

India Tier-Two Edge Data Centres: Demand Forecasting beyond Hyperscale Cities

A Node-Level Framework for Workload Evidence, Staged Capacity and Financeable Cash Flow

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Abstract

India's digital activity extends far beyond the largest data-centre hubs. Broadband connections, mobile payments, enterprise applications, industrial systems, public digital services and artificial-intelligence inference create plausible demand for regional compute, storage and network capacity. These signals do not establish that a data-centre node in a particular tier-two city will achieve the utilisation, price and cash conversion required for financing.

This paper develops a node-level framework for forecasting demand beyond India's hyperscale cities. For this paper, a tier-two market means a regional city outside the principal hyperscale clusters of Mumbai, Chennai, Delhi NCR, Hyderabad and Bengaluru. The definition is operational rather than official. Each proposed city requires its own market, site, power, fibre, customer and regulatory assessment. The framework separates six workload classes: regional colocation, content delivery and caching, telecom multi-access edge computing, enterprise and private cloud, regulated or sovereign workloads, and artificial-intelligence inference. It tests each class through customer location, application path, latency requirement, data-control need, contracted quantity, price, operating cost and collected cash.

Current primary sources establish context. TRAI reported more than one billion internet subscribers in June 2025, including 979.71 million broadband subscribers, while its current dashboard reports later national totals. NPCI publishes monthly and state-level UPI statistics that reveal distributed digital activity. IndiaAI provides subsidised and commercial access to cloud-based compute, network, storage and platform services for approved users. The Central Electricity Authority publishes state and regional power-supply data. BIS has adopted data-centre performance-indicator standards and commissioned work on their application in India. These sources support a disciplined demand scan. None proves site-level demand, continuous power, customer willingness to pay or debt capacity for a proposed node.

The worked case is wholly hypothetical. It tests eight candidate nodes across representative regional markets. Four enter the first deployment wave, two remain options and two are deferred. Initial uses total USD 280 million: USD 82 million for sites, electrical systems, cooling and fibre; USD 96 million for compute and network equipment; USD 34 million for software, security and integration; USD 22 million for customer onboarding and working capital; and USD 46 million for fees, contingency and reserves. Sources comprise USD 80 million of senior infrastructure or project debt, USD 70 million of equipment finance, USD 85 million of sponsor equity, USD 30 million of anchor-user capacity reservations or prepayments and USD 15 million of vendor or strategic support. The central year-four case assumes four accepted nodes, 65 per cent billable utilisation, USD 41 million of recurring revenue and a 1.50 times debt-service coverage ratio. The combined downside assumes three accepted nodes, 42 per cent utilisation, a nine-month delay and 15 per cent higher cost. The figures do not describe an announced project, customer, lender or transaction.

The financing conclusion is that capacity should be released in stages. Durable site, power, cooling and fibre assets may support long-dated capital after commissioning and contracted demand. Servers, accelerators and network equipment require shorter amortisation and funded refresh. Development, integration and uncontracted workload risk require sponsor capital. A node advances only when independent evidence supports the catchment, workload, customer, service level, price, acceptance, collection and downside-liquidity case. The platform should retain explicit rights to defer, resize, relocate or stop each node.

JEL Classification: G31, G32, L86, L96, O32, O33, R12

Keywords: India, edge data centres, tier-two cities, demand forecasting, latency, colocation, inference, project finance

1. Define the investment decision

Decide whether a staged regional edge platform can earn an acceptable return after node, network, equipment, integration, refresh and financing costs. [1][2][3][4] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with asset perimeter, candidate-city rationale, workload, customer, payer, baseline, technical design, service contract, capital plan and downside liquidity. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that population, broadband growth or a national digital trend is treated as site-level demand. The practical response is to approve only nodes supported by customer, network, utility and cash evidence. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

2. Define the market perimeter

Use an operational definition of regional markets and disclose that it is not an official Indian city classification. [1][5][6][7] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with city boundary, catchment, travel and network paths, enterprise base, existing facilities, customer locations and comparison hubs. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that the label tier-two is used as a demand proxy or a fixed regulatory category. The practical response is to define every candidate node through observable catchment and service attributes. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

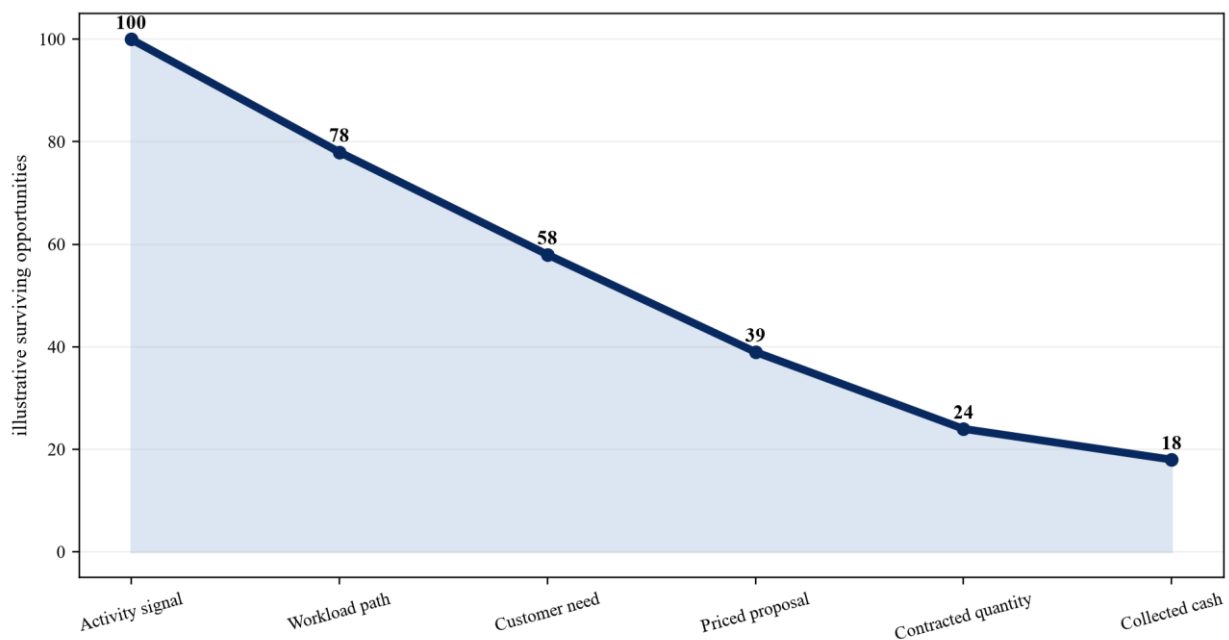
3. Separate workload classes

Regional colocation, caching, telecom edge, enterprise cloud, regulated workloads and AI inference have different customers, service requirements and revenue models. [2][3][8][9] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with application inventory, customer segment, data path, latency tolerance, storage, compute, continuity, regulation and price. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that all digital traffic is converted into one undifferentiated capacity forecast. The practical response is to forecast, contract and finance each workload class separately. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 1. Node-level demand evidence stack



Proposed framework; each layer requires evidence before capacity can support financing.

Table 1. Demand-signal evidence matrix

Signal	Useful question	Required conversion evidence
broadband and mobile activity	where are users and traffic growing	application path and buyer
payments and devices	where is digital activity concentrated	edge-hosted workload and budget
enterprise base	which organisations may migrate	approved workload and contract
fibre and carrier presence	which service paths are feasible	diverse route and SLA
existing facilities	how much supply and competition exists	available capacity, price and churn

Proposed framework; signals prioritise diligence and do not prove revenue.

4. Map enterprise demand

Enterprise demand begins with named applications, users, sites and migration decisions rather than city-level company counts. [5][8][10][11] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with customer interviews, application portfolio, current hosting, data volumes, performance, migration cost, procurement cycle and budget. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that registered businesses or office space are multiplied by an assumed server footprint. The practical response is to require a documented migration or new-workload pathway for every forecast cohort. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

5. Map telecom and network demand

Network demand depends on traffic paths, peering, cache economics, mobile architecture and the ability to avoid transport or improve service. [1][6][12][13] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with operator and carrier data, route maps, traffic exchange, cache hit rates, backhaul cost, service targets and interconnection contracts. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that mobile subscriber totals are treated as local colocation revenue. The practical response is to connect network demand to a defined service, buyer and payment obligation. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

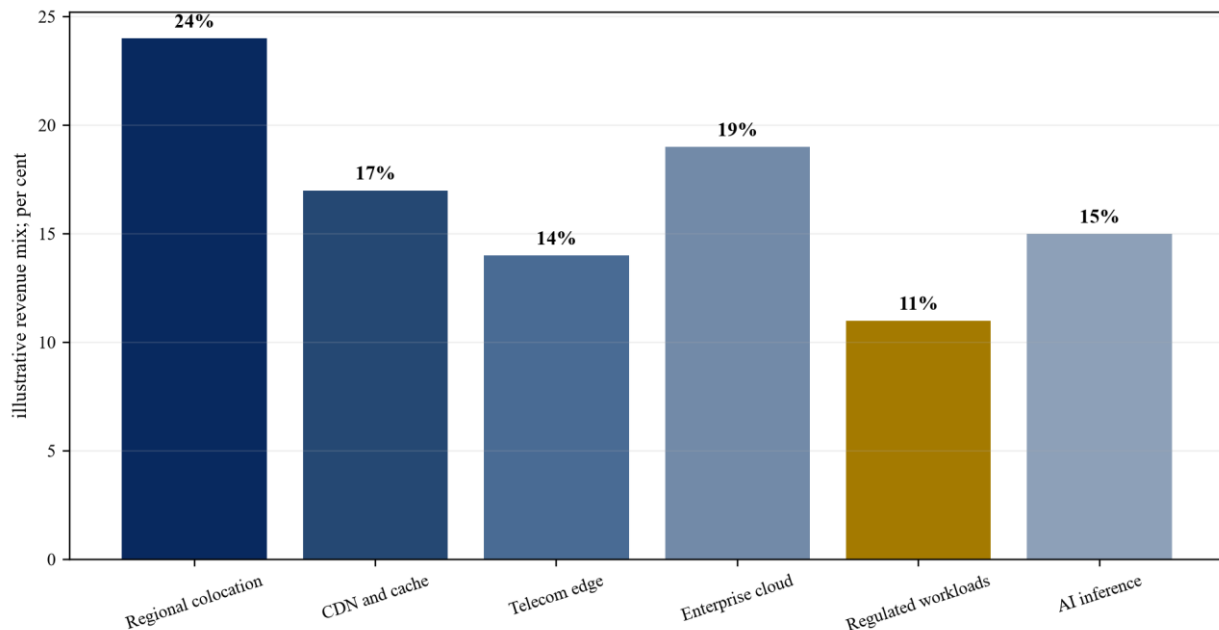
6. Map device and transaction signals

Payments, devices and public digital services can help locate activity, but they remain indicators until linked to an edge-hosted workload. [2][14][15][16] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with state and district statistics, transaction type, device base, time profile, application architecture, data residency and buyer evidence. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that transaction volume is assumed to require local compute in the same geography. The practical response is to use distributed digital activity to prioritise diligence, not to book revenue. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 2. Hypothetical workload mix by node type



Wholly hypothetical; actual mix requires customer and application evidence.

7. Avoid double counting traffic

A workload served from a metro hub, operator cache, enterprise site or public cloud should appear once in the addressable-demand model. [6][8][12][17] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with application routing, origin and cache logs, operator topology, current hosting, failover design, customer account and service boundary. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that the same traffic is counted as enterprise, telecom, content and AI demand. The practical response is to assign one primary placement decision and reconcile overlaps before aggregation. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

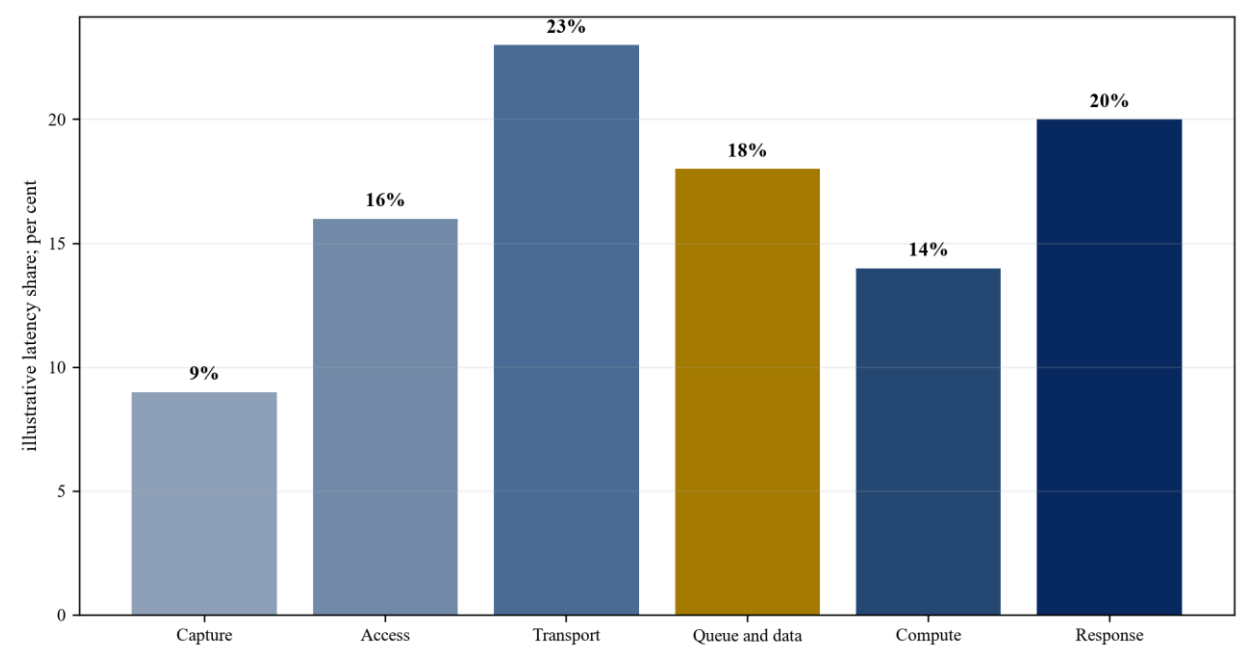
8. Measure end-to-end latency

Relevant latency includes device capture, access, transport, queueing, data retrieval, compute, response delivery and operational action. [18][19][20][21] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with representative traces, percentile distribution, jitter, loss, queue depth, failure tests, user outcome and service requirement. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that geographic proximity or server inference time substitutes for end-to-end evidence. The practical response is to test the complete path under normal, peak and degraded conditions. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 3. End-to-end latency path



Wholly hypothetical allocation; replace with traced application data.

Table 2. Workload placement test

Workload	Local placement driver	Evidence
CDN and cache	transport reduction and user performance	cache logs and contract
telecom edge	network function or low-latency service	operator design and SLA
enterprise cloud	continuity, migration and control	application inventory and budget
regulated workload	location or sector obligation	counsel and customer approval
AI inference	response time, data control or bandwidth	traced service test and payer

Proposed framework; final placement follows measured service and commercial requirements.

9. Establish the node catchment

A node catchment is the set of customers and workloads it can serve at the required performance, resilience, price and legal conditions. [6][18][22][23] The analysis should identify the asset owner,

operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with route distance, carrier paths, latency tests, customer sites, alternate facilities, disaster zones, data obligations and service price. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that administrative city boundaries or a radius determine demand without network and customer evidence. The practical response is to build workload-specific catchments and test overlap with metro hubs and adjacent nodes. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

10. Test willingness to pay

A faster or more local service creates revenue only when a budget owner values it above migration, duplication and operating cost. [8][10][24][25] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with request for proposal, budget, reservation, price test, procurement approval, migration plan, contract term and alternative cost. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that stated interest, pilot participation or technical preference is treated as committed revenue. The practical response is to progress demand from interview to priced proposal, approved budget, contract and collection. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

11. Contract anchor demand

Anchor contracts can use reserved capacity, minimum spend, take-or-pay, availability payments or prepayments with explicit acceptance conditions. [24][25][26][27] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with signed agreement, quantity, term, price, commissioning, service levels, credits, termination, security and payer credit. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that letters of intent and non-binding forecasts support debt sizing. The practical response is to value commitments according to enforceability, conditions, tenor and customer credit.

Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Table 3. Anchor-contract diligence

Term	Evidence	Financing concern
reserved quantity	unit and commencement	acceptance condition
price and indexation	tariff schedule	margin and inflation
service level	measurable performance	credits and termination
credit support	payer and security	collection and set-off
renewal and exit	notice and migration	residual utilisation

Proposed comparison; governing contracts determine enforceability.

12. Gate site control

Site tenure, permitted use, physical access, equipment ownership, assignment and lender step-in determine whether the node can be built and financed. [4][22][26][28] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with title or lease, land-use approval, access, construction rights, equipment rights, assignment, direct agreement and exit route. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that a preferred site or government discussion is treated as controlled land. The practical response is to make site and transfer rights conditions precedent to material capital. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

13. Gate power and cooling

The model needs deliverable power, redundancy, tariff, metering, quality, backup, cooling performance and expansion rights at each node. [3][22][29][30] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with connection agreement, sanctioned load, substation path, outage history, tariff, meter, backup test, cooling design and commissioning. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that state-level supply or nominal capacity is presented as continuous usable power. The practical response is to size capacity to commissioned power and stress tariff, outage and backup cost. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

14. Gate fibre diversity

A regional node needs physically diverse routes, carrier competition, interconnection, tested failover and clear restoration obligations. [6][12][18][31] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with route survey, duct and right-of-way evidence, carrier contracts, landing or hub path, capacity, latency, failover and repair history. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that two contracts are described as diverse when they share a duct, exchange or upstream dependency. The practical response is to verify physical and logical diversity and contract restoration targets. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Table 4. Node-readiness gate

Gate	Required evidence	Capital action
site and permits	transferable rights and approvals	condition precedent
power and cooling	commissioned capacity and test	size or defer
fibre	diverse routes and failover test	procure or reject
cyber and recovery	approved controls and exercise	remediate before service
customer and payer	acceptance schedule and contract	release or hold

Proposed minimum gate; local requirements may add conditions.

15. Gate permits and data obligations

Building, electrical, fire, environmental, telecom, privacy, cyber and sector rules affect time, cost and customer eligibility. [4][11][28][32] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with permit register, responsible authority, filing status, conditions, data inventory, cross-border path, sector obligations and counsel review. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that national policy is assumed to satisfy state, municipal, utility and customer requirements. The practical response is to maintain a city-specific compliance path with dated evidence and accountable owners. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

16. Design cyber and resilience controls

Regional distribution increases the operational surface across identity, remote access, suppliers, physical security, monitoring and recovery. [9][20][21][32] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with asset inventory, trust boundaries, privileged access, segmentation, logging, incident plan, recovery test, vendor controls and insurance. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that resilience is reduced to redundancy labels without tested operating recovery. The practical response is to embed controls and recovery evidence in design, acceptance and service contracts. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

17. Build node unit economics

Each node must show revenue, power and network cost, occupancy, support, service credits, maintenance, refresh, tax and working-capital conversion. [3][8][24][25] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with billable unit, rack or compute mix, price, utilisation, energy, bandwidth, staffing, maintenance, credits, receivables and refresh. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that revenue per megawatt or rack omits idle capacity, customer mix, integration and cash timing. The practical response is to measure contribution and cash by customer, workload and node. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

18. Separate capacity states

Identified, controlled, powered, installed, commissioned, accepted, reserved, billable and collected capacity have different financing value. [4][13][24][26] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with state definition, evidence, date, expiry, owner, remaining conditions, cost to advance and linked customer. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that announced, permitted or installed capacity is reported as utilised capacity. The practical response is to use a capacity waterfall with evidence rules for every movement. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

19. Forecast adoption in cohorts

Customers move through discovery, design, procurement, migration, acceptance, ramp and renewal at different speeds. [5][8][10][24] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with cohort size, entry date, conversion rate, sales cycle, migration duration, churn, expansion, price and evidence basis. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that one top-down growth rate creates smooth utilisation that ignores procurement and delivery constraints. The practical response is to forecast signed and prospective cohorts separately and update them with observed conversion. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

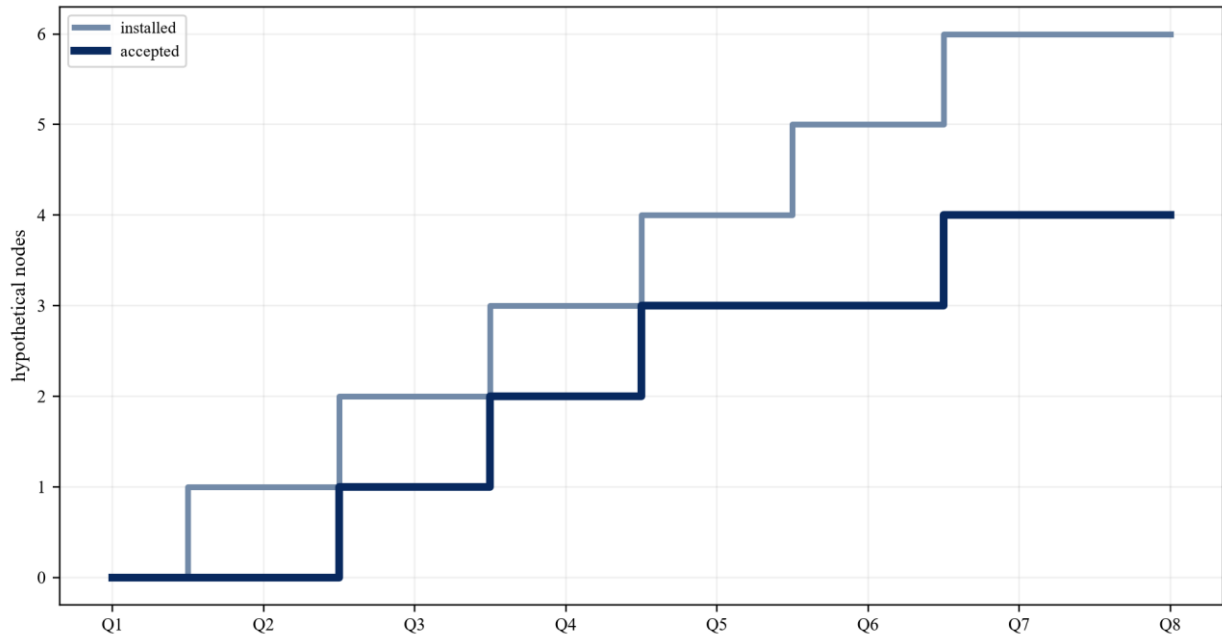
20. Stage the eight-node platform

The hypothetical programme releases four first-wave nodes, preserves two options and defers two until readiness and customer evidence improve. [3][4][22][26] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with node dossier, readiness gate, anchor customer, cost, schedule, acceptance, ramp, liquidity, option expiry and stop authority. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that all candidate cities receive simultaneous capacity despite different demand and infrastructure readiness. The practical response is to use modular deployment and explicit options to preserve deferral and relocation. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 4. Hypothetical eight-node deployment curve



Wholly hypothetical; accepted nodes lag installed nodes until customer and service acceptance.

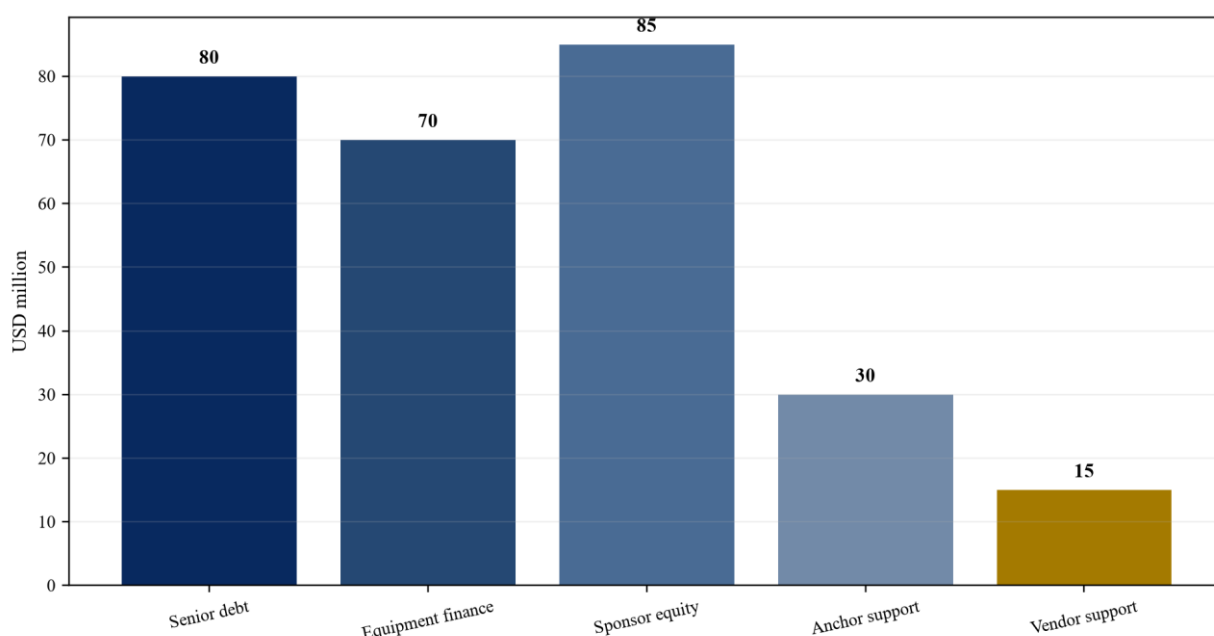
21. Apply the hypothetical funding plan

The USD 280 million case separates site and infrastructure, equipment, software and integration, working capital, contingency and reserves. [25][26][27][33] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with wholly hypothetical sources and uses, draw conditions, amortisation, reserve policy, anchor support, vendor terms and sponsor cure. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that funding categories hide which capital absorbs development, technology, demand and construction risk. The practical response is to allocate senior debt to eligible durable cash, equipment finance to movable assets and equity to uncertainty. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 5. Hypothetical USD 280 million funding plan



Wholly hypothetical; USD million.

Table 5. Hypothetical eight-node financing case

Metric	Central case	Combined downside
accepted nodes in year four	4	3
billable utilisation	65%	42%
recurring revenue	USD 41 million	USD 24 million
deployment delay	none beyond plan	9 months
capital-cost variance	base	+15%
debt-service coverage ratio	1.50x	0.82x

Wholly hypothetical; figures do not describe an announced project.

22. Match capital to asset lives

Long-lived electrical and fibre assets, medium-lived cooling, shorter-lived servers and continuously changing software need different terms. [25][27][30][33] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with asset register, useful life, maintenance, residual value, replacement cycle, security, amortisation, cash sweep and refresh reserve. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that long-dated debt and terminal value rely on hardware beyond its economic life. The practical response is to separate borrowing bases and fund refresh inside coverage and valuation. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

23. Allocate delivery and performance risk

Site owner, utility, carrier, equipment vendor, integrator, software provider, operator, customer and sponsor control different risks. [20][21][26][27] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with risk matrix, milestone, warranty, service credit, delay remedy, insurance, direct agreement, cap, relief, step-in and termination. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that the project company retains correlated risks without price, recourse, reserve or control. The practical response is to place each risk with the party able to prevent, measure or remedy it and fund the remainder. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Table 6. Risk allocation

Risk	Primary controller	Core protection
site and permits	site owner and project company	conditions and direct agreement
power and fibre	utility and carriers	capacity, diversity and remedies
equipment and integration	vendor and integrator	milestone, warranty and remedy
customer ramp	customer and sponsor	minimum payment and staging
cyber and continuity	operator and suppliers	controls, recovery test and insurance
technology refresh	project company and sponsor	reserve and relocation

Proposed framework; final contracts and applicable law govern.

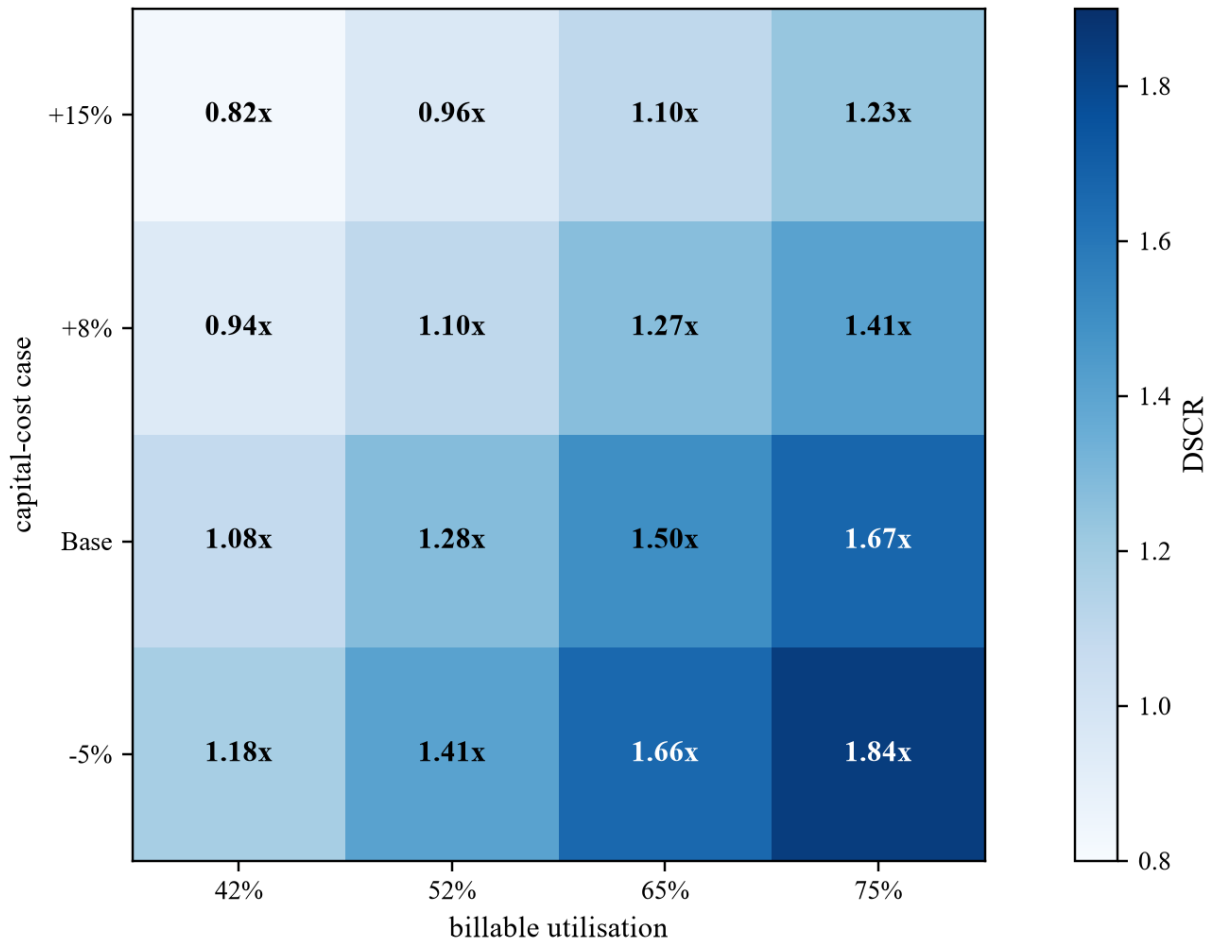
24. Stress correlated downside

Customer delay, lower utilisation, power or fibre constraint, cost increase, service failure and early refresh can occur together. [3][22][25][27] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with combined scenarios, monthly cash, covenant headroom, deferred modules, relocation value, sponsor cure and termination cash. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that single-variable sensitivities understate the interaction between demand, delivery, technology and financing. The practical response is to test the three-node, 42 per cent utilisation, nine-month delay and 15 per cent overrun case together. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Figure 6. Hypothetical DSCR sensitivity



Wholly hypothetical; combined utilisation and cost cases.

25. Monitor signal to cash

A common control model should link demand signal, proposal, contract, capacity, service telemetry, acceptance, invoice, credit and collection. [2][8][24][25] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with unique identifiers, timestamps, data lineage, contract schedule, service measurement, invoice support, bank receipt and exception log. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that market, operations and finance dashboards report favourable metrics that cannot be reconciled. The practical response is to make eligible cash depend on a complete auditable chain. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

26. Preserve relocation and exit routes

Financiers need practical remedies when a customer, node, vendor or market fails. [22][26][27][33] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for

service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with security package, direct agreements, equipment title, software and data continuity, relocation cost, alternate site, alternate users and sale route. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that security is taken over equipment and rights that cannot move, transfer or operate after enforcement. The practical response is to test and value recovery routes net of consent, time, configuration and remarketing cost. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

27. Apply accounting and impairment discipline

Revenue, leases, borrowing costs, financial instruments, asset components and impairment affect covenant data and loss recognition. [25][27][30][33] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with contract analysis, performance obligations, lease terms, financing conditions, useful lives, impairment indicators and disclosure controls. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that accounting treatment follows the commercial forecast and delays recognition of underperforming nodes or obsolete equipment. The practical response is to align the model with IFRS analysis and define early reforecast and impairment triggers. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

28. Reach the investment decision

Approval requires a defined catchment, contracted anchor cash, controlled site, commissioned infrastructure, measured unit economics, funded refresh and combined downside liquidity. [1][3][24][26] The analysis should identify the asset owner, operator, customer, payer, financier and party responsible for service failure or remediation. A city-level statistic can prioritise diligence. It cannot replace a contract, technical test or bank receipt.

The evidence file should begin with investment memorandum, evidence ledger, contracts, technical acceptance, model, financing, security, risk allocation, scenarios and approval record. Each item should state its geographic and service scope, definition, effective date, expiry or refresh point, accountable owner and relationship to accepted service and collected cash. National statistics, standards and policy documents provide context. Site value requires node-level rights, utility and network evidence, executed customer obligations, measured performance and financial reconciliation.

The principal failure is that national digital growth or strategic urgency replaces evidence for the specific node. The practical response is to approve one node and customer cohort at a time with named owners, expiry dates and stop authority. Management estimates belong in a clearly identified model input register and should be replaced when observed evidence becomes available. Forecast changes should preserve the original case, the revised assumption, the source and the effect on utilisation, liquidity and debt coverage.

Table 7. Investment decision record

Decision	Minimum evidence	Possible action
node release	site, power, fibre and permits	fund, resize or defer
workload release	service test, acceptance and payer	launch, redesign or stop
debt draw	eligible contracted cash and coverage	draw, condition or reduce
equipment draw	delivery, title and relocation value	finance or hold
next cohort	acceptance, cash and liquidity	expand, relocate or stop

Proposed governance; each approval records evidence, owner and expiry.

Frequently asked questions

Q: What is a tier-two city in this paper? A: It is an operational label for a regional market outside India's principal hyperscale clusters. It is not presented as an official city classification. Each city requires separate demand, infrastructure and regulatory evidence.

Q: Does internet or payment growth prove edge-data-centre demand? A: No. These indicators can prioritise markets for diligence. A financeable forecast also needs a defined workload, customer, service requirement, price, acceptance process and payment obligation.

Q: Which workloads are most likely to need regional edge capacity? A: Candidate workloads include content caching, telecom edge functions, enterprise continuity, regulated data processing and AI inference. Their placement depends on measured latency, bandwidth, resilience, data control and commercial value.

Q: How should a developer avoid double counting demand? A: Map each application to its current and proposed hosting path. Assign one primary placement decision, reconcile shared traffic and exclude workloads already served by another node or platform unless migration is contracted.

Q: What should support senior debt? A: Senior debt should rely on commissioned durable infrastructure, accepted service, enforceable customer cash, sufficient coverage, funded reserves and practical lender rights. Uncontracted demand should remain outside the debt case.

Q: How should servers and accelerators be financed? A: Equipment finance or shorter-term amortising facilities can match their economic lives where title, maintenance, insurance, refresh and relocation value are clear. Sponsor capital should absorb early integration and demand risk.

Q: What happens when one city underperforms? A: The platform should be able to defer expansion, relocate equipment, contract an alternative user or stop the node. The financing model should include the time, consent, reconfiguration cost and lost revenue for each remedy.

Q: What should an investment committee require before the first draw? A: It should require controlled site rights, commissioned power and fibre, a tested service path, customer acceptance terms, an enforceable anchor contract, node-level unit economics, combined downside liquidity and explicit stop rights.

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