KPMG

Benchmarking CapEx and OpEx in the Global Data Centre Market

The KPMG DC benchmarking index

2026

KPMG. Make the Difference.

INTRODUCTION

As global demand for cloud and AI infrastructure accelerates, the economics of data centre (DC) development are shifting. The key strategic question is no longer simply 'where capacity can be built', but 'where it can be built and operated sustainably at scale over a multi-decade lifecycle'. For hyperscalers, colocation operators, investors, and policymakers, understanding regional cost structures is therefore increasingly central to market selection, capital allocation, and long-term competitiveness.

While revenue growth remains strong, margins remain sensitive to regional construction dynamics, labour markets, compliance intensity, power availability, and operating models. To provide greater transparency for industry stakeholders, this paper launches a periodic benchmark for DC capital expenditure (CapEx) and operating expenditure (OpEx) across key markets, highlighting regional cost variation and its underlying drivers. Beyond a pure cost comparison, the report is intended as a decision-making lens for assessing the relative attractiveness of different markets. The analysis is urgent because a range of structural forces are coming together to raise the premium on cost discipline and market selection, including ballooning AI demand, power scarcity and grid constraints, regulatory and sustainability pressures, and infrastructure capital intensity.

> **"Cost discipline is a critical factor for data centre (DC) developers and investors"**

Data Centre Benchmarking Index

The AI effect: Interpreting this Benchmark in a High-Density Market Context

This report is intentionally based on a cloud-only baseline specification to provide a consistent benchmark across markets. The model reflects conventional hyperscale leasing assumptions and excludes bespoke AI, High-performance computing or ultra-high-density deployments - where customer requirements can materially alter both design and cost outcomes.

This distinction is increasingly important. AI-led demand is becoming a major driver of site selection, technical specification, and investment returns across the sector. Power availability, cooling strategy, land configuration, and speed to connection are now often assessed through the lens of future AI readiness - even where initial deployments remain cloud-oriented. As a result, the baseline benchmarks in this report should be viewed as a reference point rather than a full representation of next-generation capacity economics.

METHODOLOGY

To ensure comparability, our benchmarks are based on cloud-only projects, greenfield developments, and 2025 pricing. End-user specifications, procurement strategies, and delivery models naturally differ across developers; our methodology therefore anonymises and aggregates these above- and below-market outliers to provide representative market benchmarks. We have also excluded abnormal items from the analysis (for example, major grid reinforcements, abnormal ground conditions, exceptional planning obligations, or highly bespoke customer requirements). Figures therefore reflect "steady-state" development and operating profiles rather than distressed projects, hyperscale retrofits, or customised AI/HPC deployments. Our inputs are drawn from a range of developed economies globally, and this market sample will be broadened over time.

While the quantitative benchmarks in this paper focus primarily on European markets, the cost structures analysed are globally relevant. Comparable dynamics are observable across major international DC hubs such as Singapore, Tokyo, Sydney, leading US markets such as Northern Virginia and Phoenix, and emerging hubs in the Middle East including Dubai and Abu Dhabi, where construction labour availability, regulatory complexity, utility constraints and operating labour costs create similar regional divergence.

Indicative impact of AI / high-density deployments

CapEx: Higher rack densities typically require greater electrical redundancy, larger distribution systems, enhanced structural loading and liquid or hybrid cooling solutions, increasing fit-out intensity and, in some cases, shell specification requirements.

OpEx: Greater power densities can increase facilities management intensity, specialist staffing requirements and cooling-related operating costs, although higher revenue density may offset some cost uplift.

Insurance: Higher asset values, concentration of critical equipment and emerging technology risk may contribute to more complex underwriting and potentially higher premiums or exclusions in certain markets.

Maintenance and commissioning risk: More complex mechanical and electrical systems, tighter tolerances, and accelerated deployment schedules can increase commissioning complexity, contractor coordination risk and lifecycle maintenance demands.

Looking ahead

As AI workloads continue to scale, benchmarking frameworks will need to evolve beyond traditional cloud assumptions. Future editions of this report will evolve as required in terms of what is benchmarked and where.

© 2026 KPMG, an Irish partnership and a member firm of the KPMG global organisation of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

Capital expenditure: variance driven by construction costs, not equipment

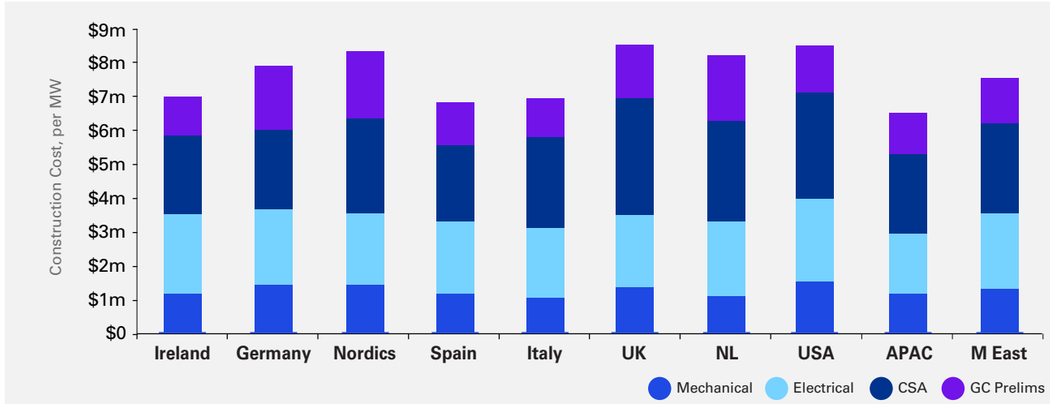
Construction costs are the main driver of capital cost differences between regions. In this analysis, construction costs refer only to the developer's base build specification for leasing. This excludes tenant ("white space") fit-out, substations, fibre connections and other works outside the builder's scope. Owner-supplied equipment is benchmarked separately below.

With regard to construction costs, the divergence can be significant. In this sample, the highest-cost market (United Kingdom: $8.5m per MW) is 26% higher than the lowest (Spain: $6.7m per MW). The drivers of this variability are structural and include labour cost differences, contractor market depth and pricing power, planning complexity, utility interface requirements, and supply chain concentration. We observe similar patterns globally, where mature gateway markets with constrained labour pools, stricter regulatory frameworks, and limited contractor capacity typically price above lower-cost expansion markets with deeper subcontractor ecosystems.

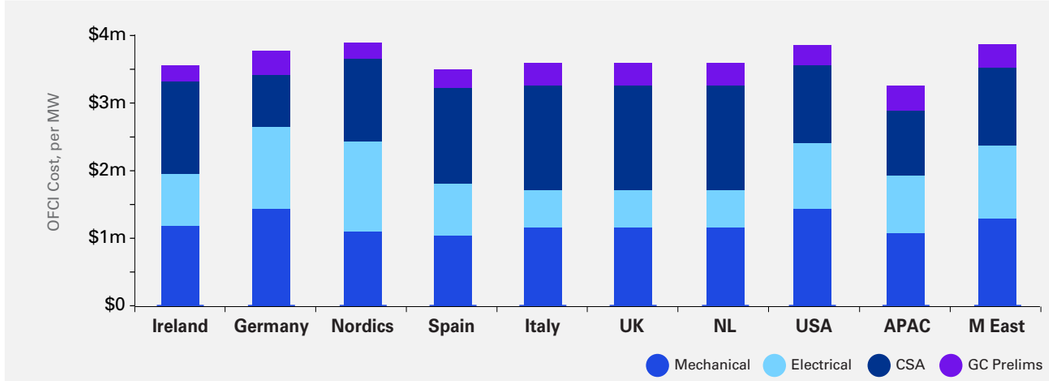
Across Northern Europe and other high-cost developed markets, build costs continue to face upward pressure from compliance intensity, fire and sustainability regulation, energy-efficiency standards, and skilled labour shortages. By contrast, parts of Southern Europe, selected North American secondary markets and some Asia-Pacific growth markets can benefit from lower wage baselines, faster permitting processes, or broader contractor availability.

Equipment costs, however, are far less regionally variable. For example, within Europe, the highest costs (the Nordics, $3.8m per MW) are only 8% (before rounding) higher than the lowest (Spain, $3.5m per MW). This narrower range reflects global OEM pricing discipline, internationally traded supply chains and increasingly standardised hyperscale specifications. While logistics, duties, and minor supply chain inefficiencies create marginal variation, mechanical and electrical plant costs are largely globalised.

Construction benchmark: GC scope only



Owner furnished contractor installed equipment benchmark



Sources: KPMG expert interview consultations;

Fit-out cost

Beyond the base build, fit-out and technology investment are becoming increasingly important drivers of total DC capital intensity. While this benchmark focuses on cloud-only, steady-state specifications, wider market evidence suggests that power distribution, cooling systems, networking, and IT hardware now account for a growing share of total project spend as rack densities rise and workloads become more compute-intensive. In particular, higher power delivery requirements and the adoption of liquid or hybrid cooling solutions are materially increasing the cost and complexity of white-space fit-out relative to traditional enterprise deployments.

For large hyperscale and AI-optimised campuses, technology and equipment choices increasingly dominate marginal capital deployment once the shell construction is complete. This shifts investor focus away from construction costs alone toward technology selection, integration risk, refresh cycles, and supply-chain resilience. As a result, fit-out economics are becoming more differentiated by operating model and workload profile than by geography, widening the cost and risk gap between legacy enterprise-led builds and next-generation hyperscale or AI-ready facilities.

In capacity-constrained markets, time-to-market is increasingly as important as absolute cost; operators are now often willing to accept higher fit-out spend where it accelerates customer deployment. At the same time, utility connection works and external electrical infrastructure are becoming a larger component of total project capital in a number of Tier-1 markets, particularly where grid scarcity persists.

Operating expenditure: labour drives major geographical variance

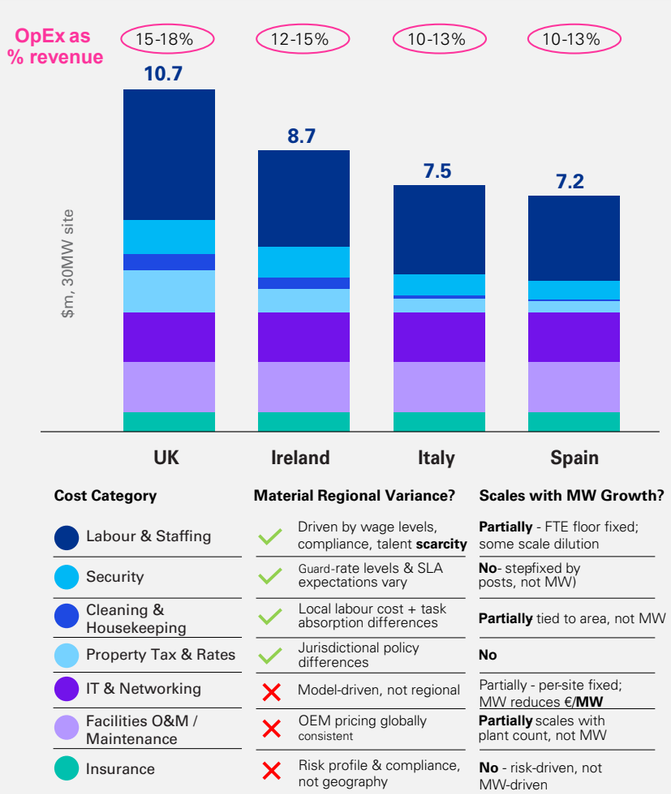
OpEx is far more variable across Europe in particular, and globally more generally, than CapEx. The UK again shows the highest costs at $10.6m annually for a 30MW facility. This is nearly 50% higher than in Spain, which has the lowest regional cost at $7.1m annually. While this difference is clearly material, it is worth noting that when OpEx is expressed as a percentage of revenue, it shows much lower variation: the UK's average OpEx is 15–18% of revenue, against Spain's 10–13%. This reflects rental pricing power in higher-cost markets partially offsetting cost inflation. Similar dynamics are visible internationally, where premium Tier-1 metros such as London, Frankfurt, Singapore, and Tokyo often sustain higher operating costs but also benefit from stronger pricing, deeper enterprise demand, and tighter capacity conditions.

Regional OpEx differences are driven primarily by labour costs. While engineering full-time equivalent (FTE) expense is the most visible component, often amplified by local talent shortages, the underlying driver is regional wage and cost-of-living variation. Minimum-wage baselines flow through not only to technical staffing but also to cost categories such as cleaning and security. Across North America and Asia-Pacific, labour availability is increasingly as important as wage levels, with competition for experienced operations staff and critical facilities engineers adding upward pressure in major digital infrastructure hubs.

IT & Network costs and Facilities O&M/Maintenance are the second and third most significant drivers of cost, but they are less variable regionally given global vendor pricing and standardised service models. Costs that vary more materially by country include security, cleaning and housekeeping, property taxes, insurance, and utility pass-throughs. These are driven by labour market conditions, local tax regimes, and regulatory policy. In emerging markets, imported spare parts, FX volatility, and less mature service ecosystems can also widen OpEx variability relative to more established hubs.

Finally, energy is a core driver of capacity availability, time-to-market, valuation, and long-term returns. In many Tier-1 markets, access to power and connection timing now influence investment decisions as much as land or construction cost. Electricity is excluded from certain benchmark comparisons where variability across operators - in tariffs, customer pass-through structures, procurement strategies, and load profiles - reduces direct comparability.

OpEx cost build-up (exc. electric), recommended average



Regulation, sustainability, and the cost curve

In many core DC markets, regulation and sustainability requirements are now a structural component of project economics - not optional reputational considerations. Energy efficiency standards, sustainability reporting, water usage controls and heat reuse obligations are increasingly influencing both upfront design decisions and ongoing operating models.

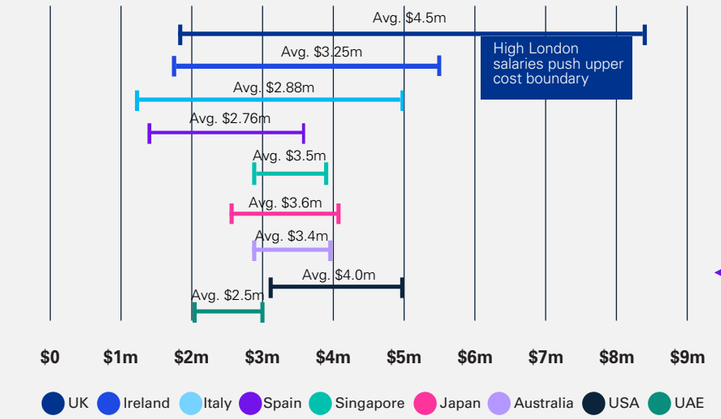
These requirements can drive incremental CapEx through higher-efficiency plant, monitoring systems, water infrastructure and heat recovery integration, while also increasing OpEx through compliance management, reporting, maintenance, and performance optimisation. For developers and operators, these are increasingly non-discretionary costs of market participation and should be assessed as part of long-term lifecycle economics rather than standalone ESG initiatives.

Labour: the primary structural driver

Across regions, labour is the dominant OpEx differentiator, with the most visible component of this cost being engineering full-time equivalent (FTE) expense. The underlying driver here is broader regional wage and cost-of-living variation, which affects not only engineering salaries but also cleaning, security and other critical lines in the OpEx budget.

Labour spend by geography

per 30MW, 2025



Cost drivers:

- Shift-pattern coverage intensity
- Market wage / talent scarcity
- In-house vs outsourced balance
- Automation maturity reducing headcount

Figures reflect full-scope labour (engineering, facilities, network operations centre, customer ops, on-costs, overhead). Engineering-only ≈ $1.17–1.4 m.

Sources: KPMG expert interview consultations;

> **"Labour would be one of your biggest categories… around 40%… one person on a shift requires 4 people to do a shift throughout a year."**

> **"You can go from 30 to 80 MW within the same cost frame… people do the same amount of work across 30 to 80 MW… 100 megawatts, then you're into a different ballgame."**

Globally, labour availability and wage structures remain the primary differentiator in operational cost profiles, particularly in mature hubs such as Northern Virginia, Tokyo, and Singapore where specialist engineering talent shortages can materially influence operating budgets.

Key observations:

- Per-MW staffing reduces only modestly with scale.
- 24/7 duty coverage models create a fixed FTE floor.
- Headcount rarely scales linearly with MW.
- As rents increase, labour forms a smaller percentage of revenue.
- Emerging hub markets such as the UAE exhibit lower labour-driven operating costs.
- APAC markets show tighter clustering due to regional talent mobility; US variance driven by staffing intensity.

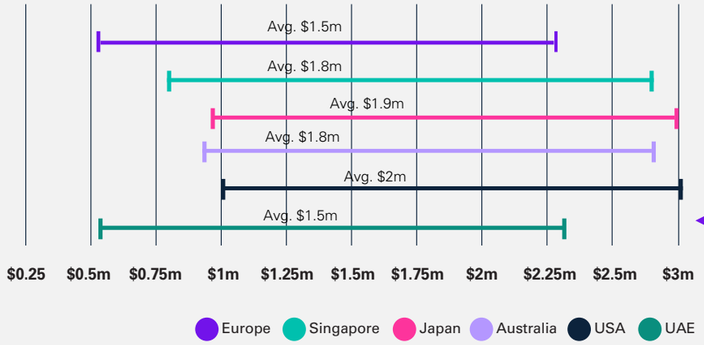
Trend:

Digital standard operating procedures, predictive operations, and automation are slowing incremental FTE growth. However, specialist skill demand (controls engineers, automation specialists) is pushing wage inflation upward.

Facilities & Maintenance (O&M)

This OpEx line covers OEM and third-party managed preventive and reactive maintenance for all critical M&E plant (UPS, generators, chillers, and switchgear). Costs are broadly consistent across regions due to global OEM pricing and are driven primarily by the installation of additional chillers, UPS systems, or generators rather than by IT load. Maintenance spend is not driven directly by MW scale but by plant complexity and lifecycle. As revenue scales, O&M becomes a smaller share of operating costs unless entering refresh or heavy lifecycle replacement phases. Regional variation is limited, though UK/IE markets exhibit higher compliance and labour-linked premiums.

Repair and maintenance spend by geography
per 30MW, 2025



Cost drivers:

- Plant count / redundancy tier
- OEM vs TPM maintenance model
- Age-related refresh cycles
- Cooling system complexity level

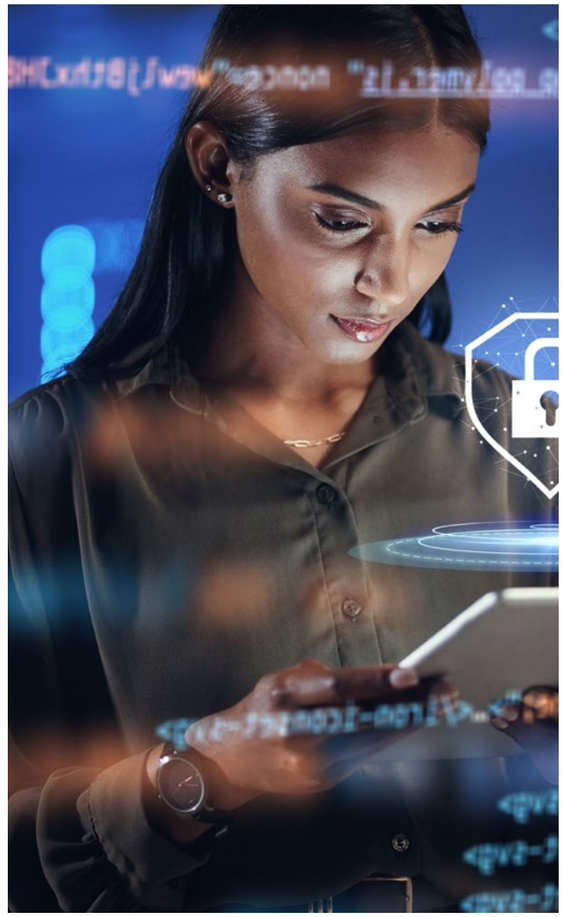
Facilities O&M covers OEM and TPM preventive/reactive maintenance for all critical M&E plant (UPS, generators, chillers, switchgear), with costs broadly consistent across regions due to global OEM pricing.

Sources: KPMG expert interview consultations;

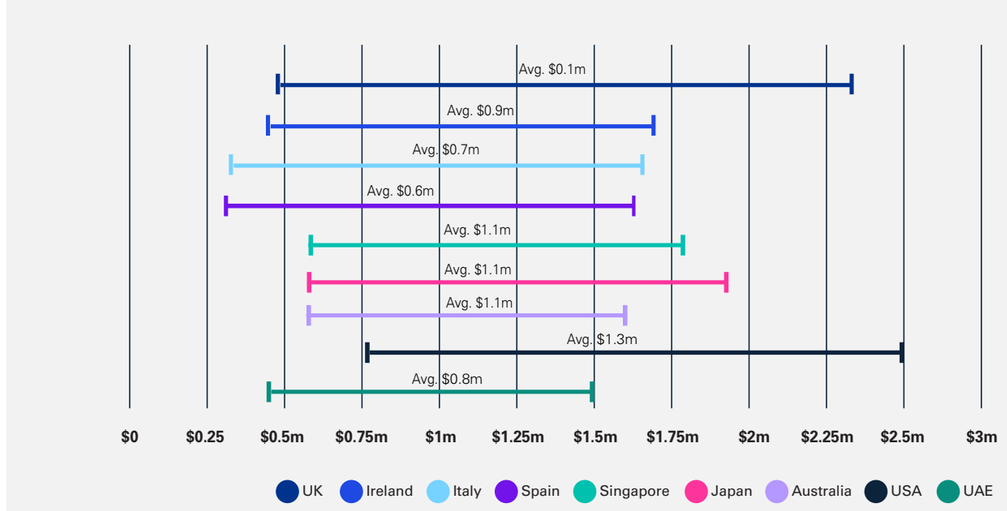
Security

Security costs are driven primarily by staffing models, site configuration, and coverage requirements. Because most facilities require continuous on-site security, this creates a minimum coverage threshold that does not scale linearly with site size. For standalone facilities, larger capacity does not necessarily translate into materially lower security cost per MW, as expanded sites often require additional access points, larger perimeters, more internal circulation areas and broader monitoring coverage, which can increase guarding and surveillance requirements. Meaningful cost efficiencies are more commonly achieved on campus developments, where operators can share gatehouses, patrol teams, control rooms and perimeter infrastructure across multiple buildings. However, where sites require multiple security posts or segmented access controls, costs typically rise in step changes before stabilising at larger scales. Absolute cost levels vary globally depending on wage rates, regulatory requirements, and the extent to which operators rely on in-house teams versus outsourced guarding providers.

Regional differences are pronounced and largely reflect labour cost structures and customer requirements. Markets such as the UK and Ireland typically sit at the upper end of the cost range due to higher wage levels and more compliance-intensive operating environments. Over time, increased use of remote security operations centres, analytics and automated access control is expected to moderate guard-hour requirements, though labour remains the dominant cost driver.



Security spend by geography
per 30MW, 2025



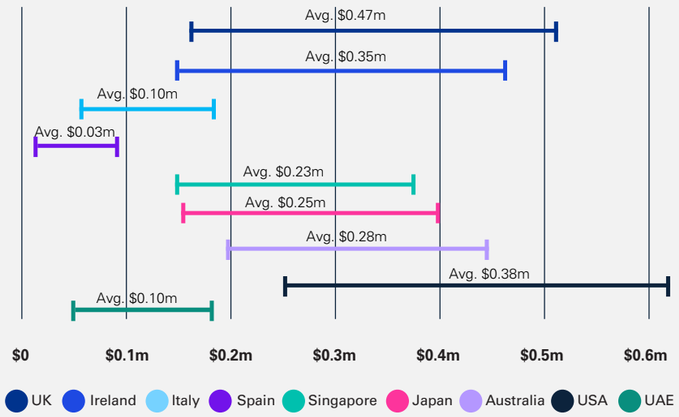
Sources: KPMG expert interview consultations;

Cleaning & Housekeeping

Cleaning and housekeeping costs vary significantly by region, primarily reflecting minimum wage levels. Costs are driven mainly by facility footprint rather than IT capacity, correlating with floor area, cleaning standards and customer audit requirements.

As data hall densities increase, cleaning costs per MW typically decline because floor area does not scale proportionally with IT load. As site capacity and revenues grow, cleaning therefore represents a progressively smaller share of operating costs.

Cleaning and Housekeeping spend by geography
per 30MW, 2025



Cleaning covers routine internal and external housekeeping, communal-area upkeep and periodic deep cleans, with scope driven primarily by site footprint rather than MW capacity.

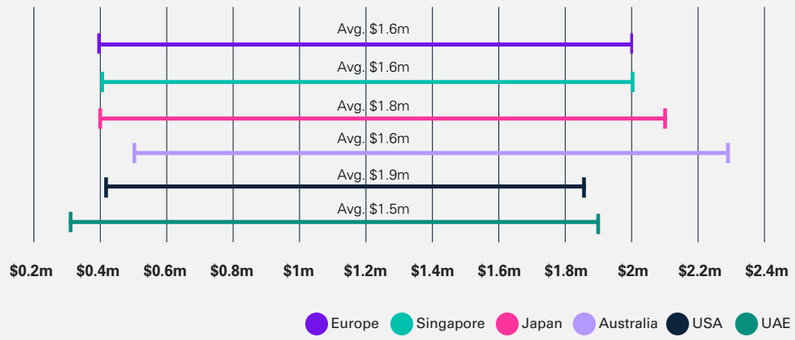
Sources: KPMG expert interview consultations;

IT & Network Operations

IT and network operating costs are largely model-driven rather than geography-driven. Per-MW costs typically decline as sites scale, reflecting per-site licensing structures, tiered tooling models and portfolio-wide leverage.

Regional variation is limited. Differences are more often driven by operational architecture, including toolset sophistication, integration maturity, AI telemetry load, and fibre network complexity, as well as whether network costs are passed through to customers or funded by the operator.

IT spend across Europe
per 30MW, 2025



Sources: KPMG expert interview consultations;

Insurance

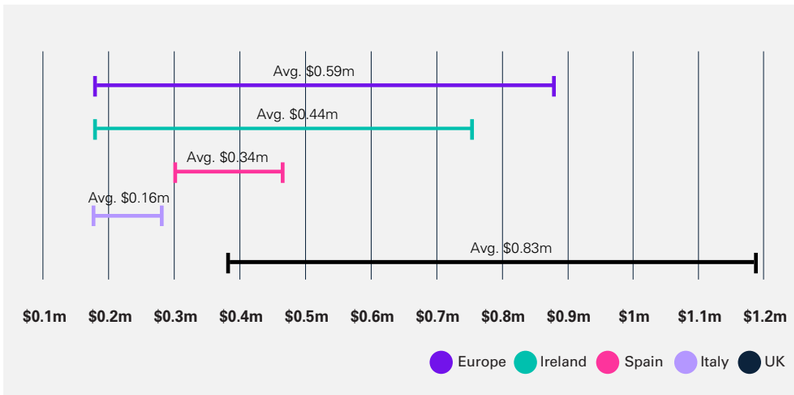
Insurance costs typically cover property, liability and business interruption risks for the facility. Premiums are driven primarily by the site's risk profile and coverage requirements, rather than by IT capacity (MW) or geography. Key drivers include fire suppression design, business interruption exposure, local claims environments, climate risk considerations, and the perceived risk associated with high-density AI deployments.

Regional variation largely reflects differences in legal frameworks and insurer risk perception, with UK and Ireland markets generally carrying higher premiums. As site revenues increase, insurance typically represents a smaller share of overall operating costs.

Globally, insurers are applying increasing scrutiny to data centre risk profiles, particularly in high-density AI deployments and in regions exposed to climate or seismic risk such as Japan and parts of the United States. Recent warfare in the Gulf has also shown the temptation of striking and / or vulnerability of data centre sites to physical attack – after years of arguably more focus on mitigating the cyber security threat.

Insurance spend across Europe

per 30MW, 2025



Trend:

Insurers are applying greater scrutiny to lithium-ion battery systems, high-density fire and cooling failure scenarios, and commissioning / go-live risk, contributing to firmer premium pricing for more complex facilities.

Sources: KPMG expert interview consultations;

Property Tax

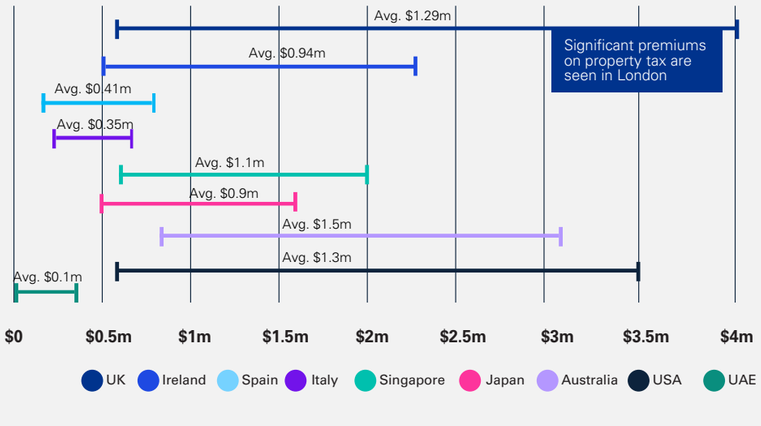
Property tax is largely policy-driven and linked to site footprint rather than IT capacity (MW). As a result, higher-density deployments can improve tax efficiency on a per-MW basis.

Regional differences are significant. Ireland can experience volatility due to valuation methodologies, the UK varies by local council, while Spain and Italy generally operate with structurally lower property tax baselines.

Property taxation frameworks vary significantly worldwide, with policy-driven approaches in markets such as Singapore, some US states, and Gulf jurisdictions creating widely different (up to 10x) structural cost baselines for operators.

Property tax spend by geography

per 30MW, 2025



Trend:

Growing political and planning scrutiny of data centres is prompting some jurisdictions to reassess valuation methodologies, creating the potential for higher or more volatile property tax liabilities.

Sources: KPMG expert interview consultations;

Looking Forward: Emerging Influences

Modularisation

Greater modular construction may compress construction cost variance and reduce programme risk premiums

Automation & AI-driven operations

Incremental FTE growth is likely to moderate further, though specialist skill inflation will persist

High-density AI deployments

May increase plant complexity, insurance premiums and maintenance intensity

Geographic diversification

Operators may increasingly weigh structural OpEx advantages against revenue density in higher-cost markets

Policy & grid pressure

Grid scarcity, land policy and local political scrutiny will become increasingly material cost variables

Executive Takeaway: What this means for decisions now

Data centre economics should increasingly be viewed through a lifecycle lens, not just a build-cost lens. The cheapest market to develop in is not always the most attractive market to own and operate over a 20-year horizon. Structural factors such as labour availability, power pricing, grid resilience, regulatory requirements, and maintenance intensity often matter as much as short-term construction cost movements.

In the short-term, some cyclical pressures such as contractor inflation and supply chain disruption may ease, but structural constraints including power scarcity, planning complexity, and higher technology intensity are likely to persist. For decision-makers, the focus is therefore shifting from where capacity can be built today to where it can remain competitive and scalable over time.

Conclusions: from build location to lifecycle economics

From the above, several structural themes emerge. CapEx divergence remains largely construction-led, while OpEx differences are primarily labour-driven. Equipment pricing and many IT operating models are increasingly globalised, limiting regional variation in these categories. Scale can improve margin resilience, although benefits are uneven. As facilities evolve, operating profiles are also diverging by asset type: AI-oriented deployments typically require higher hard FM expenditure given greater power densities, cooling complexity and electrical resilience needs, while traditional hyperscale facilities often retain lower soft FM intensity once stabilised.

Looking ahead, three forces are increasingly shaping DC economics: (i) power availability and time to connect; (ii) AI-driven density and cooling architecture; (iii) sustainability regulation with growing public scrutiny. These factors now influence where capacity can be delivered, how efficiently it can operate, and the long-term cost of compliance and expansion.

Ultimately, regional cost differences in the DC sector are structural, not incidental. Construction markets, labour dynamics, utility constraints and policy frameworks continue to shape the cost base across geographies. But while operating costs vary significantly between markets, their impact on profitability is often moderated by revenue density, which is even more variable. High-demand markets typically command higher rental pricing, partially offsetting higher labour, compliance and energy costs. As a result, the lowest-cost build markets are not necessarily the best-return markets over a 20-year lifecycle. At larger campus scales, particularly 100MW+ developments, some labour efficiencies can also emerge through shared operations teams and centralised site services.

> **For investors and developers, the key question is therefore shifting from simply "Where can we build?" to "Where can we build and operate sustainably at scale over a 20-year lifecycle?"**

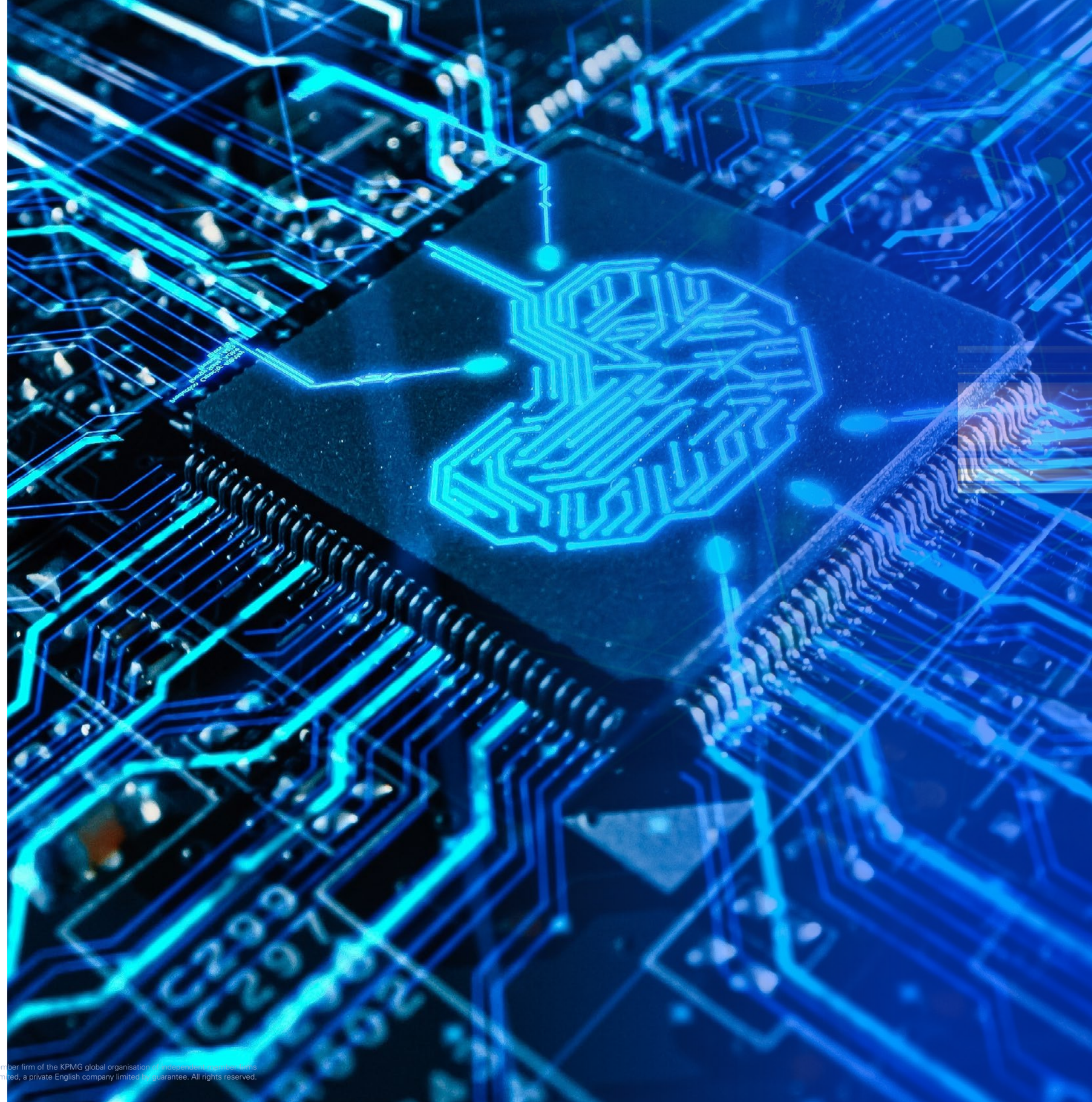
Finally, we break out some particular conclusions by sector player identity:

01 **Operators:** Regional cost variation is largely driven by structural rather than cyclical factors. Labour costs, regulatory intensity and construction market depth will continue to shape both development and operating economics. Operators should therefore prioritise portfolio diversification, balancing high-revenue hubs with structurally lower-cost markets where long-term operating margins may be stronger.

02 **Investors:** CapEx variance between markets is material, but manageable. However, OpEx divergence compounds over asset lifecycle, making operating location as important as development cost. Long-term returns depend on selecting markets that offer revenue density commensurate to offset structural operating costs, rather than purely low-cost construction environments.

03 **Contractors and OEMs:** Construction cost variation remains the largest driver of CapEx divergence. Labour availability, contractor competition and compliance requirements will continue to create regional pricing premiums. Modularisation and industrialised construction methods may reduce this spread over time, but local contractor markets will remain a key determinant of project economics.

04 **FM providers, security, services:** Operational cost structures remain labour-anchored. As automation and digital operations platforms mature, service providers that combine workforce capability with technology-enabled operations will become increasingly competitive. Markets with higher labour costs are likely to see faster adoption of remote operations models and automation tools.



Get in touch

Christopher Brown
Partner
Head of Strategy
KPMG in Ireland
christopher.brown@kpmg.ie

Lars Meyer
Partner
Transaction Services
KPMG UK
lars.meyer@kpmg.co.uk

Wes Jesson
Partner
Construction Advisory
KPMG in Ireland
wesley.jesson@kpmg.ie

Eoin Dunphy
Director
Construction Advisory
KPMG in Ireland
eoin.dunphy@kpmg.ie

Suhasini Ranganathan
Partner
Transaction Services
KPMG in Singapore
sranganathan@kpmg.com.sg

Aseem Sharma
Partner
Telecom Sector Head for Asia Pacific
KPMG in Singapore
aseemsharma4@kpmg.com.sg

Scott Davison
Associate Director
Strategy
KPMG in Ireland
scott.davison@kpmg.ie

Nathan Gabig
Partner
Capital Solutions
KPMG in US
ngabig@kpmg.com

kpmg.ie/dc2030

Produced by: KPMG's Creative Services. Publication Date: May 2026. (12237)