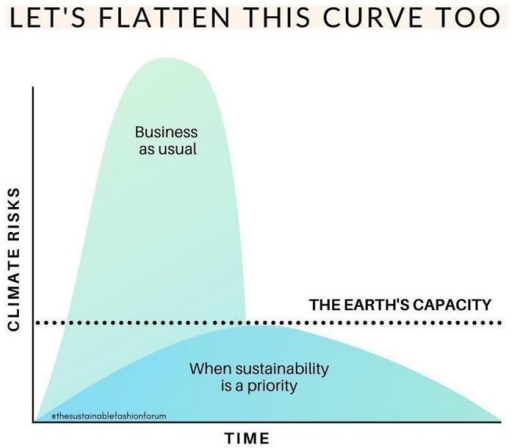
link to Gartner post on Sustainable IT by Shanna Grafeld, model appear in there.

END

“An IT Transformation that does not lead to a lowered impact,

is not the right Transformation”. 2021

Wiebren vd Zee



ABN·AMRO