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AI-READY DATA CENTRE

POWERING THE FUTURE OF **BFSI**



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This whitepaper is designed for IT & Infrastructure leaders and professionals in the banking and financial services industry who oversee their organisation's IT infrastructure. It is particularly relevant for decision-makers and key influencers shaping data centre strategy, those focused on driving operational efficiency, enhancing resilience, and optimising costs.



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A. INTRODUCTION

Banks and financial institutions in India are facing a moment of reckoning. On one hand, customers demand speed, security, and seamless service. On the other hand, regulators demand tighter compliance, and competition is heating up from digital-first neo banks and fintech disruptors. This tug of war between customer expectations, compliance pressures, and technology debt is leaving many BFSI institutions struggling to keep up.

1. Current Challenges with the Banking IT Infrastructure

- Expansion feasibility.
- Adapting to newer technologies like cooling and renewable energy.
- DC operations are a big challenge vis-à-vis regular banking IT & business functions, including adhering to government norms.
- Lack of multi-vendor/ISP network connectivity.
- ROI with respect to captive DC versus colocation services. Captive DC will attract day 1 Capex investment, whereas in colocation, the cost is amortised.
- Physical Security – Bag X-RAY scanners, video monitoring, multi-level frisking.
- Customised data centres vis-à-vis purpose-built DC.

2. BFSI Business Priorities: An Introduction

- **Diversify Product Portfolios:** Include innovative products/services for evolving customer needs such as Savings Account, Loans, Insurance & Digital Payments.
- **Customer Centric Services:** Building unique experiences, exceptional customer service, addressing issues & continuously improving services.
- **Compliance Ready:** Adherence to compliance with RBI, IRDA, SEBI, compliance framework, risk management & governance transparency.
- **Digital Security:** Fraud Detection and prevention, cyber security protocols and data privacy to safeguard customer information & core systems.
- **Multi-channel Accessibility:** Seamless experience across multiple channels- branches, ATMs, online banking, mobile apps & phone banking.
- **Financial Inclusion:** Serving the unserved & underserved segments of society along with rural & low-income communities.
- **Neo Banking:** Digital-first banking experience that operates entirely online, ensuring a simplified process & enhanced banking experience.
- **Personalised Solutions:** Tailored products/services for individual customer needs. Addressing specific queries, preferences & achieving financial goals.

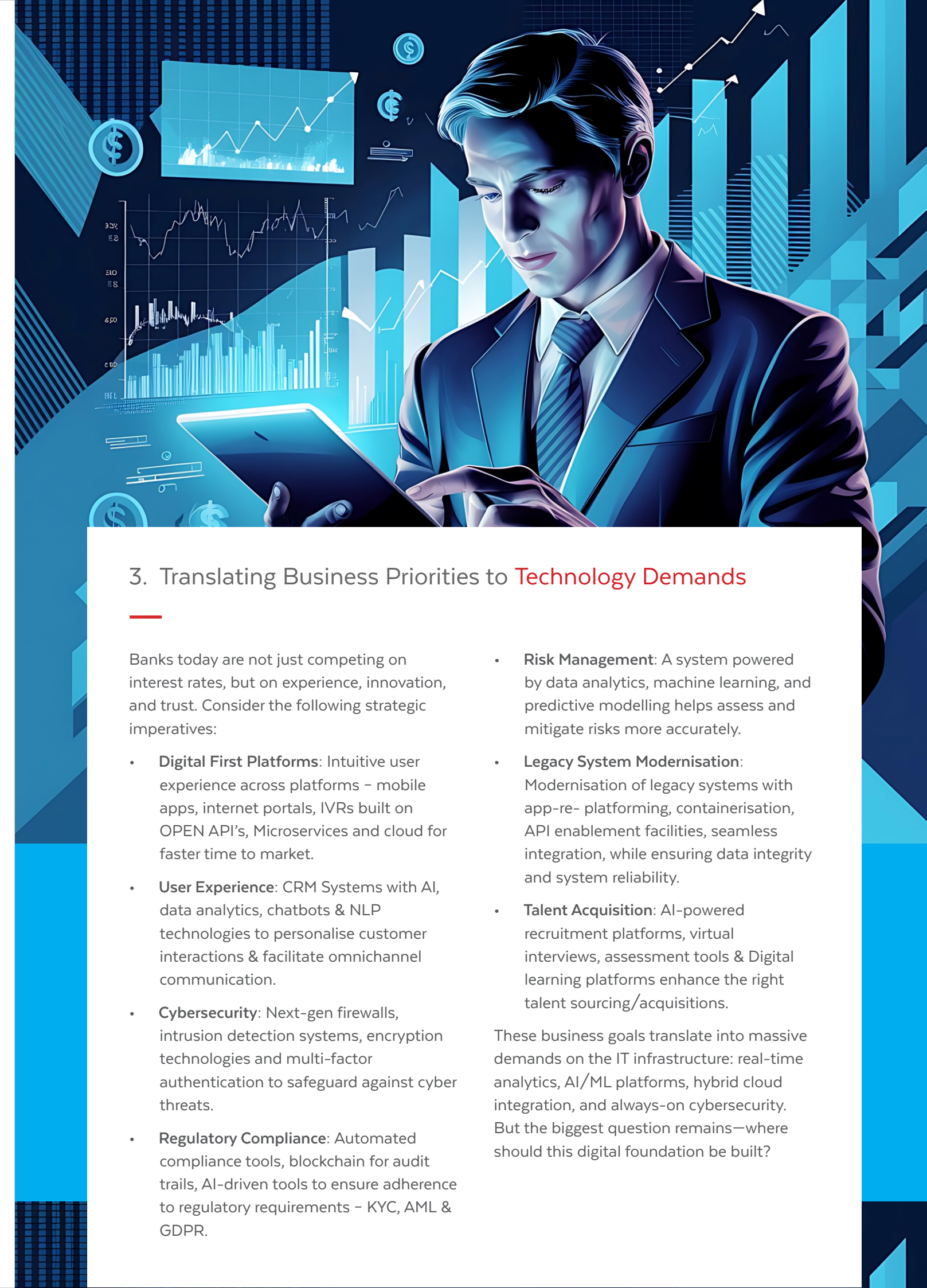
3. Translating Business Priorities to Technology Demands

Banks today are not just competing on interest rates, but on experience, innovation, and trust. Consider the following strategic imperatives:

- **Digital First Platforms:** Intuitive user experience across platforms – mobile apps, internet portals, IVRs built on OPEN API's, Microservices and cloud for faster time to market.
- **User Experience:** CRM Systems with AI, data analytics, chatbots & NLP technologies to personalise customer interactions & facilitate omnichannel communication.
- **Cybersecurity:** Next-gen firewalls, intrusion detection systems, encryption technologies and multi-factor authentication to safeguard against cyber threats.
- **Regulatory Compliance:** Automated compliance tools, blockchain for audit trails, AI-driven tools to ensure adherence to regulatory requirements – KYC, AML & GDPR.

- **Risk Management:** A system powered by data analytics, machine learning, and predictive modelling helps assess and mitigate risks more accurately.
- **Legacy System Modernisation:** Modernisation of legacy systems with app-re- platforming, containerisation, API enablement facilities, seamless integration, while ensuring data integrity and system reliability.
- **Talent Acquisition:** AI-powered recruitment platforms, virtual interviews, assessment tools & Digital learning platforms enhance the right talent sourcing/acquisitions.

These business goals translate into massive demands on the IT infrastructure: real-time analytics, AI/ML platforms, hybrid cloud integration, and always-on cybersecurity. But the biggest question remains—where should this digital foundation be built?

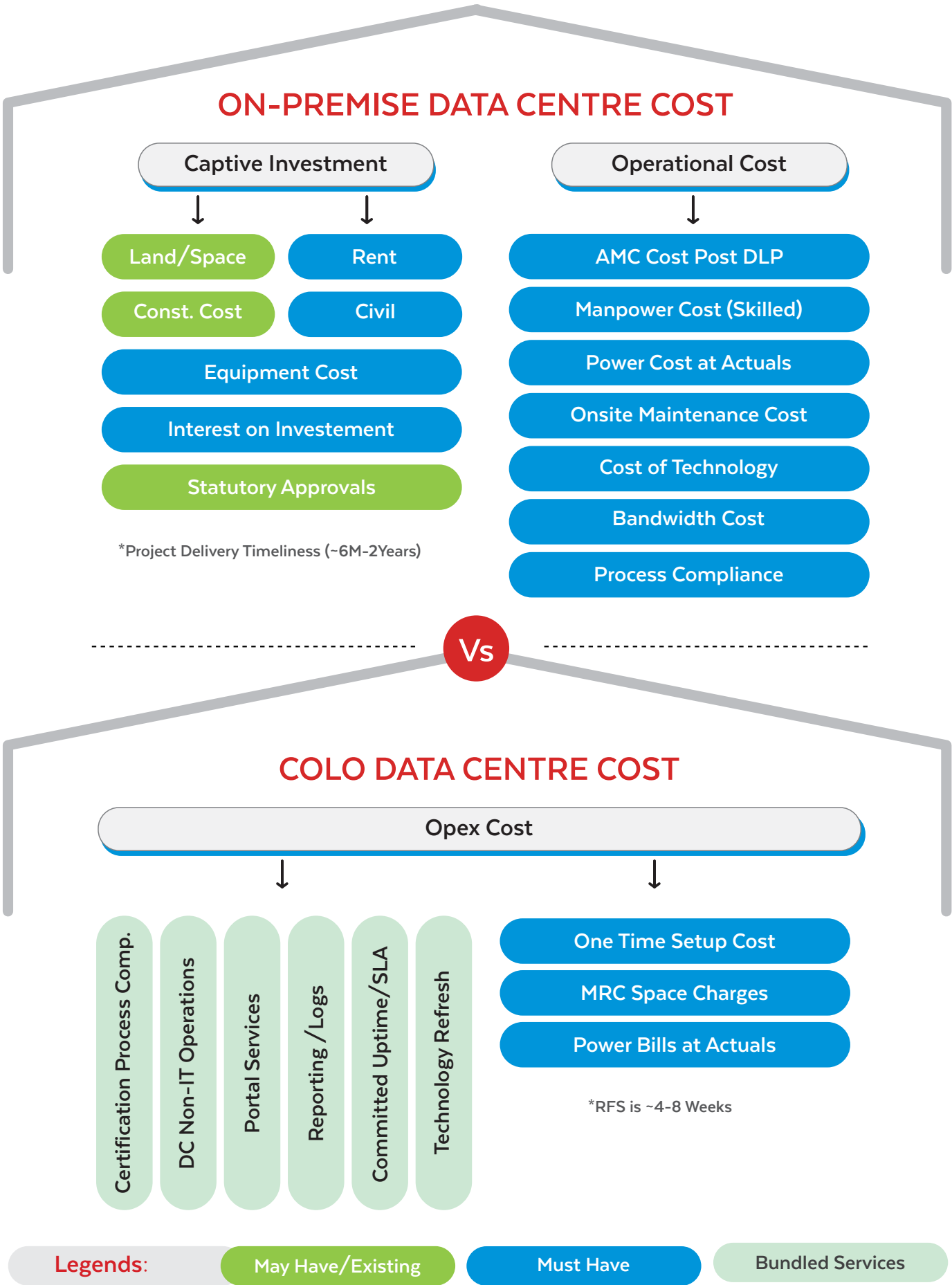


B. DIGITALISATION OF DATA CENTRES

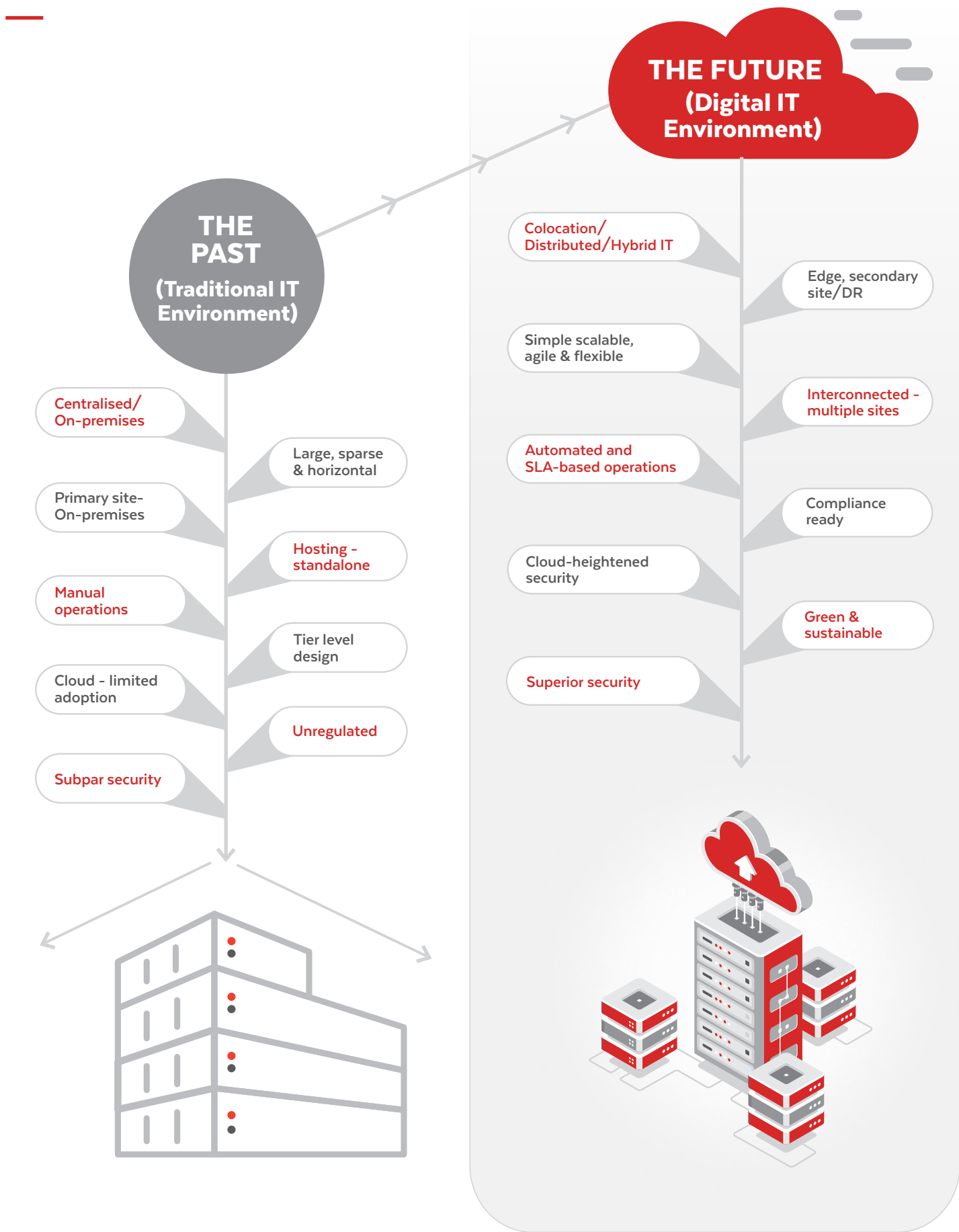
1. Captive On-premise Data Centre Vs Colocation Data Centre

Category	On-premise Data Centre	Colocation Data Centre
Ownership	Fully owned and managed by the organisation	Rented space in a third-party facility
Capital Investment	High upfront costs	Lower initial costs; pay-as-you-go model
Control	Full control over infrastructure and operations	Limited control; provider manages facility infrastructure
Scalability	Requires physical expansion and investment	Easily scalable by leasing more space
Maintenance	Handled internally	Facility maintenance handled by provider
Security	Customisable, organisation-defined	Provider-managed with standard protocols
Location	Typically, on-premises	Multiple geographic options available
Power & Cooling	Managed by the organisation	Included in service
Compliance	Must be obtained and maintained by the organisation	Often included by provider
Disaster Recovery	Requires separate planning	Often includes built-in redundancy
Cost Over Time	Potentially lower if optimised	Ongoing operational expenses
Deployment Speed	Slower due to construction/setup	Faster with ready-to-use infrastructure

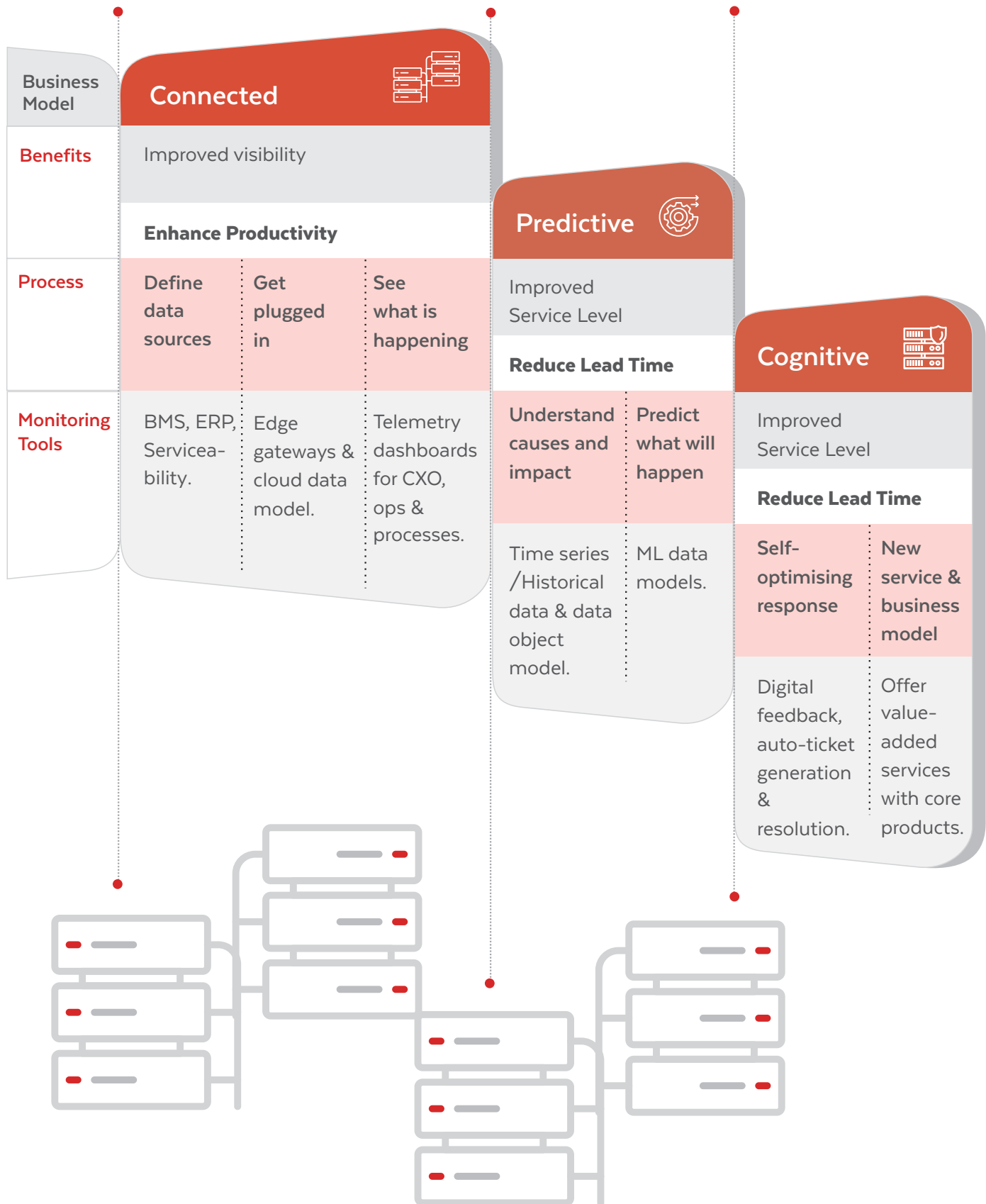
Cost Component



2. Evolution of Digital IT Environment



3. Digitalising Data Centres



C. AI-READY COLOCATION DATA CENTRES

1. Building Blocks for an AI-ready Data Centre



2. Transform Data Centre Management with AI/ML

- **Realtime Visibility**
 - Operations: Land, Building, POD, People & Process
 - DC Infrastructure Assets: Active & passive information
 - Resource Utilisation
 - Space – Rack Space
 - Power – Grid Power, DG, UPS, RE & Power Exchange
 - Cooling
 - Cross Connects
 - **Measurability**
 - Operations: Condition or SOP-based monitoring
 - Resource capacity utilisation and trend analysis: Time-based (Daily, weekly, monthly etc.) and facility wide comparative analysis
 - KPI-based service contract renewal
 - Usage-based infrastructure resource planning
 - **Predictability**
 - Failure & downtime: MTBF, MTTR, MTTA, MTTRF, RCA & Service TAT.
 - Demand forecasting and capacity planning.
 - Maintenance, service & support requirements –
 - Preventive maintenance of assets
 - AMC contract realisation
- **Efficiency**
 - Service & support efficiency
 - Capacity utilisation
 - Rack space burn down or consumption efficiency
 - Power Utilization Efficiency (PUE) [GRID/RE]
 - DG power fuel efficiency
 - UPS power efficiency (load requirement v/s backup time)
 - Water Utilization Efficiency [WUE]
 - DC carbon footprint
 - **8-10% savings on PUE**
 - **20% improvement in equipment uptime**
 - **Monthly savings of up to 300-person hours**
 - **10% reduction in operating cost**
- ### 3. Comprehensive Security Framework

 - Confidentiality, integrity, & accessibility based secured policy
 - Centralised security command centre
 - 10 layers of physical security
 - Surveillance and risk assessment
 - Electronic security & controls
 - Process review and improvement

D. SUSTAINABILITY AT THE COLOCATION DATA CENTRES

1. ESG – Fostering responsible AI led digital growth with sustainable digital infrastructure

- **Environment:** Leveraging carbon-free energy – greening new builds – optimising performance
- **Social:** Ensuring safe workplaces – advancing diversity & inclusion –
- **Governance:** Zero-tolerance policy on bribery, kickbacks, & corruption – advocating ethics & compliance

2. Liquid Cooling for AI & Power-dense Networks

Rear Door Heat Exchanger (Ideal for 20-50 kW rack load | PUE ~1.4)

The Rear Door Heat Exchanger is a practical solution for high-density racks, using radiator-like doors mounted at the back of the rack to cool server exhaust air with chilled water. It eliminates the need for raised floors or air handlers, making implementation easy. However, it requires careful space planning and CFD analysis and may not be efficient for racks with loads under 10 kW. The system can be configured for either active or passive cooling based on design needs.

Direct-to-Chip Cooling (Ideal for 50-150 kW rack load | PUE 1.2-1.4)

Direct-to-chip cooling delivers liquid coolant directly to heat-generating components such as CPUs and GPUs. This method ensures precise temperature control, enhances heat dissipation, and supports higher power densities within the same footprint. It also reduces energy consumption and operational costs, making it an efficient choice for AI-intensive data centres that demand performance, reliability, and sustainability.

Liquid Immersion Cooling (Ideal for 50-200 kW rack load | PUE 1.2-1.35)

Liquid immersion cooling involves submerging entire servers in a dielectric fluid that absorbs and dissipates heat more effectively than air. The system operates in a closed loop, circulating heated fluid to external cooling units and returning it after heat removal. It requires purpose-built enclosures and fluid management infrastructure, but offers excellent thermal efficiency, especially for ultra-dense computing environments. Key technical considerations include the type of dielectric fluid, enclosure design, and heat extraction mechanisms.



E. OVERVIEW OF STT GDC INDIA

STT GDC is an integrated global platform of carrier-neutral and advanced data centres across developed and emerging markets. Currently, STT GDC actively manages a portfolio of over 501 data centres with an aggregate IT load of 1+ gigawatt and net floor area of >4.5 million sq. ft across India, Indonesia, Japan, Philippines, Singapore, South Korea, Thailand, United Kingdom & Germany.

STT GDC India, operating since 2004, has solidified the position as the leader in the Indian colo market, with 30 DCs across 10 cities totalling ~ 7 Mn sq.ft. of GFA and ~400 MW of critical IT load & planned IT capacities of ~550 MW. INR 10000 Cr of MoUs signed with multiple states- UP, MH, TN, & KA for DC investments. Actively involved in policy build for data centres.

1. STT GDC India’s Services & Solutions

- **COLOCATION:** Customers can operate at any scale and level of privacy that their business requires with high flexibility, ranging from rack to multi-megawatt. Our bespoke solutions can include cage, suite, and/or containment.
- **CONNECTIVITY:** Customers are enabled to interconnect within the data center or city with network service providers, business partners, and the public cloud and unlock a whole host of business opportunities through our connectivity options.
- **SUPPORT SERVICES:** Customers can enjoy complete peace of mind with our suite of complementary services performed to the highest service delivery standards by qualified and accredited 24x7 data centre professionals as their own extended team members.
- **HIGH-PERFORMANCE AI-READY DATA CENTRES:** Customers can leverage the AI Cloud service of STT GDC India, which provides a compute cluster with enterprise AI tools, a dedicated large-scale bare metal private cloud and a full stack of AI IAAS products.

2. High-performance AI Data Centres for Cloud Provider

We have most of the large global OEM’s hyperscalers as our customers, we have got hyper scale data centres running at STT GDC India. With the evolution of technology, we have helped and are helping these global cloud players & a few banks in building a suite of hyper-scale data centres.

- **High-Density:** From 10 KW to 40 KW/50KW/150 kW.
- **Changing & Challenging Cooling Tech:** From standard air-cooled to in- row, DLC & immersion.
- **High Power efficiencies/Lower PUEs:** More sustainable, lower costs, & PUE from 1.65 to 1.15.
- **More avenues of DC services:** High-performance computing, BMaaS, GPU as a service.
- **The changing face of the data centre floor:** From racks to tanks, 3x-4x more IT capacity from same space, 40% more power available to IT due to lower PUE, & portable containers.



3. Awards & Recognitions

SI No.	Award Category	Year	Award Name
1	Sustainability Award	2024	IGBC Green Data Centres - Awarded “GOLD 2024” Status for STT Chennai 3 & STT Noida 1
2	Sustainability Award	2024	Excellence in Energy Management and Renewables at ASSOCHAM SR 4th Edition of CSR & Sustainability Conference & Awards 2024
3	Sustainability Award	2024	IGBC Green Data Centres - Awarded “Platinum” Status for STT Bengaluru 3
4	Sustainability Award	2025	IGBC Net Zero Water for STT Bengaluru 3
5	Operational Excellence Award	2024	Uptime Institute data Centre awards 2024 - STT Bengaluru 1
6	Industry Recognition	2024	Highest category in the leader bucket in the IDC Market Scape assessment in India
7	HR Award	2020 - 2025	Great Place to Work Certification 2020-21/ 2021-22/2022-23/ 2023-24/ 2024-25/ 2025-26
8	HR Award	2021 - 2024	India’s Great Mid-Size Workplaces 2021/2022/2023/2024
9	DC Industry Award and Recognition	2018-2024	Frost & Sullivan Awards “Indian Data Center Colocation Company of the Year Award” 2018/2019/2020/2021/2022/2023 /2024
10	DC Industry Award and Recognition	2025	Top 50 Great Mid-Size Workplaces 2025
11	DC Industry Award and Recognition	2025	CII-EHS Excellence Awards 2025 - Bangalore DC3 Site Bronze Award Winner
12	CSR Award	2024	Golden Peacock Awards – CSR 2024 (Lakhpati Kisan)

F. ROLE OF STT GLOBAL DATA CENTRES IN BANKING OPERATIONS

A bank’s primary role is conducting banking operations and business. There are many banks that have their own data centres and have been managing them successfully. The future holds numerous continuous expectations, ranging from the tech refresh of infrastructure to adapting new technologies and adhering to government compliances in India.

For the BFSI sector, where **regulatory compliance, customer trust, and uninterrupted availability** are non-negotiable, STT GDC India provides a robust, secure, and sustainable foundation. Its facilities are certified for **ISO 27001 (Information Security), ISO 22301 (Business Continuity), PCI DSS, and SOC 1 Type II**, directly aligning with the security, risk management, and audit requirements of RBI, SEBI, and IRDAI-regulated institutions.

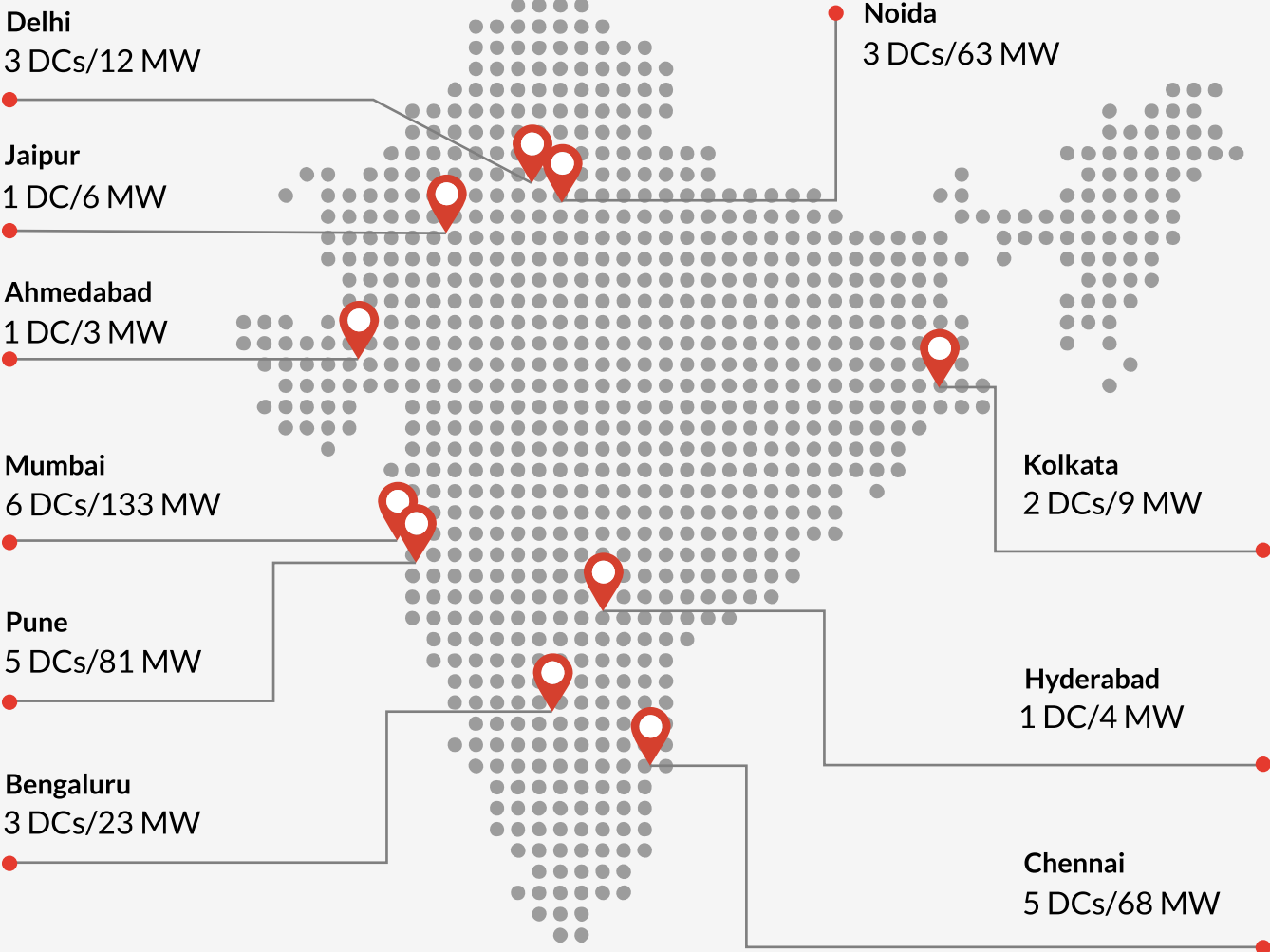
1. What STT GDC India Offers to BFSI

- Resilient & Compliant Infrastructure**
Built to deliver uninterrupted operations, STT GDC India’s facilities adhere to global standards that ensure financial institutions remain compliant while safeguarding sensitive customer and transaction data.
 - Sustainable Growth, Aligned with ESG Goals**
With **47.6% of energy consumption from renewables** and a clear pathway to **carbon neutrality by 2030**, STT GDC India helps BFSI enterprises meet both business and sustainability commitments. Advanced innovations such as **liquid immersion cooling** and **direct-to-chip cooling** ensure high-density workloads like AI are managed sustainably.
- AI-Ready Infrastructure for the Future of Banking**
As AI transforms fraud detection, credit risk analysis, and personalised customer experiences in BFSI, STT GDC India provides **AI-ready data centres** equipped with GPU clusters, high-density racks, and cutting-edge cooling technologies to run these workloads securely and efficiently.
 - Customer Centricity as a Differentiator**
With an **industry-leading Net Promoter Score of 85**, STT GDC India has earned the trust of enterprises that depend on reliability, responsiveness, and scalability to serve millions of customers daily.



30 DCs in 10 Cities

DELHI & NOIDA
6 DCs/75 MW



* includes under construction facilities

#EnablingOurDigitalFuture