Category 2

Data Infrastructure

What Type of Infrastructure Does This Include

Hyperscale Data Centres
very large scale, centralised compute and storage; host enterprise workloads, cloud services, and AI training at scale.

Edge Compute Nodes
distributed processing close to the source; reduce backhaul and enable real-time response for critical infrastructure.

Cloud Platforms
elastic, multi-tenant, API-driven compute and storage; scale capacity for asset management, BIM, and digital twins without new hardware.

Data Integration and Interoperability Platforms
standards-based (IFC, CityGML, GTFS) layers that connect disparate data sources across the asset lifecycle.

Key Attributes

The storage, processing, and integration layer. It stores and moves the data the rest of the system depends on, and increasingly hosts the AI workloads that sit on top of it.

Deployment ranges from very large, centralised facilities sited near power and water, often on urban fringes and in industrial precincts, to distributed edge nodes co-located with transport, energy, and water assets, to software-based integration layers with no fixed site of their own.

Hyperscale facilities have a concentrated, visible physical footprint and compete with communities and other sectors for grid capacity, water and land. Their location is therefore a social and economic consideration as well as a technical one.

Most of this infrastructure is owned and operated by the private sector, which shapes who holds the sustainability data and who makes the siting and energy decisions.

The Landscape: Investment, Legislation, and Trends

Data centre demand is growing rapidly, driven by cloud migration and, more recently, AI workloads, with major investment from international private sector operators.

Energy consumption by data centres is projected to double globally by 2030[10], putting pressure on electricity grids and water systems where facilities concentrate.

Federal and state governments have published guidance and commenced strategic reviews. The NSW strategy review and the SEQ Digital Plan Data Centre Strategy are active reference points.

The Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024, aligned with IFRS S1 and S2, brings the Scope 3 footprint of procured cloud and co-location into an organisation's own disclosure. Aotearoa New Zealand's mandatory disclosure regime is already in force.

References: Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024; Australian Sustainability Reporting Standards (IFRS S1 and S2); NSW data centre strategy review; SEQ Digital Plan.

DUAL LENS: OPPORTUNITY AND FOOTPRINT

Sustainability Benefits of Digital Infrastructure

Workload consolidation: moving compute from many on-premise server rooms into a Power Usage Effectiveness (PUE)-optimised facility lowers energy per unit of compute, where the facility is operated to a high efficiency standard.

Renewable procurement at scale: large operators can sign renewable power purchase agreements that individual asset owners cannot, shifting a significant share of their electricity demand to renewable sources.

Edge processing: handling data where it is generated cuts the energy of transmitting it back and forth and enables real-time optimisation of transport, energy, and water networks.

Data continuity: integration platforms reduce rework by keeping a single source of data across planning, design, construction, and operations, and unlock cross-sector optimisation across transport, energy, and water. Enterprise platforms that federate data across previously siloed systems, such as Honeywell Forge, are one example of this integration layer in practice. The Austroads Carbon Measurement and Reporting Tool case study below shows this integration in practice.

Community and resilience benefits: when planned with host communities early, facilities can reuse waste heat, use recycled rather than drinking water for cooling, help fund grid and water upgrades, and support local jobs and skills. These benefits are not automatic and need to be agreed as conditions of approval.

Onshore and sovereign hosting: keeping sensitive data in Australia and Aotearoa New Zealand supports Indigenous Data Sovereignty principles and community trust, while construction and operations create local technical and trade roles.

Shared scale: cloud and shared platforms give councils and smaller asset owners access to compute capacity that would be cost-prohibitive to build and operate independently, turning capital cost into operating cost.

Digital Infrastructure Issues to Watch

01 **Energy and water**
hyperscale facilities draw very high and continuous energy and water loads. Cooling water demand is acute in water-stressed regions and competes with other users. The Clean Energy Finance Corporation notes that cooling can account for around 40% of a data centre's total energy use, and that conventional evaporative cooling improves energy efficiency only by consuming substantially more water. This makes water-efficient cooling technologies essential as facilities scale[11].

02 **Embodied and siting impacts**
carbon embodied in construction, plus land use and heat island effects, are concentrated in the build and not typically attributed to the digital service. Imported plant and equipment also carries labour and sourcing risks that can sometimes be overlooked.

03 **Scope 3 opacity**
cloud and co-location emissions are often not disclosed at a usable level, and vendor lock-in limits an owner's ability to govern or improve them.

04 **Concentration and oversight**
siting, energy and water decisions are currently driven largely by commercial operators. This is changing. In March 2026 the Australian Government released national expectations for data centres and AI infrastructure developers[12], and in July 2026 it announced plans to legislate mandatory national standards covering the location, power, water and grid impacts of large data centres[13].

05 **Local benefit**
sometimes, large facilities can draw heavily on local land, grid and water but employ relatively few people once operating, so the benefit to host communities can be small relative to the load, and should be acknowledged and understood in any impact assessment process.

The Key Questions

Considerations that might help a member organisation build a business case for action and investment and to govern well are included in the table below.

P — PROCESS
Does our procurement framework score energy Power Purchase Agreement (PPA) coverage, water intensity, embodied carbon in build, supplier sourcing practices, and decommissioning, weighted to our own risk, for example, water in a water-stressed region?

O — ORGANISATION AND CULTURE
Who in our organisation is accountable for digital sustainability across technology, sustainability, procurement and finance, and do we have the in-house capability to undertake the necessary assessments?

T — TECHNOLOGY
Is the facility designed for cooling replacement and rack-level density upgrades, so it holds value across multiple hardware generations?

I — INFORMATION
Have we set Scope 3[14] disclosure expectations for cloud and co-location, with baseline questions on cooling efficiency, renewable commitment, and circular economy planning?

Applying This Across the Asset Lifecycle

Below are five common questions you may face across the asset lifecycle, each from the perspective most likely to raise it.

Sustainability governance of data infrastructure is still emerging. This lifecycle lens shows where criteria can be considered before commercial momentum restricts sustainability opportunity.

Planning

State authority asset owner

"A hyperscale data centre is proposed in our jurisdiction. What sustainability conditions should the planning team set?"

Set disclosure and performance conditions early: PUE, water source and intensity, renewable PPA coverage, embodied carbon in the build, and decommissioning obligations. In a water-stressed region, weight water heavily, and test for grid crowd-out against other sectors. Where regulatory oversight is still developing, planning conditions provide a mechanism to set expectations.

Design

Sustainability consultant

"I am advising on the design of a new data facility. What extends its sustainable life?"

Design for cooling replacement and rack-level density upgrades so the facility retains value across multiple AI hardware generations. Separate the long-lived building shell and grid connection from the shorter-lived compute, and size passive elements accordingly. This trades a modest upfront cost for substantially reduced stranded asset risk over the life of the infrastructure.

Construction

Construction company sustainability manager

"We are building a data centre. Where is the construction sustainability footprint?"

Embodied carbon in construction, land use, and heat island effects are the main construction impacts, alongside the water and energy the site will draw, plus construction waste, stormwater and biodiversity impacts. Measure and report the embodied carbon of the build, favour materials with verified environmental product data, seek responsible sourcing assurance for major plant, and design out heat island and land impacts where you can. Record construction emissions for the owner's Scope 3.

Operations and Maintenance

Asset owner and operator

"Most of our compute is cloud and co-location we do not run. How do we report and manage its footprint?"

Scope 3[15] means procured cloud and co-location now sit in your disclosure, but the emissions are sometimes opaque and vendor lock-in limits governance. Decide who internally owns digital sustainability across technology, procurement, and finance, then set disclosure and efficiency questions as contract conditions.

End of Life and Renewal

Asset owner and operator

"AI is driving fast hardware refresh. How do we manage the sustainability of decommissioning?"

Shortened refresh cycles and obsolescing hardware compound embodied carbon and drive e-waste. Build decommissioning and circular economy obligations into the original procurement so end-of-life is planned. Prefer refurbishment and reuse pathways, and record refresh cycles so the true lifecycle footprint is visible in operations.

The Cost of Inaction: Gaps in the Current Landscape

Decade-long lock-in
long-lived passive elements such as building shells, grid connections, and cable corridors commit a facility against workloads that may look very different. Criteria set at the design stage will influence performance well into the future.

Grid and water impact
unmanaged data centre growth can absorb the grid and water capacity other sectors need to decarbonise, turning a digital decision into a system-wide constraint.

The reporting gap
there is still no consistent, mandatory sustainability reporting for data centres, and few procurement criteria that treat digital assets on a like-for-like basis with conventional built assets.