COzPro
The Compliant Pathway to Sustainable IT

Scope 3 Sustainability in ICT Primer v1.1

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Document Created 16/09/2025

Digital Sustainability: Working Definition

Defra definition for digital sustainability is the practice of using digital technology and solutions in a way that ensures long term environmental, economic and social sustainability. It is sometimes referred to as 'green IT' or 'sustainable ICT'. This definition recognises the 'green IT' or 'IT for green' dilemma – namely that technology can help address the climate crisis whilst also being a contributor to it.

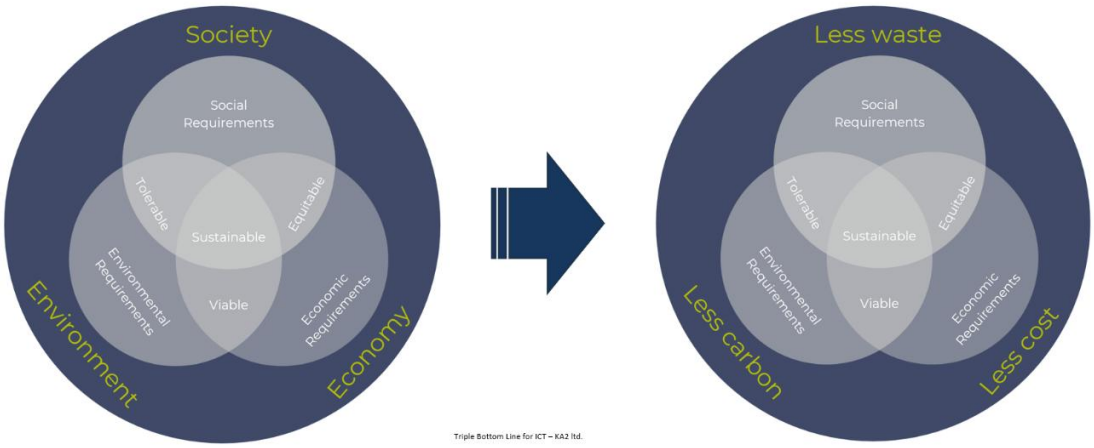
For KA2, Scope 3 digital sustainability refers to the responsible and sustainable use of digital technologies, aiming to minimise their environmental and social impact while maximising their long-term benefits. It encompasses the entire lifecycle of digital products, from design and production to use and disposal, promoting a circular economy and resource efficiency. This includes considering energy efficiency, sustainability in producing and disposing of electronic devices and minimising digital waste, among other factors.

As we can see, a common theme when addressing sustainability is the balance between three key demands: environment, society and the economy. This is often referred to as the Triple Bottom Line.

Triple Bottom Line (adapted) to Sustainable IT

There is a requirement to measure CO2e to enable the reduction of organisational CO2e that is aligned with regulatory and government reporting guidelines. The resulting opportunity to reduce waste and cost complements CO2e reduction. Sustainability is achieved through the relentless focus on balancing these environmental, societal and economic elements and is commonly known as the Triple Bottom Line. For example, encouraging employees to select products that consume less energy reduces both CO2e and cost by using less electricity, and each has a positive social impact.

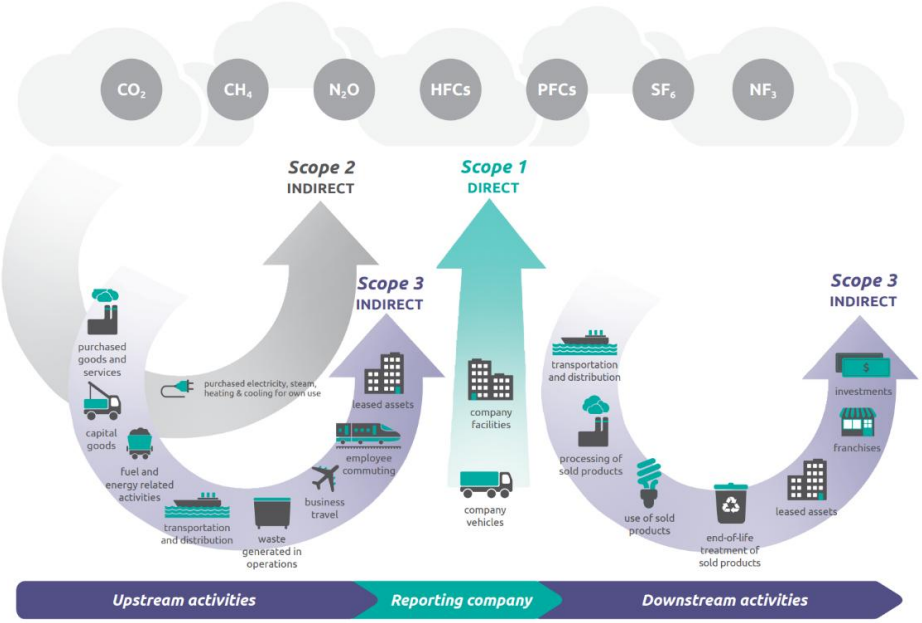
In this model, the balance between the three areas of society, economy and the environment can be seen. Practically, from an ICT perspective, it can be directly translated to reductions in waste, cost and carbon.



The Greenhouse Gas Protocol and Scope 3

From a regulatory and reporting perspective COP26, the International Financial Reporting Standard (IFRS) was tasked with owning and developing the global standard for Sustainability Reporting as enshrined in the International Sustainability Standards Board (ISSB) climate standard, IFRS S2. The ISSB uses the Greenhouse Gas Protocol (GHGP) as the basis for measuring GHG and CO2e emissions.

Therefore, the main framework used globally to measure and audit CO2e reduction is the GHG Protocol as mandated by the ISSB on behalf of the IFRS. The reporting is split into Scope 1 (direct emissions from operations), Scope 2 (indirect emissions from in-life use of energy) and Scope 3 (all other upstream and downstream indirect emissions). Scope 1, 2 and 3 requirements in the GHG Protocol are expressed by CO2equivalent reporting.



Source: Greenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions V1.0

Given that most of a public sector organisation's total CO2e emissions are in Scope 3 it is important to measure beyond Scope 1 and 2 and include Scope 3 data in an organisation's carbon reduction plan. It is also the case that a large percentage of Scope 3 CO2e emissions are in Category 1 Purchased Goods and Service to which ICT is one of the largest contributors.

Whilst our focus for ICT is primarily Category 1, ICT impacts can also be found in Category 2-capital goods and Category 8-leased assets. It should be noted that Category 1 also includes non-IT procurement and that other Scope 3 categories (e.g. Business Travel and Waste) may also be material to the organisation's carbon footprint, depending on the department and activities.

In summary, Scope 3 ICT emissions typically account for 30-50% of the organisation's total CO2e emissions and may be as high as 95% of the organisation's total emissions. This makes the management and reduction of ICT-related emissions an important element of the journey to Digital sustainability.

When it comes to manufactured ICT goods, the GHGP mandates that the best quality emission data at the most detailed level should be used. This is, according to the GHGP, the manufacturer's model-specific data.

CO2e for all manufactured goods is broadly aligned to a lifecycle and to four broad stages of **Manufacture** (Scope3), **Transport** (Scope3), **In-life use** (Scope2) and **End-of-Life** (Scope3). The demand for asset-level carbon reporting for the full lifecycle of ICT assets has resulted in an increasing number of manufacturers creating product carbon footprints (PCF), lifecycle assessments (LCA), and environmental product declarations (EPD). The terms and reports are often used interchangeably.

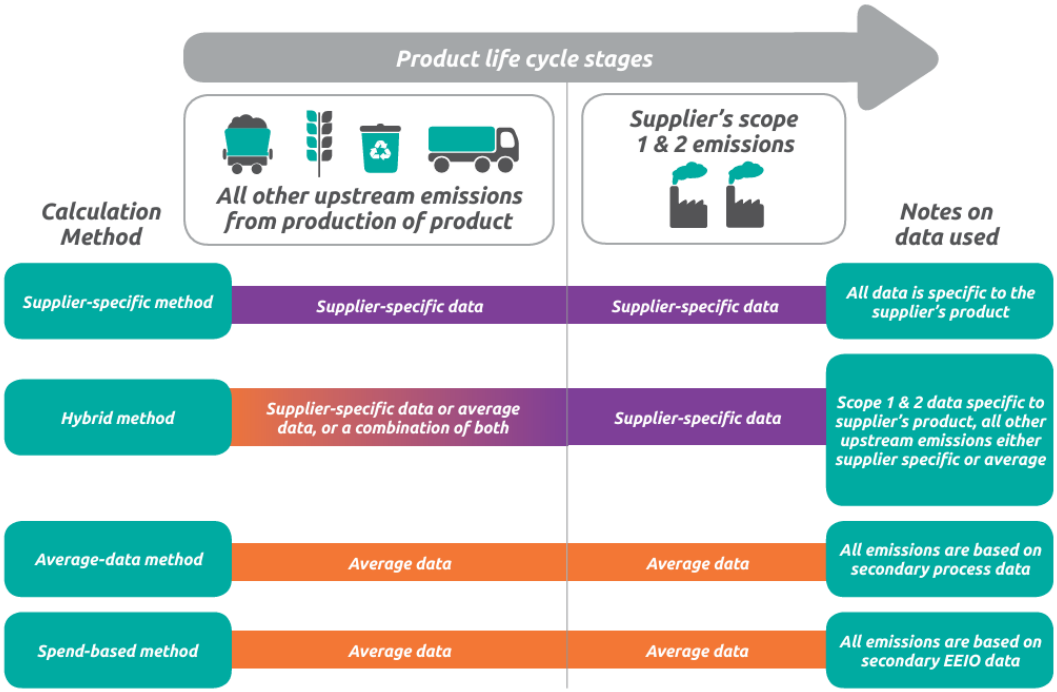
It's important to note that not all ICT equipment manufacturers openly publish this level of data – it is therefore important to request it from your vendors, particularly as part of the purchasing process. Note also that ICT manufacturers use **ranges** and **averages** for their model-level carbon metrics. The key is consistency in your chosen emission data metrics and how you use them for acquisition, reporting and reduction strategies. For example, one recommended methodology is to use the manufacturer's **average** for the asset lifecycle metric and to use the manufacturer's Scope 3 data (the manufacture, transport and end-of-life stages excluding the Scope 2 in-life use data) to assess the embodied carbon intensity of the asset when evaluating the environmental impact of one model or asset type over another to drive carbon reduction.

Scope 2 (in-life energy use) can be captured by assessing kWh utilisation from utility bills and using a conversion factor to convert kWh to CO2e. This will provide more accurate Scope 2 metrics than the manufacturers' conservative assumptions regarding actual use and energy mix than the manufacturer's generic in-life use data. Using a standard conversion unit such as the UK Government STAR algorithm or International

Energy Agency (IEA) conversions, kWh can easily be converted to CO2e to more accurately manage Scope 2 carbon reduction. Whilst monitoring actual in-life energy use for IT assets may be not be cost-effective or practical for workplace environments, it is desirable in a datacentre environment where platform level decisions have a significant material impact on use of electricity.

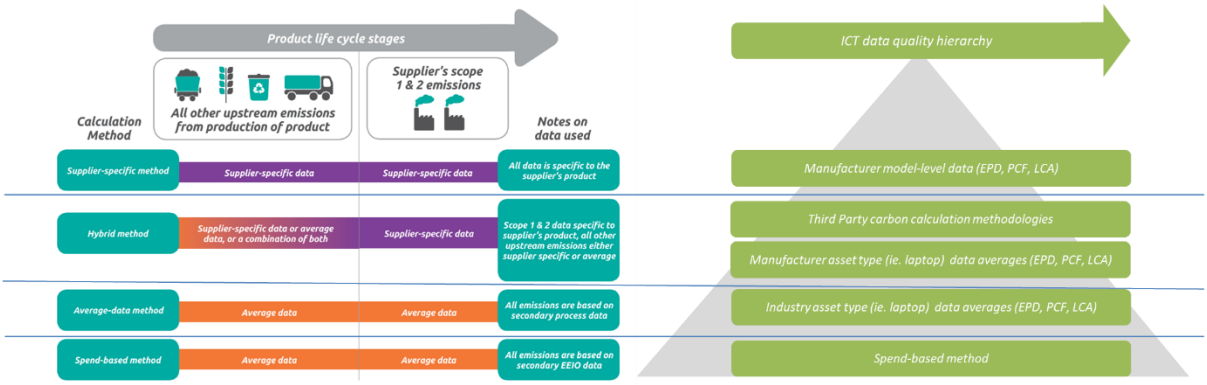
Typically, actionable insights that come from assessing the data will lead to positive environmental (CO2e), social (waste reduction/circularity) and financial (cost optimisation and reduction) outcomes.

Under the GHGP, purchased goods data is graded as follows:



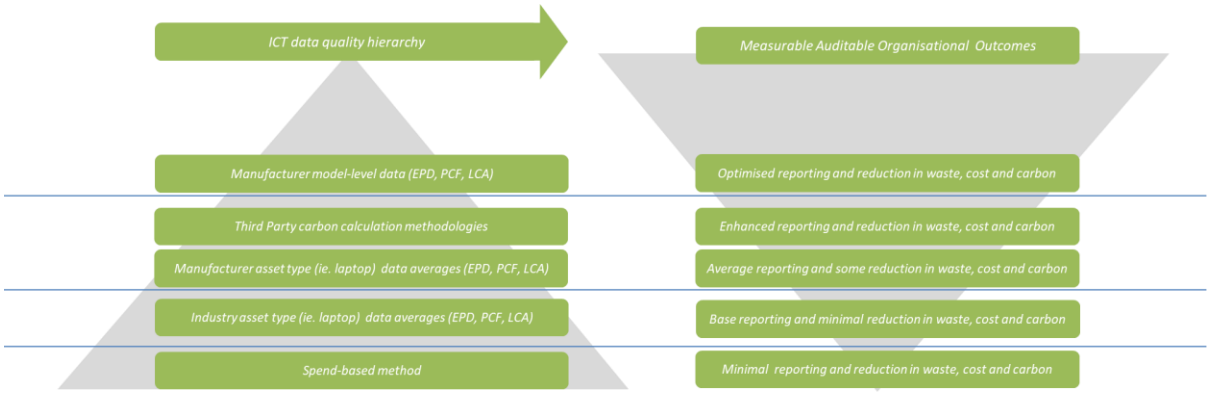
Source: Greenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions V1.0

The more specific the data collected and analysed, the better the outcomes. Where manufacturer data doesn't exist at the asset model level, the next best data is a hybrid calculation using a combination of supplier-specific model data, independent or in-house carbon methodologies and/or industry averages, commonly known as **a proxy**.



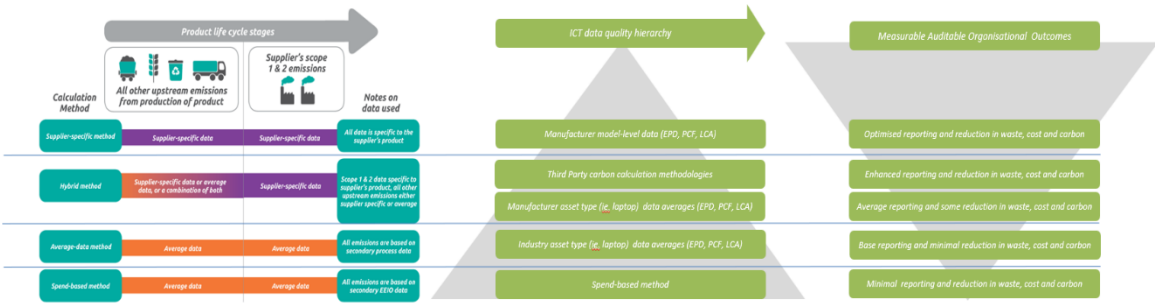
Adapting the GHG protocol to data quality hierarchy and outcomes for ICT – KA2 ltd.

The rule of thumb is: the further removed the proxy (i.e. spend-based which is the furthest away from actual model emissions) is from the manufacturer model-level data (i.e. PCF, LCA, EPD), the less granular metrics are available to support informed decisions around the acquisition, retention and disposal of ICT that drive waste, cost and carbon reductions.



Adapting the GHG protocol to data quality hierarchy and outcomes for ICT – KA2 ltd.

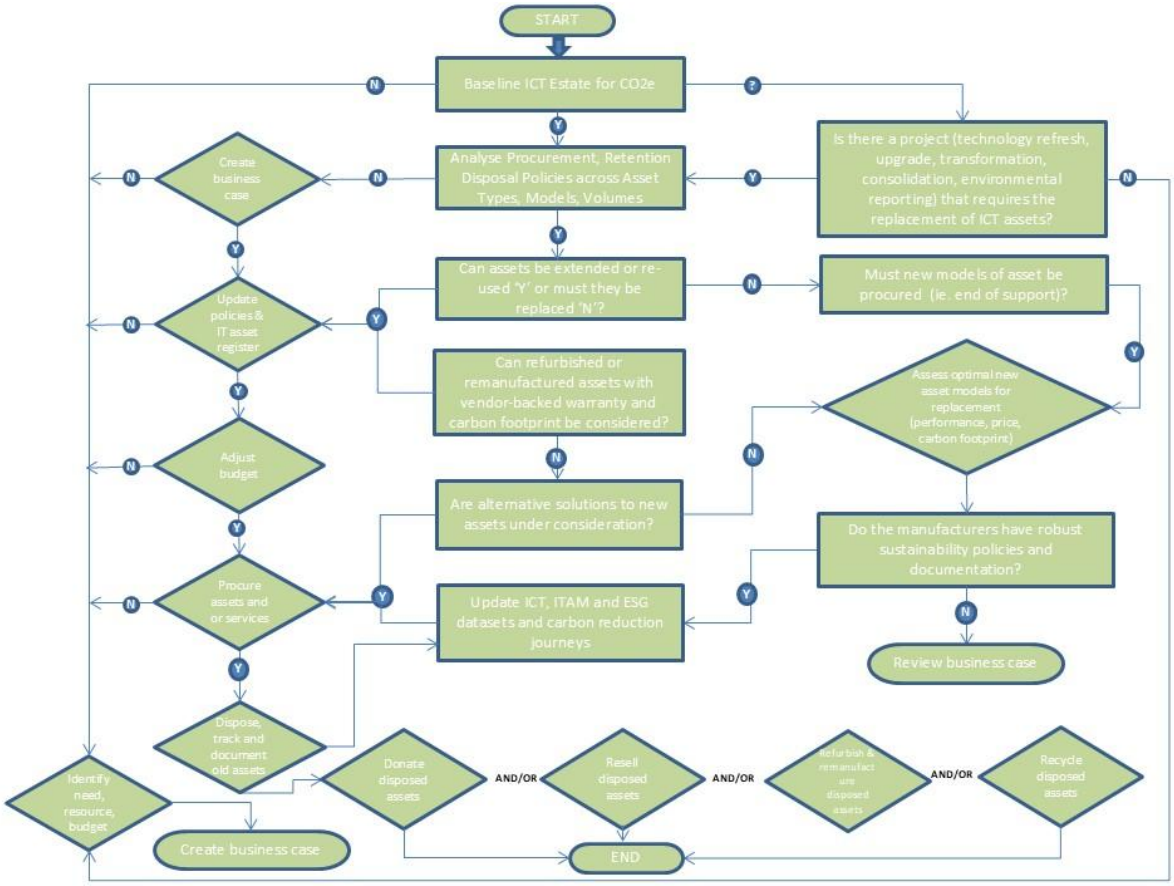
In summary, given that the principal reason for measuring CO2e is to reduce the organisation's carbon footprint over time, the most reliable and easiest way to do this is to use the vendor data for buying greener, more energy efficient models of IT asset using PCF/LCA/EPD data as mandated by the GHG Protocol whilst measuring the actual Scope 2 energy use converted to embodied CO2 using the best quality conversion factor available that reflects the location where it is being used. You can then design reduction strategies by analysing the provider energy data at whatever level is available (office, data centre, floor, cabinet, rack, desk etc). A combination of more sustainably manufactured and energy-efficient assets AND the increased use of renewable energy based on actuals will drive down the carbon footprint over time.



Adapting the GHG protocol to data quality hierarchy and outcomes for ICT – KA2 ltd.

The GDSA ICT Scope 3 Decision Tree

The decision tree (or marble run) below is a tool that provides a visual reference to determine Sustainability in ICT actions and decisions that support the Triple Bottom Line in alignment to the Greenhouse Gas Protocol.



Glossary

CO2e: Carbon Dioxide Equivalent

EPD: Environmental Product Declaration

GHG: Greenhouse Gas

GHGP: Greenhouse Gas Protocol

KPI: Key Performance Indicator

ICT: Information and Communication Technology

IEA: International Energy Agency

IFRS: International Financial Reporting Standard

ISSB: International Sustainability Standards Board

LCA: Lifecycle Assessment

PCF: Product Carbon Footprint

PUE: Power Usage Effectiveness

REF: Renewable Energy Factor

Scope 1: Direct emissions from operations

Scope 2: Indirect emissions from in-life use of energy

Scope 3: All other upstream and downstream indirect emissions

WUE: Water Usage Effectiveness