Regeneration, sustainability and connectivity…

"Displace is the new replace"

Simon Townsend

IGEL FIELD CTO

@Simon_Townsend

IGEL®

ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY

CHALLENGES WITH INFORMATION TECHNOLOGY

CHALLENGE #1 – E-WASTE

50M+

TONNES
OF E-WASTE
EVERY YEAR

HOW MUCH E-WASTE DO WE GENERATE EVERY YEAR?

125,000

jumbo jets which is more than all the commercial aircraft ever created
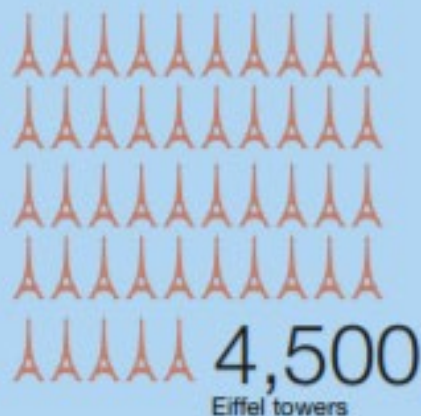
It would take Heathrow Airport in London up to six months, day in and day out, to clear that many aircraft from its runways.

6 months

to clear the runways at Heathrow

This is an equivalent of almost 4,500 Eiffel towers.

4,500

Eiffel towers

Jam them all in one space, side by side, and they would cover an area the size of Manhattan.

the size of

Manhattan

Equivalent to ..

1000

Laptops every second being thrown away

7%

of the Worlds e waste comes from laptops, PCs and phones

UK generated 2nd largest amount of e-waste as a country in 2022

Environment and Energy, Resource Management, Sustainability

19th January 2023

19,000 Tons in 2008

37,000 tons in 2022

55,000 tons by 2030

Rank	Country	Region	National e-waste legislation/policy or regulation in place	E-waste generated (kt)	E-waste generated per capita (kg)
1	Norway	Europe	Yes	139	26.0
2	United Kingdom	Europe	Yes	1,598	23.9
3	Switzerland	Europe	Yes	201	23.4
4	Denmark	Europe	Yes	130	22.4
5	Australia	Oceania	Yes	554	21.7
6	Netherlands	Europe	Yes	373	21.6
7	Iceland	Europe	Yes	8	21.4
8	France	Europe	Yes	1,362	21.0
8	United States	Americas	Yes	6,918	21.0
10	Belgium	Europe	Yes	234	20.4
10	Japan	Asia	Yes	2,569	20.4

BUT DOESN'T EVERYONE USE... ITAD?

In 2021, only 17.4% of E Waste was recycled responsibly....

The rest was illegally dumped in low-income countries..

18M

Children are exposed to these sites

Children as young as 5 are tasked in "processing" e-waste to mine copper and gold

They are commonly exposed to lead, mercury, nickel, brominated flame retardants, and polycyclic aromatic hydrocarbons
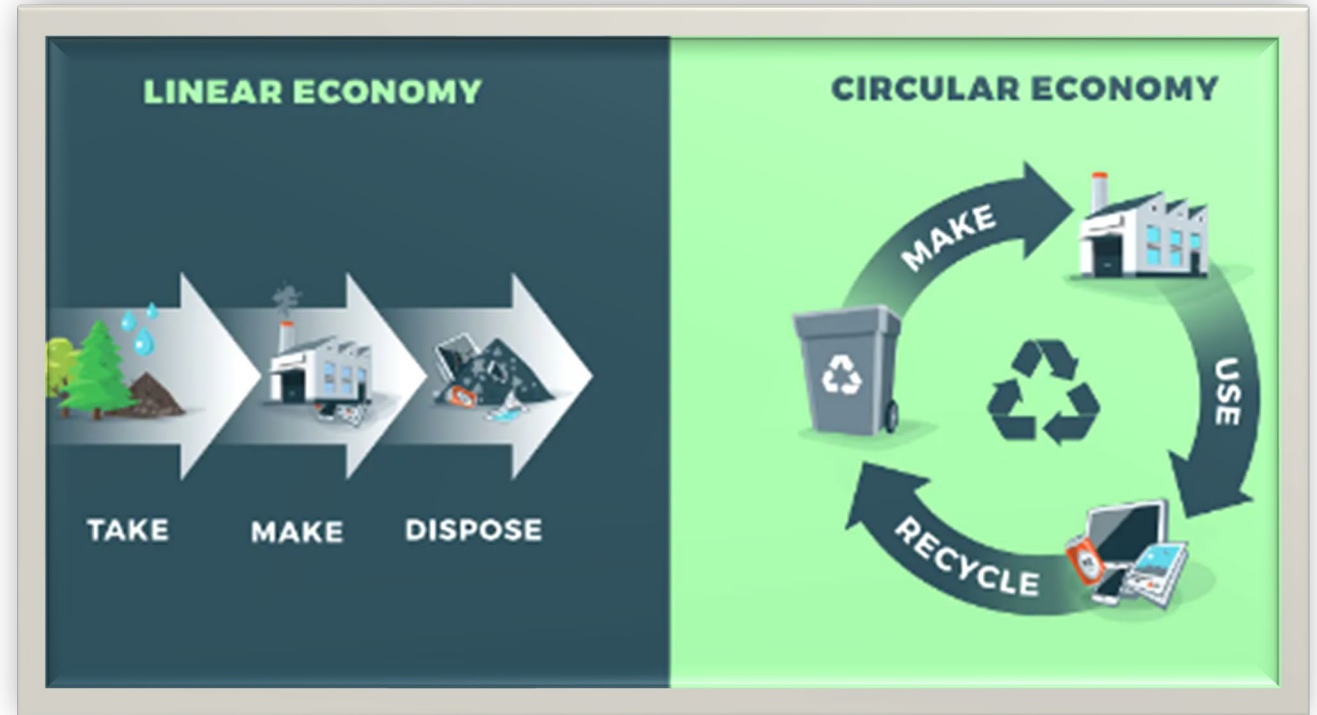
Some GOOD News

The Waste Electrical and Electronic Equipment Regulations 2013

It could get even worse…..
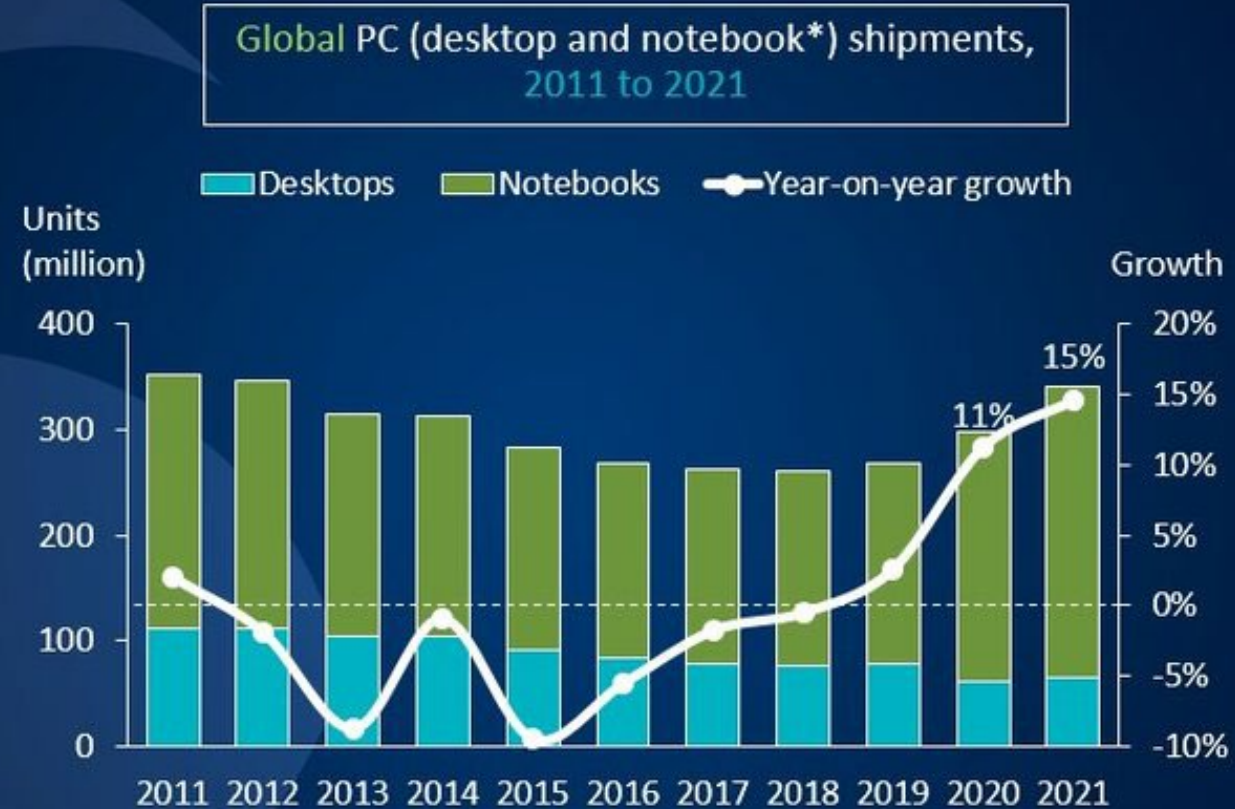
It doesn't end there...
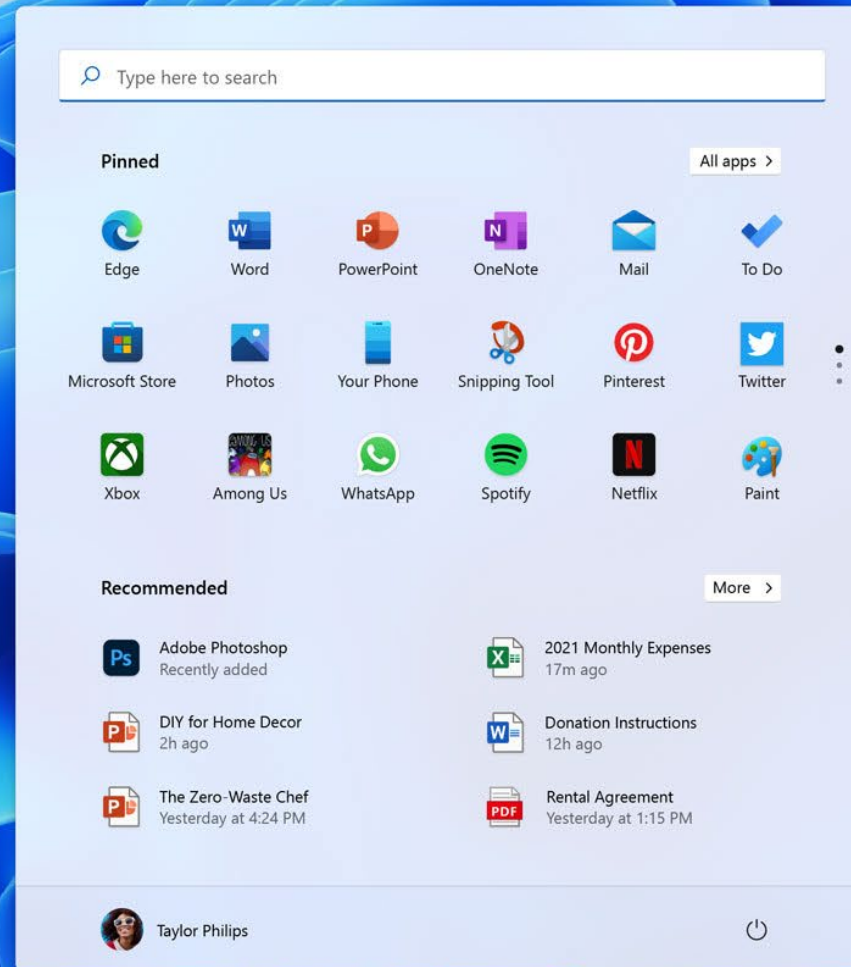
CHALLENGE #2 – Environmental impact

CLIMATE CHANGE

North Atlantic jet stream could migrate NORTH by 2060 due to global warming - leading to dramatic changes in temperature and rainfall in Europe, study warns
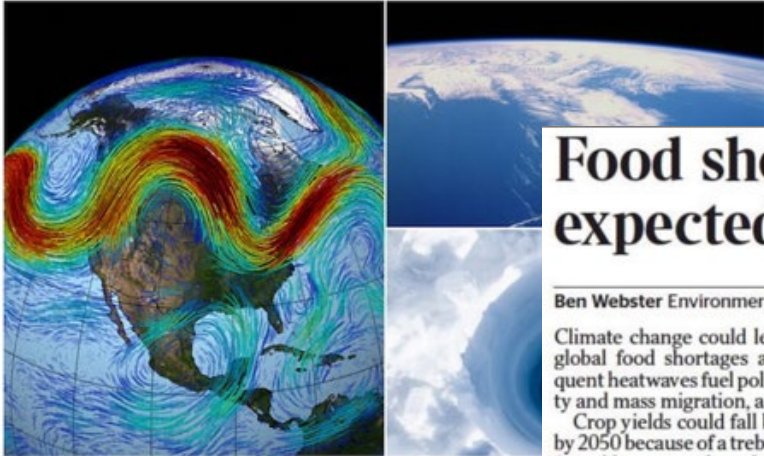
Having drilled into Greenland's ice shee[t] from the University of Arizona extracted past weather conditions going back so[me]

FINANCIAL TIMES   Sign In

Greenland's melting ice cap could trigger extreme seismic events

GREENLAND

Food shortages and wars expected as world warms

Ben Webster Environment Editor

Climate change could lead to wars as global food shortages and more frequent heatwaves fuel political instability and mass migration, a report claims.

Crop yields could fall by 30 per cent by 2050 because of a trebling in land affected by severe drought unless countries step up efforts to cut emissions, the Chatham House think tank said.

There would be almost a 50 per cent chance of two or more of the top four corn-producing countries — Argentina, Brazil, China and the US — simultaneously losing 10 per cent of their normal crop in the 2040s.

About 700 million people a year could be exposed to droughts lasting at least six months by 2040, double the global historic annual average.

The number of deaths caused by heatwaves could increase to 10 million a year in the 2030s, up from almost 300,000 in 2018 in the 65-plus group.

More than 400 million people could by then live in areas where it is too hot to work outside. The report concludes:

"Cascading climate impacts will probably cause higher mortality rates, drive political instability and greater national insecurity, and fuel regional and international conflict."

Separate research by the climate change think tank E3G revealed that hundreds of planned coal-fired power stations had been cancelled, raising hopes that the government can achieve a key goal for the Cop26 climate conference in Glasgow in November of securing a global deal to phase out coal use. Since 2015, 40 countries have committed to building no coal plants, E3G said.

● Northern cities are more likely to reap the economic benefits of net zero than southern towns, according to the Social Market Foundation think tank. The northwest, Yorkshire and northeast are among areas with the greatest potential for gains from jobs created by decarbonisation. Knowsley in Merseyside, with one in ten workers in automotive, heating and cooling industries was the local authority deemed best place to benefit as industries transition to a zero-emission economy.
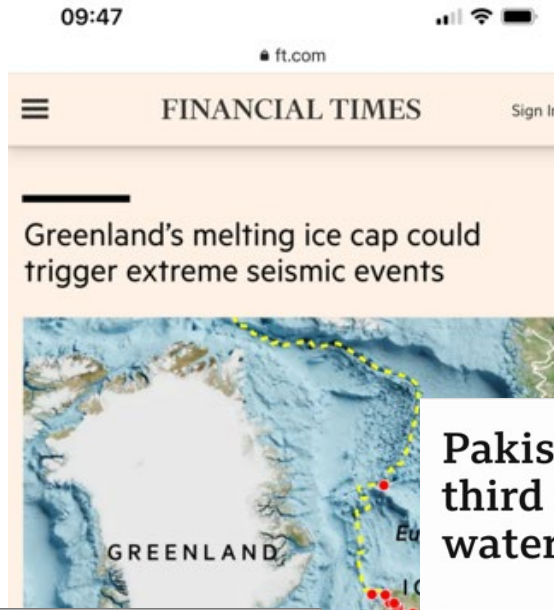
Pakistan floods: One third of country is under water - minister

By Leo Sands
BBC News

29 August 2022
Updated 30 August 2022

EPA-EFE/REX/SHUTTERSTOCK

A flooded street on Monday in Nowshera district

One-third of Pakistan has been completely submerged by historic flooding, its climate minister says.

Devastating flash floods have washed away roads, homes and crops - leaving a trail of deadly havoc across Pakistan.

BBC Home More
NEWS ☰ Menu
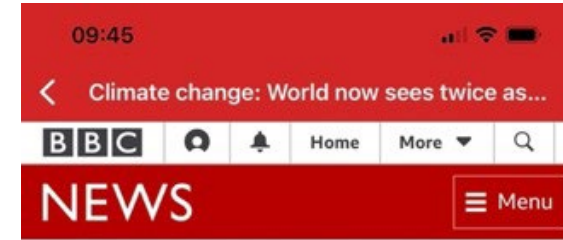
Science & Environment

Climate change: World now sees twice as many days over 50C

By Becky Dale & Nassos Stylianou
Data journalists

🕑 1 day ago

Climate change

The number of extremely hot days every year when the temperature reaches 50C has doubled since the 1980s, a global BBC analysis has found.

They also now happen in more areas of the world than before, presenting unprecedented challenges

IT and Commuting creates over

2.7bn tCO2e greenhouse gas emissions

To remove this level of pollution from our atmosphere requires a forest the size of Canada and Greenland combined.

what are the scopes of carbon emissions?

scope 1

GREENHOUSE GAS EMISSIONS

Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles).

SOURCE: EPA.GOV

greenworldwide SHIPPING

SCOPE 1
Direct Emissions from Reporting Company

scope 2

GREENHOUSE GAS EMISSIONS

Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling and are a result of the organization's energy use.

SOURCE: EPA.GOV

greenworldwide SHIPPING

SCOPE 2
Indirect Emissions from Upstream Activities

scope 3

SCOPE 3
Indirect Emissions from

Upstream Activities
Purchased Goods & Services
Capital Goods
Fuel & Energy Related Activities
Transportation & Distribution
Waste Generated in Operations
Business Travel
Employee Commuting
Leased Assets
and...

Downstream Activities
Transportation & Distribution
Processing of Sold Products
Use of Sold Products
End-of-Life Treatment of Sold Products
Leased Assets
Franchises
Investments

GREENHOUSE GAS EMISSIONS

Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

SOURCE: EPA.GOV

greenworldwide SHIPPING

Traditional IT Thinking

- How can I reduce my IT electricity bill?

- Can I use less IT infrastructure?

- Can I move some of my Scope 2 to Scope 3 by moving to the cloud?

New considerations

- How efficient is my cloud provider?

- What is the carbon footprint of my new devices?

- How am I disposing of my old IT equipment?

- Can I implement "connected" solutions and drive down commute?
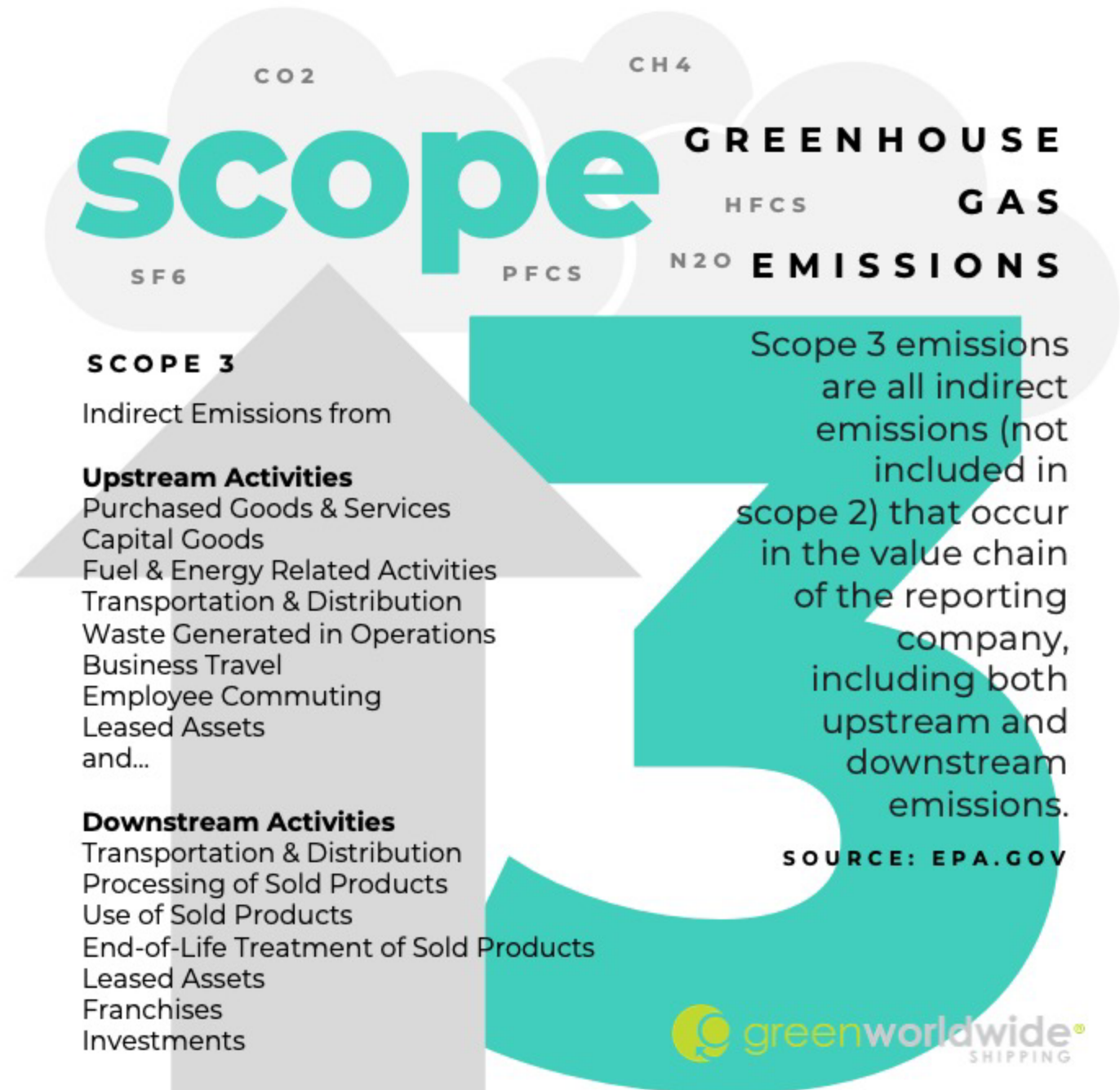
scope GREENHOUSE GAS EMISSIONS

CO2   CH4   HFCS   SF6   PFCS   N2O

SCOPE 3

Indirect Emissions from

Upstream Activities
Purchased Goods & Services
Capital Goods
Fuel & Energy Related Activities
Transportation & Distribution
Waste Generated in Operations
Business Travel
Employee Commuting
Leased Assets
and...

Downstream Activities
Transportation & Distribution
Processing of Sold Products
Use of Sold Products
End-of-Life Treatment of Sold Products
Leased Assets
Franchises
Investments

Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

SOURCE: EPA.GOV

greenworldwide
SHIPPING

422 kgs CO2

61 KgCO2 comes from usage....
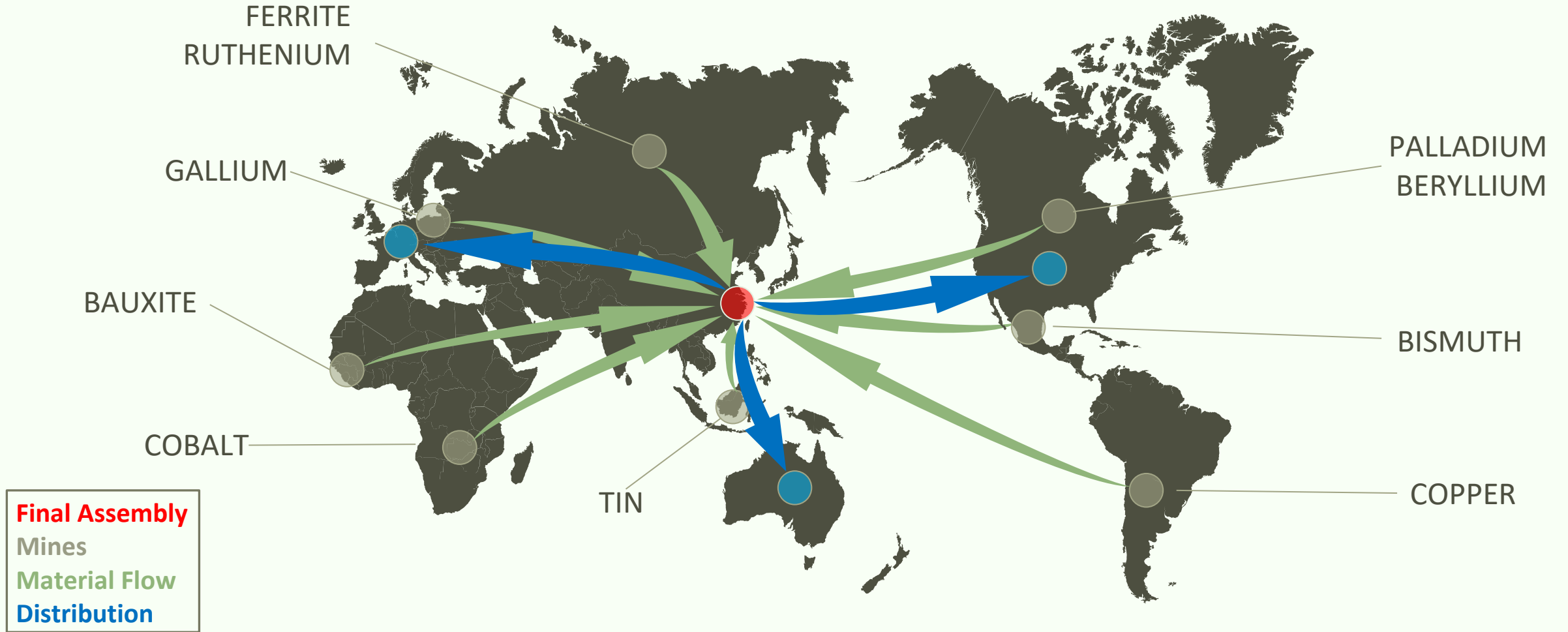Based on 4 years worth of use.

Laptops

Up to **83%** of a device's total carbon footprint is generated during manufacturing

Px³

Sutton-Parker, J. (2021), 'Can meaningful measurement of end user computing energy consumption drive human behavioural changes to abate greenhouse gas emissions?'. Warwickshire, England: The University of Warwick, Computer and Urban Science Department

END USER DEVICE SUPPLY CHAINS

FERRITE
RUTHENIUM

GALLIUM

PALLADIUM
BERYLLIUM

BAUXITE

BISMUTH

COBALT

TIN

COPPER

Final Assembly
Mines
Material Flow
Distribution

One
Computer

190,000
Litres
WATER

2 Tonnes
MINING

400kg
CARBON

Global Desktop Production
320m – 360m pa

Jubilee Mine - SA 6,500
tonnes of copper
Dillon Marsh

CHALLENGE #3 – CONNECTIVITY

CHALLENGE #5 – SECURITY

CHALLENGE #6 – BUDGETS

CHALLENGE #7 DO MORE WITH LESS

CHALLENGE #8 ……..

SOLUTIONS?

Challenge the STATUS QUO

DISRUPT HOW THE EMPLOYEE WORKSPACE IS DELIVERED

CHANGE THE **STATUS QUO** OF DEPLOYING LAPTOPS EVERY 3 YEARS

BRING SIGNIFICANT SAVINGS TO END USER COMPUTING

Px³ On-Line Services

EUC Carbon Footprint Calculator

Sustainable Procurement

Generate a Carbon Footprint Report

Quantify by device type

Select Retention Period

Select Use Location

Free to Registered Users

https://itcf.px3.org.uk/

Sort by CFP, Scope 2 or 3

Filter by device type

Select Retention Period

Filter by Brand

Select Use Location

Generate a Dynamic CFP Report

Compare by selected models

Free to Public Sector Users

https://dcf.px3.org.uk/

More information:

www.px3.org.uk

13 CLIMATE ACTION

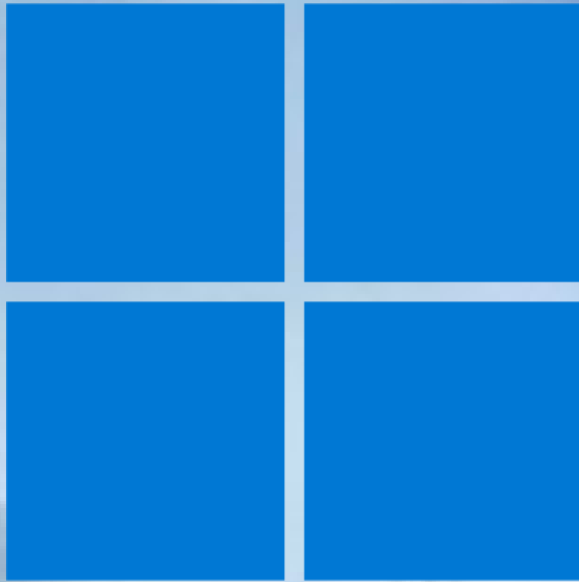# Traditional IT Thinking

- Turn down screen brightness
- Put devices to sleep
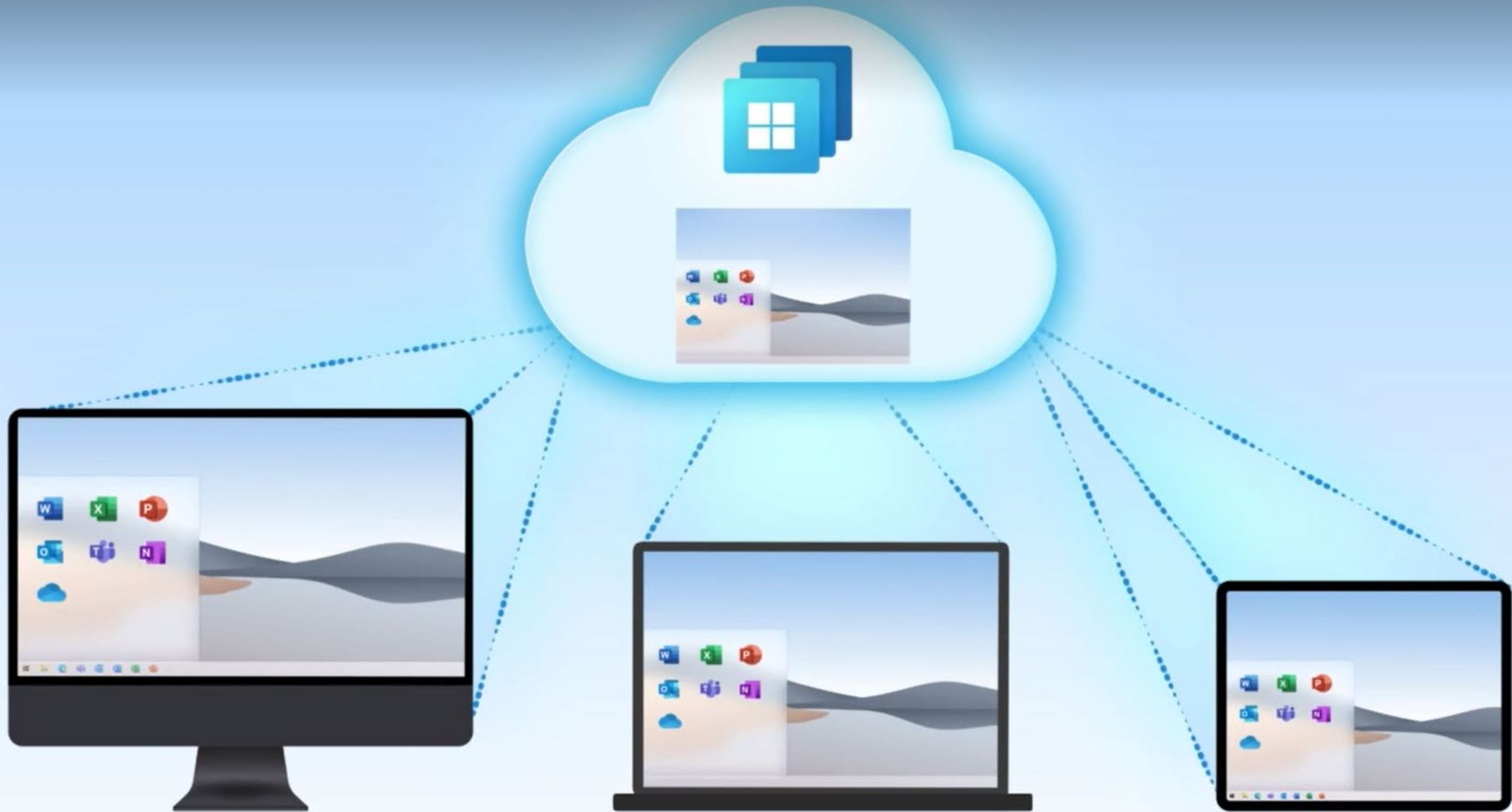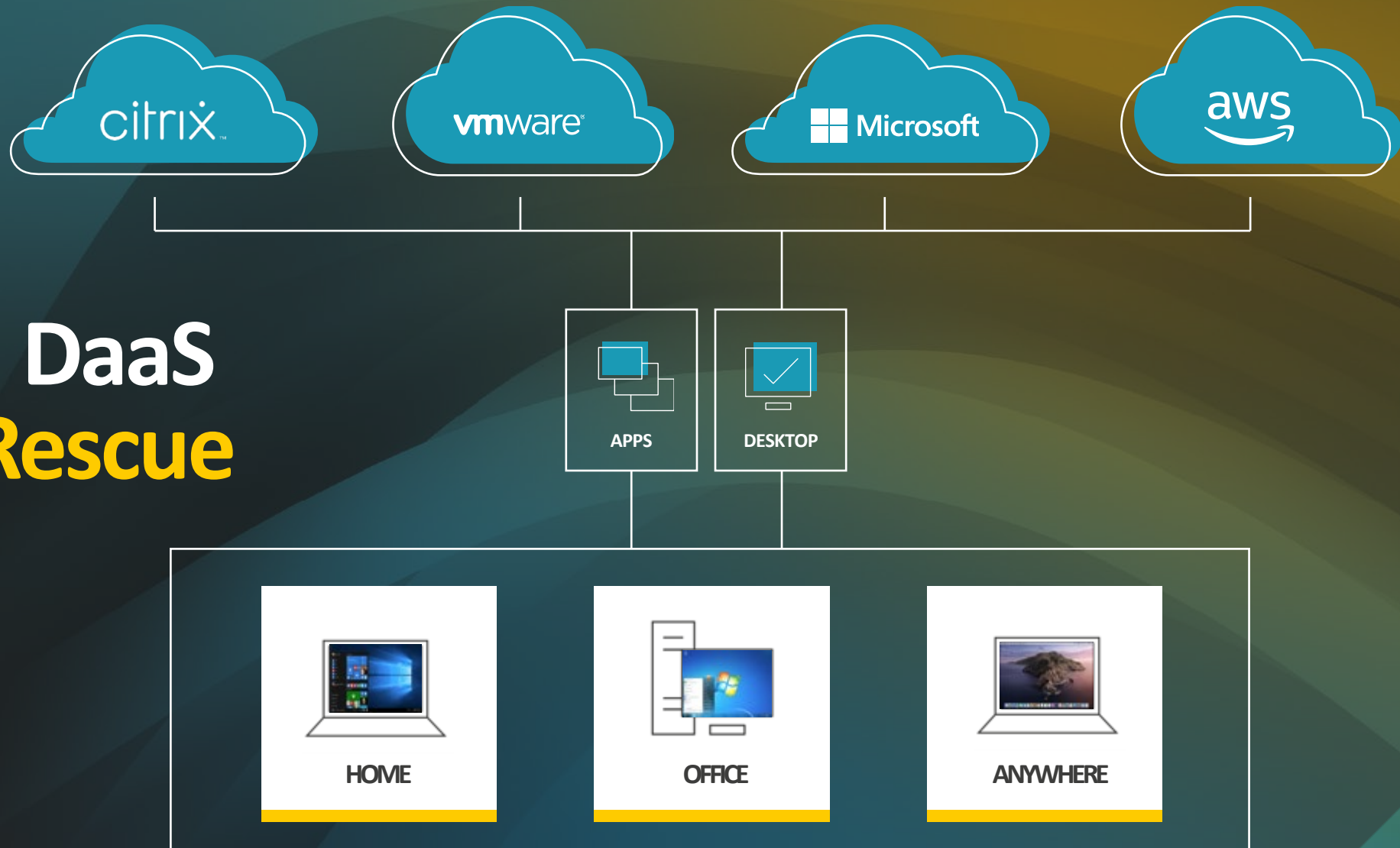- Screensavers
- Throttle CPU
- Hibernation Policies

WINDOWS 365 CLOUD PC

SCOPE 2

SCOPE 3

WINDOWS 365 CLOUD PC SUSTAINABILITY STUDY WITH

Px³

https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW10vtL

The results determine that when applied to a 1,000-user group during the period 2023-2030, cloud computing-based approaches reduce scope 2 emissions by 4% as an average when compared to on-premises operations. Uniquely, Windows 365 Cloud PCs enable device useful lifespan extension and procurement displacement. This reduces scope 3 supply chain emissions by 55% for the period and 77% per capita ongoing. From a total carbon footprint perspective, end user computing greenhouse gas emissions are reduced by 46% for the period and 66% per capita ongoing.
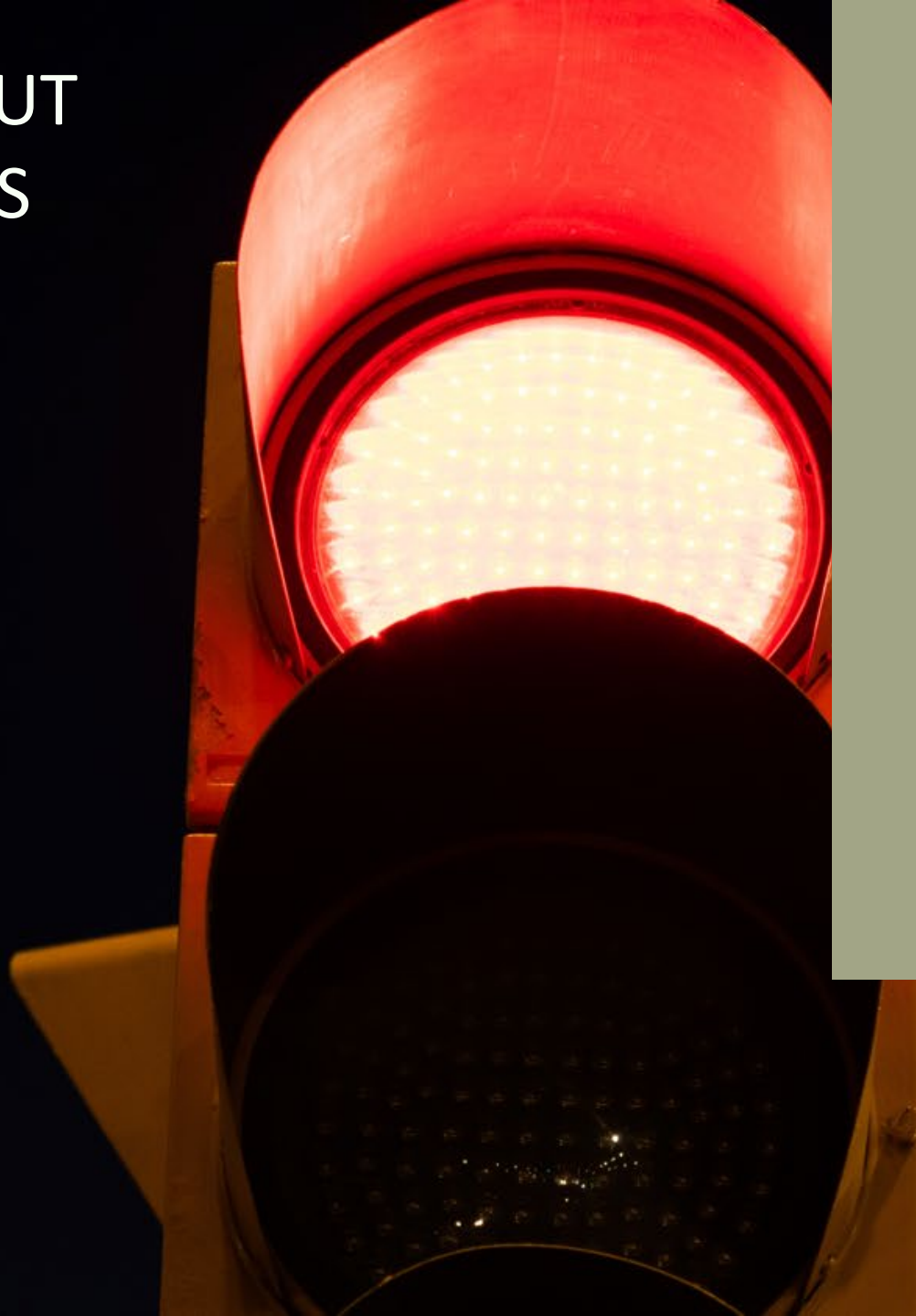
SCOPE 2

Power consumption, etc

4%

SCOPE 3

Procurement Displacement

55%

AND WHAT ABOUT THOSE LAPTOPS

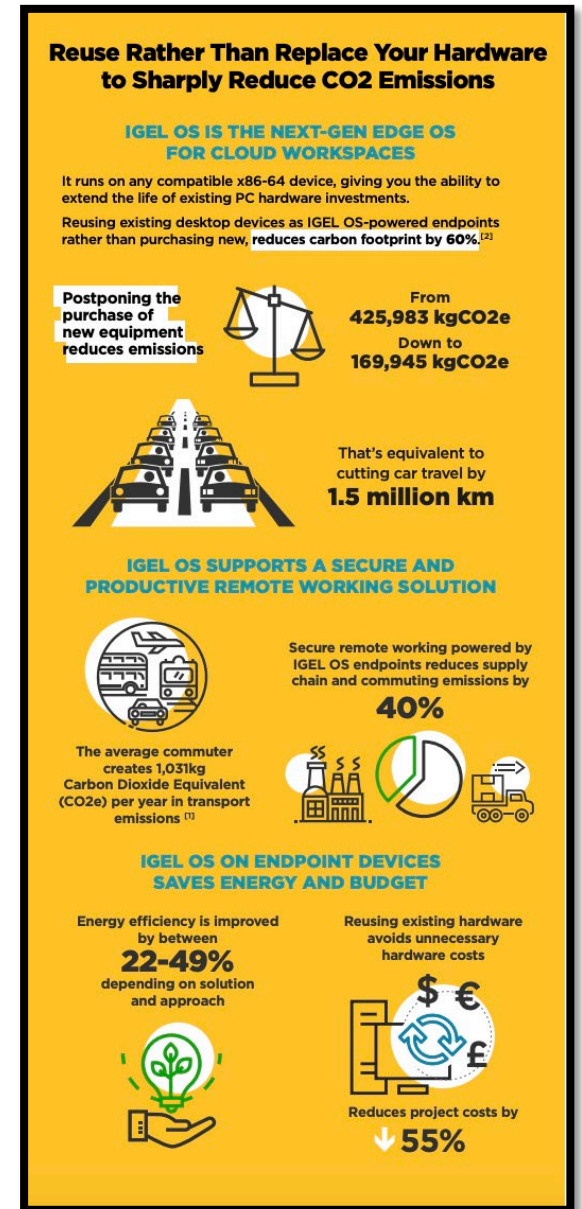EXTEND THE 4 YEAR REFRESH CYCLE WITH IGEL

By repurposing your devices rather than buying new, you can reduce your CO2 footprint by **80%**

Using IGEL OS, you can reduce your endpoint power consumption by over **22%**

By using your devices for longer, you can reduce project costs by 55%

Reducing your device procurement cycles also reduces your e-waste output

Reuse Rather Than Replace Your Hardware to Sharply Reduce CO2 Emissions

IGEL OS IS THE NEXT-GEN EDGE OS FOR CLOUD WORKSPACES

It runs on any compatible x86-64 device, giving you the ability to extend the life of existing PC hardware investments.

Reusing existing desktop devices as IGEL OS-powered endpoints rather than purchasing new, **reduces carbon footprint by 60%.**[2]

Postponing the purchase of new equipment reduces emissions

From 425,983 kgCO2e Down to 169,945 kgCO2e

That's equivalent to cutting car travel by **1.5 million km**

IGEL OS SUPPORTS A SECURE AND PRODUCTIVE REMOTE WORKING SOLUTION

Secure remote working powered by IGEL OS endpoints reduces supply chain and commuting emissions by **40%**

The average commuter creates 1,031kg Carbon Dioxide Equivalent (CO2e) per year in transport emissions [1]

IGEL OS ON ENDPOINT DEVICES SAVES ENERGY AND BUDGET

Energy efficiency is improved by between **22-49%** depending on solution and approach

Reusing existing hardware avoids unnecessary hardware costs

Reduces project costs by **55%**

CASE STUDY

FALKIRK COUNCIL

Falkirk Council introduces VDI and IGEL to deliver workplace flexibility and mobility for over 2,000 staff

Falkirk Council

"One thing that is particularly pleasing about the project is how the council has used technology to save money whilst giving staff tools to work more efficiently and effectively. We're looking very carefully now at how we can release building assets through the use of Citrix and IGEL."

Falkirk Council has implemented virtual desktop infrastructure [VDI] to provide flexible and mobile working for over 2,000 staff and enable it to assess and rationalize its whole office estate to make better use of its building assets.

The customer

Falkirk Council. Located in central Scotland within half an hour of Glasgow and Edinburgh, Falkirk Council provides a diverse and wide range of services to over 160,000 residents including bin collection, education, home care, planning application services, social housing, fostering and adoption services and roads maintenance. The council serves the largest towns in the area such as Falkirk, Bo'ness, Denny, Larbert, Stenhousemuir and Grangemouth - Scotland's premier port and home to its only major oil refinery.

The challenge

Falkirk Council has deployed Citrix WorkSpace as its VDI, mobile device and

Pennine Acute Hospitals NHS Trust invests £5m to upgrade IT infrastructure, refreshing its EUC estate using IGEL

The Pennine Acute Hospitals NHS NHS Trust
The Royal Oldham Hospital

...The use of IGEL OS results in the Trust saving £500k not buying new desktops...

IGEL, provider of the next gen edge OS for cloud workspaces, announces today that Pennine Acute Hospitals NHS Trust has updated its end-user computing (EUC) environment, implementing IGEL OS and UD3 endpoints throughout the organisation.

This is part of a £5 million investment the Trust is making to replace and refresh its entire IT infrastructure including compute, storage, WAN/LAN network and thin client platforms. This significant upgrade project is putting in place modern, class-leading technology to support the Trust, provide high quality clinical care and services for around 820,000 local residents.

Located in the Northeast of Manchester, Pennine Acute Hospitals serves the communities of Bury, Rochdale and Oldham along with surrounding towns and villages. Employing 10,000 staff, it operates four hospitals: Fairfield General Hospital, North Manchester General Hospital, Royal Oldham Hospital and Rochdale Infirmary.

As part of the overall project, the necessity to change the EUC platform was pressing. Pennine Acute Hospital's existing thin client solution was already a decade old, over 2,000 hardware devices were end-of-life and no longer supported; and it had a requirement to expand the use of virtual desktop infrastructure (VDI) and thin clients across the organisation. To complicate matters, the devices couldn't be centrally or easily

kingdom housing association

Bernicia housing group harmonises desktop management with IGEL

desktops across 20 plus sites converted and managed by IGEL's endpoint management software

Reading, UK. October 18, 2018 – Social housing company Bernicia Group has harmonised the management of its entire desktop estate using IGEL's world-leading endpoint management software for the secure enterprise.

The business, based in the North East of England, inherited a mix of ageing PC and thin client desktops as the result of a merger. It was looking for a cost effective, secure and flexible technology solution to manage the desktops across four main sites and more than 20 satellite offices.

"Rather than invest in a whole new fleet of hardware, we decided to use IGEL's Universal Desktop Converter software (UDC) to turn all the devices into IGEL desktops," explained Adam Watson, Network and Infrastructure Manager at Bernicia Group. "It was a vastly more cost effective way to get more value from our existing desktops and to bring them under one management system."

Antony Nolan

NHS
Frimley Health
NHS Foundation Trust

ITAD to Change the World

Sustainable Funding → **ESG for Enterprises** → **Circular Computing** → **100% Donation** →

GLOBAL IT Asset Disposal Services for ENTERPRISE

Mainframe to Mouse
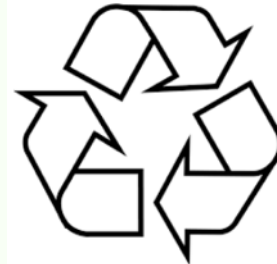
SECURE DATA DISPOSAL

FCA/PRA MOD DOD level
Tracking, Shredding, Certificating

REVENUE from Refurb, resale, or Services to cleanly dispose of electronic Waste

Donating 100% profit to Sun Screen IT Foundation Charity

THIN CLIENT EUC Teaching VOLUNTEERS IT Tech Volunteers from

Children leave School with the skills to build themselves & their communities out of poverty PERMANENTLY.
How awesome is that?!

Sierra Leone & Ghana – W.Africa

- ✓ **Sustainable Thin Client IT Access**
- ✓ **Over 3,500 local pupils per year**
- ✓ **Young adults Vocational Training**
- ✓ **Micro-Revenue for host school via night classes**

sunscreenIT.
Let's make IT better

This afternoon's workshop....

Discuss the modern ways of deploying applications

Discuss the benefits and latest technologies in hosting Windows in the cloud

Demonstrate how IGEL OS can be installed to give devices new lease of life and reduce costs and carbon footprint