

ITAM REVIEW
FROM ITAM FORUM

An Introduction to Scope 4 Emissions for ITAM



By AJ Witt, ITAM Analyst, ITAM Forum

Introduction

For ITAM teams, sustainability is a core responsibility and opportunity. Managing hardware, software, and cloud resources now comes with the ability to track, reduce, and report carbon emissions. Understanding emission scopes—from direct operational emissions (Scope 1) to supply chain impacts (Scope 3)—is key to making informed, sustainable decisions. These Scopes, defined by the [Greenhouse Gas Protocol](#), are the pre-eminent method for measuring environmental impact.

But now, the landscape is shifting. A newer concept, **Scope 4 (avoided emissions)**, is gaining traction, particularly in IT, as organisations seek to quantify the emission reductions enabled by digital transformation, circular IT models, and efficiency-driven software. Whilst not part of the GHG Protocol (yet), Scope 4 provides compelling evidence to shore up support for environmental initiatives that may be under pressure from geopolitical events or budget constraints.

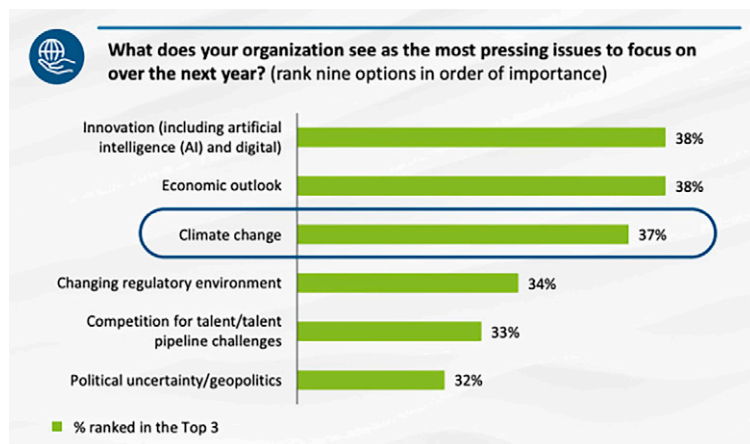
This article explores Scopes 1, 2, 3, and 4 with a particular focus on how ITAM professionals can apply these frameworks to reduce environmental impact and align IT asset strategies with corporate sustainability goals.

Scope 1: Direct Emissions
(Minimal but relevant for ITAM)

Scope 2: Indirect Energy Emissions
(A key focus for ITAM)

Scope 3: Indirect Greenhouse Gas Emissions
(The biggest challenge for ITAM)

Scope 4: Avoided Emissions
(Speaks directly to our historical core competency of cost reduction and avoidance)



[Deloitte 2024 CxO Sustainability Report](#)

Breaking Down the Emission Scopes for ITAM

Scope 1: Direct Emissions (Minimal but Relevant for ITAM)

Scope 1 covers emissions from sources an organisation owns or controls directly. While IT Asset Managers are not typically responsible for fuel combustion or industrial processes, there are relevant Scope 1 considerations.

On-premise datacenters:

If your company owns and operates its datacenters, the emissions from backup generators, cooling systems, and other onsite energy sources fall under Scope 1.

ITAM can work with Facilities Management and IT Ops to quantify and track these emissions. Many on-prem datacenters will be managed using Data Center Infrastructure Management (DCIM) tools that track Scope 1 emissions.

Company-owned IT manufacturing or refurbishment facilities:

If your organisation refurbishes IT equipment in-house, emissions from energy use or solvents may apply.

Although ITAM has limited control over Scope 1, reducing reliance on on-prem infrastructure and supporting efficient hardware usage can contribute to overall reductions.

Scope 2: Indirect Energy Emissions (A Key Focus for ITAM)

Scope 2 covers emissions from purchased electricity, steam, heating, and cooling.

For IT Asset Managers, this means:

1. Optimising hardware utilisation in offices, warehouses, and data centers can significantly impact Scope 2. As with Scope 1, data relating to this emission scope may be available from DCIM tools operated by IT Ops.
2. While cloud computing emissions are generally considered Scope 3 (since they occur outside your direct operations), if an ITAM function directly procures cloud services, selecting renewable-powered providers can influence Scope 2 emissions. Actions like choosing energy-efficient hardware, implementing power management policies, and consolidating workloads to reduce server sprawl can all contribute to Scope 2 reduction.

Does your organization have a defined sustainability initiative that includes carbon footprint tracking of cloud use?



N=759
Source: Flexera 2025 State of the Cloud Report (Figure 45)
flexera

Cloud cost optimization and sustainability prioritization



N=759
Source: Flexera 2025 State of the Cloud Report (Figure 46)
flexera

[The Flexera 2025 State of the Cloud Report](#)

Scope 3: Indirect Greenhouse Gas Emissions (The Biggest Challenge for ITAM)

Scope 3 is where most IT emissions lie—often accounting for 80-90% of an organisation’s total footprint. These emissions come from sources outside an organisation’s direct control but within its value chain.

For IT Asset Managers, Scope 3 includes:

<p>Supply chain emissions:</p> <p>The carbon footprint of manufacturing and transporting IT equipment.</p>	<p>Cloud computing services:</p> <p>When cloud services are consumed rather than owned, their emissions typically fall under Scope 3.</p>
<p>Business travel and employee commuting:</p> <p>ITAM teams that manage remote work IT policies can influence these emissions.</p>	<p>End-of-life hardware disposal:</p> <p>Improper e-waste handling leads to emissions from landfill and incineration.</p> <p>Since ITAM professionals manage hardware lifecycles, vendor selection, and procurement, they can play a critical role in reducing Scope 3.</p> <p>Strategies like choosing lower-carbon suppliers, extending asset lifespans, and implementing take-back programs can all drive Scope 3 reductions. Furthermore, as remote work faces a ‘back to the office’ backlash, there is an opportunity to measure the impact on Scope 3 from equipment refreshes and right-sizing on-premises hardware provision.</p>

The Evolution of Scope 4: Avoided Emissions and IT's Role

What is Scope 4?

Scope 4, also known as avoided emissions, refers to carbon reductions enabled by an organisation's products, services, or policies. Unlike Scopes 1, 2, and 3 (which measure emissions produced), Scope 4 focuses on how IT solutions can prevent emissions from occurring elsewhere. In short, it measures the green side of the carbon balance sheet whereas Scopes 1 to 3 look at the red in the ledger.

Many ITAM teams routinely track cost avoidances generated from their activities – for example, by reducing renewal quantities and revising/dropping support contracts. Tracking emissions avoidance is similar and provides a way to accurately forecast the total cost (environmental and financial) of hardware and software procurement and management. By doing so, it becomes possible to justify, for example, a switch to more modular and repairable devices, even if they are more expensive from a financial cost perspective.

Why Was Scope 4 Introduced?

The GHG Protocol does not officially recognise Scope 4, but it has emerged due to corporate pressure to measure positive environmental impacts. In IT, digital transformation has led to significant emissions savings—from replacing business travel with video conferencing to shifting workloads to energy-efficient cloud platforms.

Companies wanted a way to account for these benefits—hence, the introduction of Scope 4 as an unofficial but increasingly recognised framework.

How IT Asset Managers Can Influence Scope 4 Emissions

While Scope 4 is not yet standardised for ESG reporting, ITAM professionals can use it to demonstrate the sustainability benefits of strategic IT asset decisions. Key areas include:

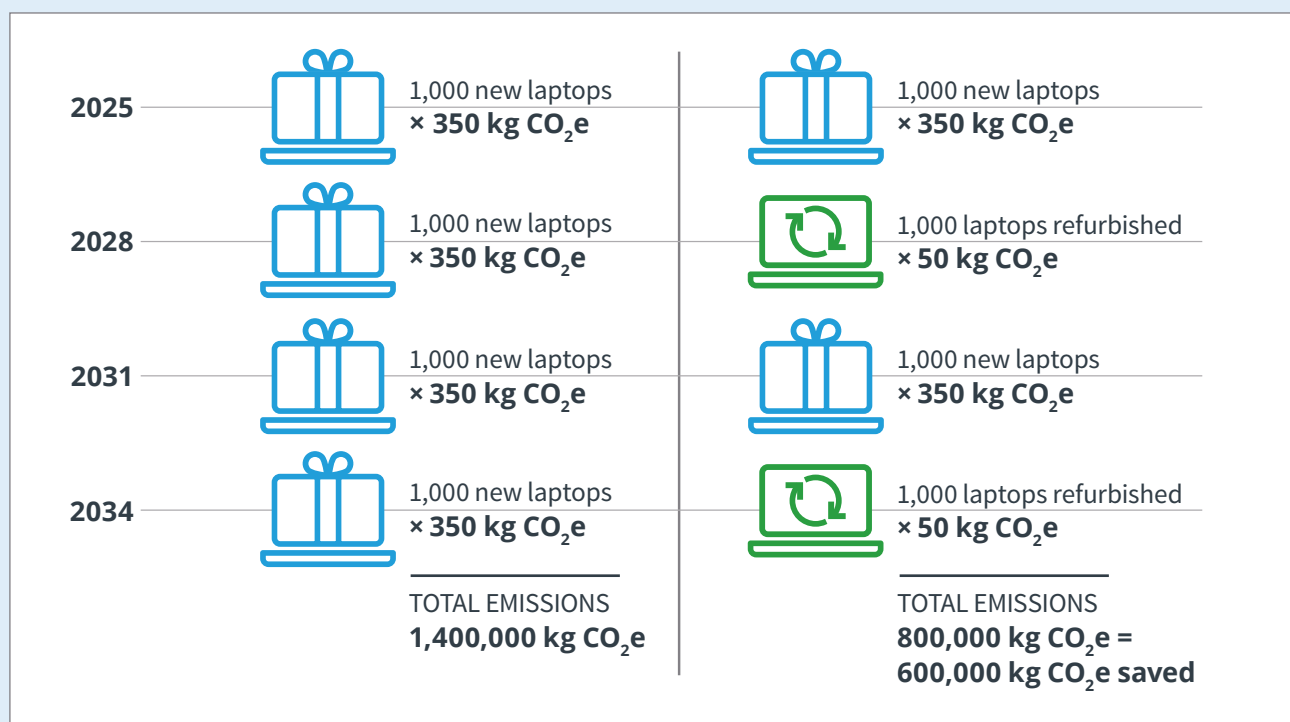
<p>Cloud vs. On-Prem Workloads</p> <p>Migrating from legacy, inefficient on-premise infrastructure to hyperscale cloud providers with renewable energy commitments can avoid significant emissions.</p> <p>ITAM teams can track this by comparing the energy efficiency of cloud vs. owned data centers.</p>	<p>Remote Work and Digital Collaboration</p> <p>Reducing office space, shifting to remote-first strategies, and replacing business travel with video conferencing all contribute to avoided emissions.</p> <p>ITAM teams managing remote work hardware policies can quantify emissions reductions from reduced commuting and office energy use.</p>
<p>Circular Economy in IT Asset Management</p> <p>Extending hardware lifecycles through refurbishment, resale, or leasing models reduces the need for new manufacturing, leading to lower emissions.</p> <p>Partnering with vendors that provide certified carbon reduction metrics for refurbished devices can help ITAM report avoided emissions.</p>	<p>AI and Software Optimisation</p> <p>Implementing power-efficient software, dynamic resource allocation, and AI-driven optimisation in IT infrastructure reduces overall energy consumption.</p> <p>ITAM teams overseeing SaaS procurement can choose vendors offering low-carbon software solutions.</p>

Scope 4 – an example

A **financial services company** purchases 1,000 new **laptops** every **3 years** for its employees. Instead of disposing of old laptops, the company **implements a hardware second-life program** by refurbishing and redeploying the devices within the company or reselling them through certified refurbishment partners.

Key Assumptions:

- A **new laptop** has an **embodied carbon footprint** of **350 kg CO₂e** (manufacturing and supply chain emissions).
- Extending the **laptop's life by 3 years** (via refurbishment) **avoids the need for 1,000 new laptops** in the next procurement cycle.
- Refurbishment emissions are **50 kg CO₂e per laptop**, significantly lower than manufacturing a new one. Refurbishment typically involves a new battery and an upgrade to a solid-state drive (SSD).



Scope 4 Avoided Emissions Calculation:

Emissions from purchasing new laptops (without second life):

1,000 laptops × 350 kg CO₂e = 350 metric tons CO₂e

Emissions from extending laptop life via refurbishment:

1,000 laptops × 50 kg CO₂e = 50 metric tons CO₂e

Scope 4 Avoided Emissions (Net Benefit):

350,000 kg CO₂e – 50,000 kg CO₂e = 300,000 kg CO₂e avoided (300 metric tons CO₂e avoided in 3 years)

Additionally, the company saves perhaps 80% of the financial budget allocated to purchasing net new laptops by refurbishing with a new battery and expanded hard drive.

Impact Summary:

Extending the lifespan of IT hardware means:

- **New device manufacturing emissions are reduced by 86%**
- **Reduced e-waste disposal and landfill impact**
- **Contribution to Scope 4 avoided emissions reporting**
- **Reduced procurement costs**

Integrating Emission Scopes into IT Asset Strategy

For IT Asset Managers, sustainability is no longer just about compliance or cost savings—it's about making data-driven decisions that align IT strategies with corporate net-zero goals.

- **Scopes 1 and 2:** Reducing direct and purchased energy emissions through energy-efficient IT operations.
- **Scope 3:** Addressing supply chain impacts, hardware lifecycle management, and cloud emissions.
- **Scope 4:** Showcasing the positive impact of digital transformation, remote work, and circular IT models. Scope 4 speaks directly to our historical core competence of cost reduction and avoidance through hardware and software license harvesting.

With the expansion of emissions reporting frameworks, ITAM professionals have a growing opportunity to lead the charge in sustainable IT—not just by reducing impact but by actively enabling a lower-carbon digital future.

About the ITAM Forum

The ITAM Forum is a global trade body for the advancement of the IT Asset Management industry. We are a not-for-profit membership organisation, led by ITAM professionals for ITAM professionals. Our members are passionate about IT Asset Management and the business value it brings to companies regardless of size and industry.

The ITAM Forum has two primary objectives:

1. To elevate the position of ITAM by sharing knowledge and best practices that focus on business value and aid to grow the profession.
2. To create – and be a caretaker of – the new ISO 19770-1 standard certification program so organisations can demonstrate the quality of their ITAM practices.

About AJ Witt

AJ is an ITAM Industry Analyst at the ITAM Forum. He was previously a Software Asset Manager for Carnival UK, operators of the P&O and Cunard cruise lines. Coming from a background in IT Infrastructure, technical operations, IT Security & Compliance, AJ is well-placed to share his experience of how dynamic SAM teams can build mutually-beneficial stakeholder engagement.

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