



# Manufacturing Industry **sify**<sup>®</sup>

Data Center and Cloud Battle Card



# Manufacturing – DC and Cloud Battle Card



## Industry Overview

The manufacturing industry in India has the **second-highest cloud adoption rate of 17%**, after the IT industry. The Indian manufacturing market is expected to **register a CAGR of 19.4% from 2015 to 2020**

The global discrete manufacturing industry's spend on public cloud services touched **INR 19.7 Tr** in 2018

Hybrid industrial cloud adoption by manufacturers is forecast to **double** over the next five years (**2018–2023**)

Cloud-hosted services will account for almost **50%** of all organization-level software usage among manufacturers by 2023 (2017)

**CAGR of 19.4% from 2015 to 2020**



In 2016, **over 22% of Indian** manufacturers used a cloud delivery model to distribute software; this is expected to exceed **45%** in the next decade

Indian manufacturing companies spend **0.28–0.36% of their revenue** on cloud and Data Center (DC) services in 2018  
*\* Ballpark estimation based on primary inputs*

**Currently, 30%** of Indian manufacturing companies leverage cloud technology (Jun 2017)

Source: IBEF,PWC,IDC

## Industry Drivers

India's manufacturing industry is driven by **technological innovations, economic growth, Industry 4.0, and favorable government policies**



### Advent of Industry 4.0:

- The application and use of latest technologies, such as **Big Data, AI / ML and robotics, have increased**
  - India's first smart factory is being set up in Bengaluru
  - The **Andhra Pradesh government** aims to turn the state into an **IoT hub** by 2020



### Government Policy Support

- The National Manufacturing Policy aims to increase the share of manufacturing in GDP from **15% to 25% by 2022**
- The **'Make in India'** initiative is also boosting the growth of the manufacturing sector



### Focus on Technology Integration, Innovation

- PwC's 2019 survey suggests **58%** of companies in India are focusing on increased technology integration to enhance their competitiveness



### Favorable Economy and Business Conditions

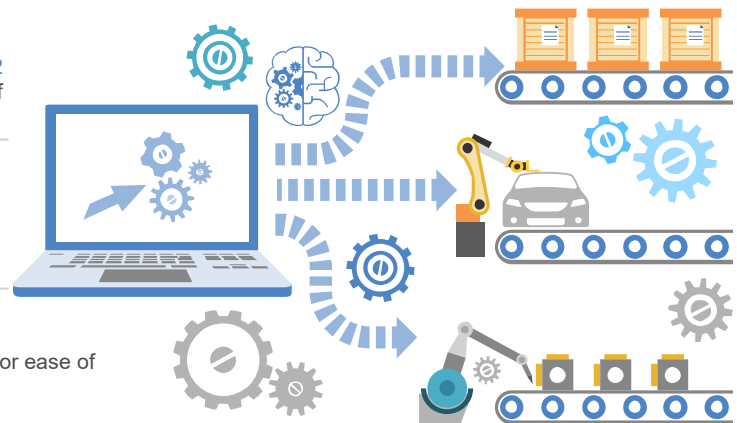
- In 2018, India was ranked **77<sup>th</sup>** compared to 100 in 2017 for ease of doing business as per a World Bank survey
- In FY2018, FDI inflows into India stood at **INR 4.4 Tr**



### Significant Operational Improvement in Manufacturing

According to a survey by EMC:

- Over **88%** respondents view cloud services as critical to realize digital transformation
- Over **82%** are able to make real-time business decisions leveraging cloud services



## Key Technology Trends in Manufacturing Industry



### Hybrid Cloud

Hybrid cloud adoption in the manufacturing industry will **double in 2018–2023** at a **CAGR of 21.1%**



### RPA and ML

The global industrial robot market is expected to reach **INR 5.21 Bn by 2023**, from **INR 2.36 Bn in 2016**



### Cyber Security

Indian companies, including manufacturing firms, have **tripled** their cyber security budgets (2018)



### Blockchain

**Globally**, manufacturers' spend on blockchain will reach **INR 2.1 Bn by 2020 and INR 40 Bn by 2025**



### Artificial Intelligence

Experts say that the deployment of AI to its full potential in the manufacturing industry can add **INR 87 Tr to India's economy by 2035**



### Additive Manufacturing

The additive manufacturing industry in the **APAC** region is projected to reach **INR 394.7 Bn by 2025**

## Key Pain Points

78%

Companies face **agility challenges while adopting new technologies**

78%

Firms **feel there is a skill gap** in maintaining current technologies

23%

Firms are **not yet on board with the business value of new technology solutions**, and are behind on adoption readiness.

71%

Companies **face higher cost of investment** for IT technologies

51%

Companies generally believe in the business value of new technology solutions, **but are behind on adoption readiness**

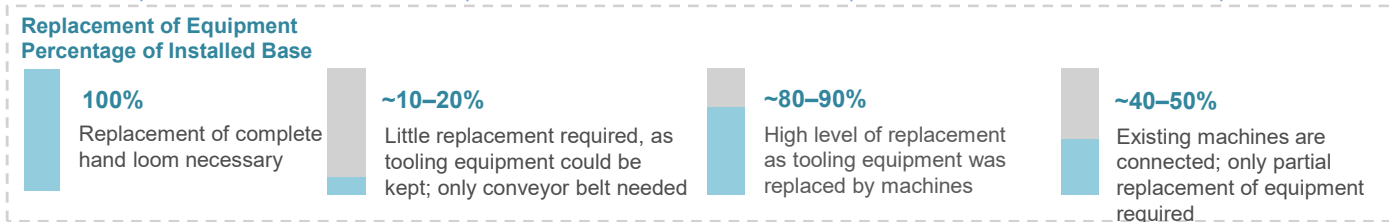
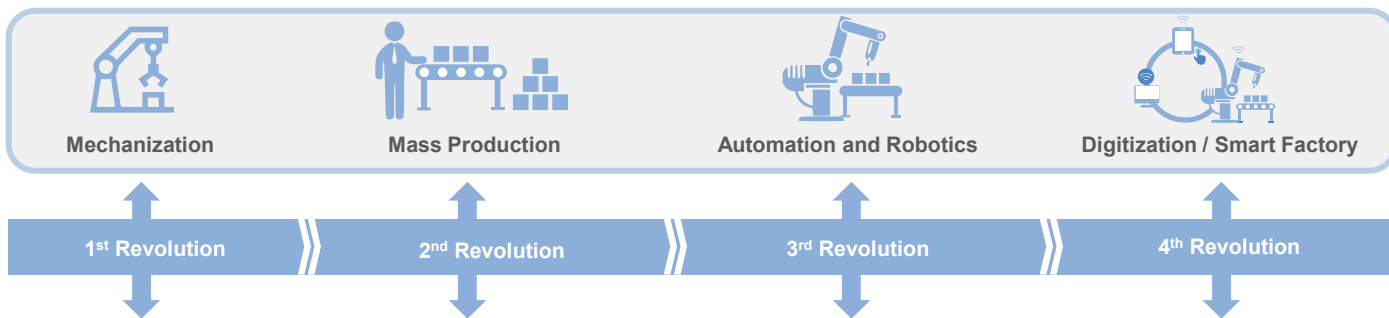
Sources: Deloitte Industry 4.0 Report

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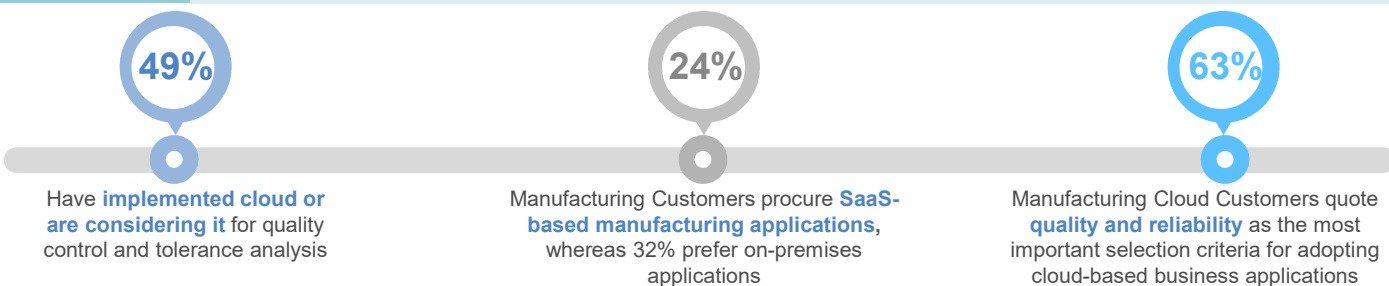
## Journey towards Industry 4.0

The global manufacturing industry has undergone **extensive digitization** and is entering the **Industry 4.0 phase**, with large Indian and APAC manufacturers not far behind



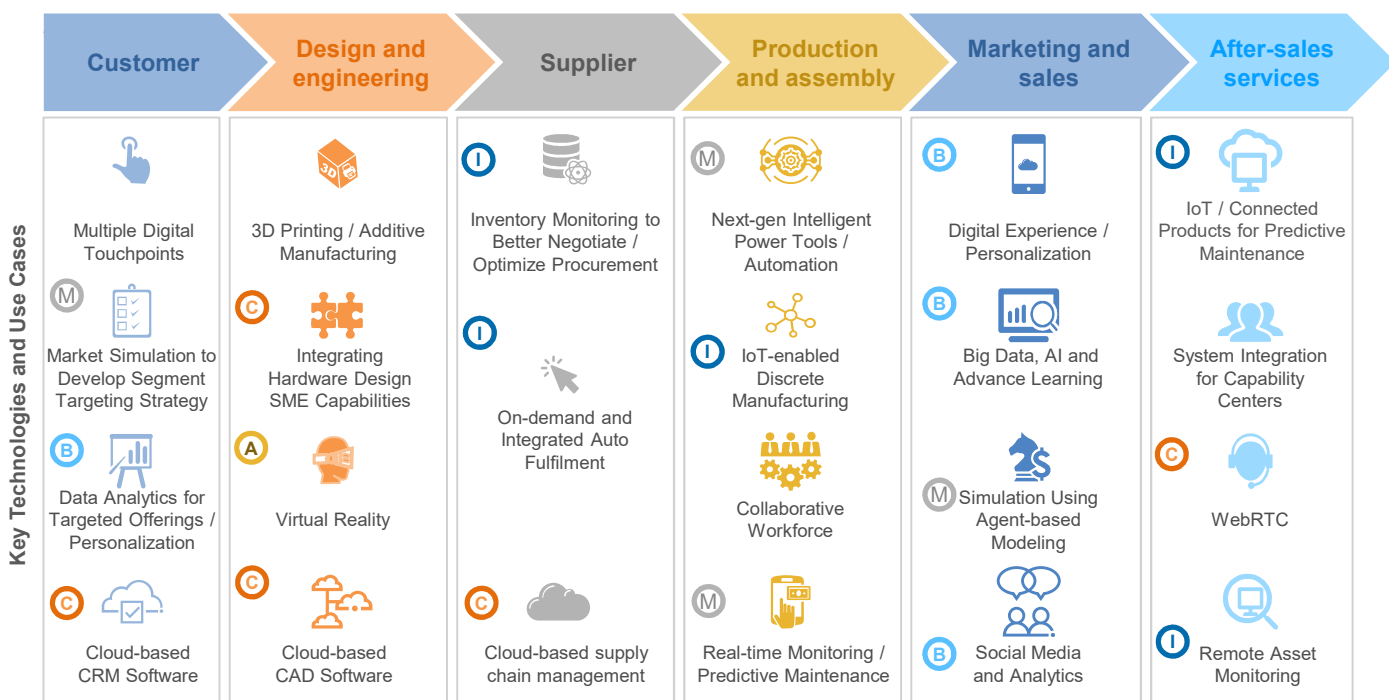
## Increased Cloud Adoption

**Cloud adoption** in the manufacturing sector has reached significant levels, as **~60% of manufacturers prefer the cloud model over on-premises** deployment



## Impact on Manufacturing Value Chain

According to a study by *The Economist*, **60%** of respondents believe cloud is '**very important**' in supporting production processes, while **54%** believe it is **needed for a better supply chain**. **Over 52%** believe it is '**very important**' for enabling **design & prototyping**, and **48%** said it is '**important**' for inventory, orders & distribution



**Key Influencing Technology** **B** Big Data and Analytics **M** ML / AI **I** IoT **A** AR / VR **C** Cloud

*\*Many technologies / use cases are applicable for multiple instances*

# Manufacturing – DC and Cloud Battle Card



## Cloud Use Cases

Cloud technologies play an important role in **multiple manufacturing areas**, making a business case for its **increased adoption and usage**



### Operations

To support data analytics to improve operations and reduce cost

- **J&J analyzes Big Data in cloud** to drive insights
- **Jabil** is integrating predictive analytics with real-time manufacturing to **reduce the cost of scrap and re-work by 17%**



### Supply Chain

To gain agility and speed in resolving problems through effective collaboration

- **Pfizer leverages cloud** to re-engineer its supply chain
- **Sandvik Coromant** uses a cloud solution to aggregate IoT data and reduce **emergency shutdown time decisions from 2 second to 100 millisecond**



### Design

To offer data capacity and virtualized computing to enable digital designs

- **Aston Martin** uses **cloud-based CAD to reduce design time**
- **TetraPak** has transformed its production lines with **cloud-connected predictive analytics** and **mixed reality to prevent breakdowns and fix equipment with remote experts**



### New Prod. System

To enable real-time, M2M and M2P communication

- **GE's** operating system for industrial internet uses **cloud as a base**
- **JCB** uses **Live Link, a cloud-based IoT program**, to allow its customers to be in constant touch with its machines by **sending out real-time data and keeping them informed at all times**



### Consumption

To enable remote update and maintenance of products / services

- **Ford** uses cloud to **remotely update vehicles' infotainment systems**
- **Volvo and Toyota** are building **SOTA (Software-over-the-air)** capability into their new vehicle architectures to upgrade vehicles remotely

## Conversation Triggers

Manufacturers are leveraging **scalable cloud solutions** to **enable digital transformation of their operations** as well as to gain from **Industry 4.0 applications**

Impact on Demand

● High

● Medium

○ Low

### Infrastructure Enablers

Technology / Trend	Conversation Triggers	Data Centre	Colocation	Cloud	DR / Recovery	Managed Services
<p>Hybrid Cloud</p>	<ul style="list-style-type: none"> <li>• <b>More than 43% of Indian enterprises will adopt Hybrid cloud by 2020</b></li> <li>• <b>Hybrid cloud</b> workloads in India to more than triple to <b>43% by 2020</b>, from <b>13% in 2018</b></li> <li>• Microsoft launched its <b>Hybrid Cloud offering 'Azure Stack' in India</b>; manufacturing is among the top three customers, along with financial services and IT (2017)</li> </ul>	●	●	●	●	●
<p>Public Cloud</p>	<ul style="list-style-type: none"> <li>• <b>India's public cloud services market</b> reached <b>INR 177 Bn in 2018</b></li> <li>• Among all verticals, discrete manufacturing spent the maximum (INR 1.4 Tr) on public cloud services in 2018 (Global)</li> </ul>	●	●	●	○	●
<p>IoT / Automation</p>	<ul style="list-style-type: none"> <li>• Cloud-enabled IoT platforms provide real-time visibility into operational data that was previously unavailable</li> <li>• Microsoft's <b>Azure IoT platform</b> was leveraged by an <b>Indian packaging company</b> to digitally transform its manufacturing operations (2018)</li> </ul>	●	●	●	●	●
<p>AI / Big Data</p>	<ul style="list-style-type: none"> <li>• The retail Big Data analytics market is projected to grow to <b>INR 639.7 Bn by 2023</b>, from <b>INR 202.3 Bn in 2017</b></li> <li>• SAP has launched <b>AI- and machine learning-driven ERP SaaS</b> cloud solutions for India (2018)</li> </ul>	●	●	●	●	●
<p>Hyperscale Infrastructure</p>	<ul style="list-style-type: none"> <li>• <b>India's data center industry</b> is expected to reach <b>INR 284 Bn by 2024</b>, registering a <b>CAGR of 9% during 2018–2024</b></li> <li>• CtrlS, Asia's <b>largest Tier-4 data center</b> operator, announced the launch of a new tier-4 data center in Bengaluru (2018)</li> </ul>	●	●	●	●	●
<p>Digital Manufacturing</p>	<ul style="list-style-type: none"> <li>• <b>The global digital manufacturing market</b> is expected to grow at a <b>CAGR of 24%</b> during 2018–23</li> <li>• SAP released its cloud solution, <b>Digital Manufacturing Cloud</b>, to help companies optimize performance, elevate quality and efficiency, and ensure safety (2018)</li> </ul>	●	●	●	●	●

## Service Comparison: Sify Vs. Competitors

### Data Center Infrastructure

	Sify	Netmagic	CtrlS	Airtel	ST Telemedia	RCom
<b>No. of DCs</b>	9	11	6	10 (Nextra Data)	16	9
<b>Uptime</b>	100% since last 10 years	99.990%	99.995%	99.982%	99.990%	-
<b>Experience</b>	18+ Years	~20 Years	~10 Years	12+ Years	~15 Years	~17 Years
<b>Certifications</b>	ISO9001, ISO27001, ISO20000, PCI, HIPPA, TIA942, PCI DSS	ISO27001, ISO9001, ISO20000, TIA942	ISO20000-1, ISO 27001, ISO 22301 (Mumbai DC is LEED certified)	ISO 22301 / 27001 / 20000-1	ISO 27001 / 20000 / 14000, TIA 942	ISO 9001 / 20001 / 27001 / 50001 / ISO 18001

### Areas of Offense

### Areas of Defense



- STT GDC India does not have managed hosting or cloud services, but partners with Tata Communications to offer managed hosting and cloud to end clients.
- Netmagic's Noida and Chennai data centers operate on leased premises, which make customers vulnerable to security threats
- RCom's Bengaluru data center (in Peenya) has been facing accessibility and theft related problems
- Sify operates a national MPLS network, connecting 47 data centers, including third-party data centers. Through its interconnections with global carriers, Sify can also support Indian MNCs with international hosting and cloud requirements



- ST Telemedia and Airtel have more data centers than Sify Technologies. Further, Airtel is planning to build 10 data centers across India
- CtrlS claims that together, its three datacenters, support power capacity of 58 MW. The company is planning to launch two new DCs in Hyderabad (100 MW facility) and another two in Mumbai (60 MW facility).
- Netmagic leverages its parent company NTT Communications' improved managed and professional services capabilities to win complex projects
- CtrlS' data centers have been rated by 4 by ANSI/TIA-942

### Cloud Portfolio Comparison

	Sify	TATA Comm.	Netmagic
<b>Cloud Services Suite</b>	<ul style="list-style-type: none"> <li>• Goinfinit AWS (Public Cloud)</li> <li>• Cloudinfinit</li> <li>✓ Enterprise Cloud</li> <li>✓ VPE (Virtual Private Enterprise)</li> </ul>	<ul style="list-style-type: none"> <li>• IZO Private Cloud (Enterprise Cloud)</li> <li>• Managed Services for Azure and AWS</li> <li>• Cloud Containers, Storage, and Analytics under 'As a Service' Model</li> </ul>	<ul style="list-style-type: none"> <li>• Simplificloud (Public Cloud)</li> <li>• Private Cloud (Dedicated Private Cloud, Virtual Private Cloud, Integrated Hybrid Cloud Env.)</li> <li>• Migration as a Service, Managed Storage, Backup as a Service</li> </ul>
<b>Compute Environment</b>	<ul style="list-style-type: none"> <li>• Minimum Capacity of 48 vCPUs and 265 GB of vRAM Per Node</li> <li>• Offers a choice between HyperV and VMware hypervisors</li> <li>• BYOL policy for OS and DB (Windows Server, SQL Server, Red Hat, Oracle)</li> </ul>	<ul style="list-style-type: none"> <li>• Hypervisor Support for KVM, VMWare ESXi, and HyperV</li> <li>• OS Support – Windows, Ubuntu, and RHEL</li> <li>• Database – MySQL and MongoDB</li> </ul>	<ul style="list-style-type: none"> <li>• Hypervisor Support for VMware and HyperV</li> <li>• OS Support – Windows, RHEL, Ubuntu, SUSE, Debian</li> <li>• Database – MySQL, Oracle</li> </ul>
<b>Storage</b>	Freedom of Choice between Three Tiers <ul style="list-style-type: none"> <li>✓ High-performance Tier</li> <li>✓ Standard Tier</li> <li>✓ Economy Tier</li> </ul> Storage Type: NAS, Object, and All flash	<ul style="list-style-type: none"> <li>• NetApp, EMC, and Cloudbyte Powered Storage services</li> </ul>	Info unavailable
<b>Uptime (at infra level)</b>	<ul style="list-style-type: none"> <li>• 99.50% per VPE</li> <li>• 99.90% for VPE – HA</li> <li>• 99.95% VPE – HA + DR</li> </ul>	Doesn't explicitly mention uptime commitment. Claims to offer enterprise-level SLAs	Doesn't explicitly mention uptime commitment. Claims to offer strong SLAs
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• IP Sec – VPN</li> <li>• SSL VPN Connectivity</li> <li>• Upto 100 Mbps Throughput</li> <li>• Global Cloud Connect (Cloud Connect Service)</li> </ul>	Connectivity through <ul style="list-style-type: none"> <li>• Public Networks (Public IP)</li> <li>• Private Networks (IP Sec Tunnel, MPLS, GDE)</li> <li>• IZO Private and Public Connect (Cloud Connect Service)</li> </ul>	Relies on NTT Communications to provide connectivity

## Cloud Portfolio Comparison

	Sify	TATA Comm.	Netmagic
<b>Security</b>	<ul style="list-style-type: none"> <li>Integrated Security Services</li> <li>vFirewall</li> <li>IPS Protection</li> <li>Network DDoS</li> <li>Fortnox</li> <li>SIEM</li> <li>vUTM</li> </ul>	<ul style="list-style-type: none"> <li>SIEM, ATP</li> <li>Cloud WAF, UTM, DDoS (Arbor), IDP, Firewall Audit &amp; Optimization</li> <li>IDaaS, CASB, 2FA</li> <li>GRC Consulting, Vulnerability Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Detection and Mitigation of Targeted Attacks on Critical Applications</li> <li>Application Layer Detection and Mitigation (Powered by Arbor Networks)</li> <li>IPS / IDS</li> <li>SIEM</li> </ul>
<b>Reporting and Analytics</b>	<ul style="list-style-type: none"> <li>Dashboards, Online Reports, Alerts, Watermarks, and Help Desk</li> <li>Analytics for Infrastructure, Platform, and Applications</li> </ul>	<ul style="list-style-type: none"> <li>Customized Reporting and Dashboards</li> </ul>	<ul style="list-style-type: none"> <li>Customer Portal that Enables Configuration and Management of Cloud Environment</li> </ul>
<b>Backup and Recover</b>	<ul style="list-style-type: none"> <li>Cloudinfint Backup (Of Data to be Protected)</li> <li>DR on Geographically Distant Cloud Site</li> </ul>	<ul style="list-style-type: none"> <li>Secure Cloud Backup Service</li> </ul>	<ul style="list-style-type: none"> <li>Backup and Disaster Recovery Options</li> </ul>
<b>Managed Services</b>	<ul style="list-style-type: none"> <li>Integrated Managed IT Services (Single Partner Managing Cloud, Infrastructure, and Environment)</li> </ul>	<ul style="list-style-type: none"> <li>Integrated Managed Services</li> </ul>	<ul style="list-style-type: none"> <li>End-to-end Managed Services</li> </ul>

### Areas of Offense



- CtrlS has **limited experience in supporting third-party cloud services**, such as AWS and Microsoft Azure
- ST Telemedia and CtrlS **don't have their own network backbone**, and largely depend on partners for connectivity services; Sify has strong network presence in India
- Tata Communications has **discontinued its public cloud service (Instacompute)**, as it was not able to compete with hyperscale cloud providers

### Areas of Defense

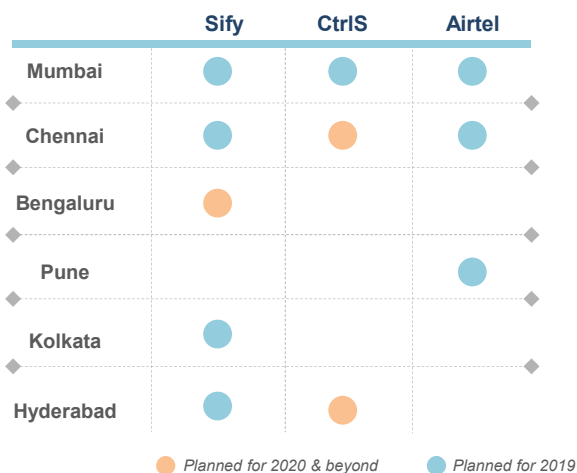


- Netmagic, after its integration with NTT Communications, **provides a comprehensive range of managed services and connectivity to major cloud service providers**
- Companies such as CtrlS, Netmagic, and Airtel **claim to offer uptime of 99.99% for their cloud services**
- Airtel is one of the empaneled partners for India's central government and several state governments' cloud-based projects; it poses serious competition to Sify, when it comes to government deals
- Reliance Jio is likely to adopt an **aggressive pricing approach**, similar to the one it adopted for its consumer services, for its enterprise IT / cloud services

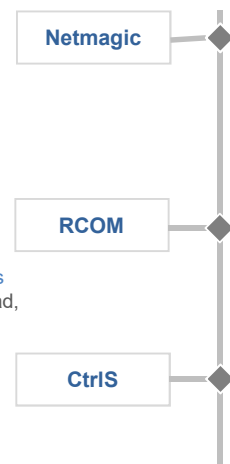
(Source : Primary Interview)

## Competitors' Strategic Focus Areas

Sify, CtrlS, and Airtel have announced plans to build new data centers in India. Netmagic, RCom, and other companies opened new facilities in 2018



- Netmagic opened new data centers, **one each in Mumbai and Bengaluru, in late 2018**
- Its Bengaluru data center spans across 250,000 sq. ft., while the Mumbai site spans across 300,000 sq. ft. The company plans to add 150 personnel to its current workforce of 1,270, as it looks to grow further
- RCom **opened a hyperscale data center in Mumbai in mid-2018**
- The company also **plans to build connected data centers in key hubs across India, including Bengaluru, Hyderabad, and Chennai**
- CtrlS is **investing ~INR 2 Bn on infrastructure expansion**, to target the BFSI sector
- The company is **setting up Tier 4 facilities in Hyderabad (~100 MW), Mumbai (60MW), and Chennai**; these will take its data center footprint to 5 million sq. ft. by 2020



**Digitization and government initiatives** are compelling data center service providers to **invest heavily in building new data centers**

## Focus on Cloud Services

Increasing demand in India has led companies, such as Netmagic and CtrlS, to amplify their focus on cloud services

- Netmagic is [planning to target customers who are looking to adopt a multi-cloud environment](#). It plans to offer a one-stop solution for data migration to private, public, and third-party cloud services such as AWS, Google, and Microsoft
- CtrlS is also [investing heavily \(~INR 2 Bn\) in infrastructure](#) to tap the growing cloud market in India

## Rise of Reliance Jio

After disrupting the consumer telecom space, [Reliance Jio is planning to step into the enterprise service segment](#), specially cloud, IoT, and network services

- Reliance Jio has [started testing its public and private cloud](#) within Reliance group companies
- It plans to develop a state-of-the-art green field data center in an upcoming 100-acre IT hub in Kolkata, West Bengal

## Airtel Bets BIG on Datacenters

Bharti Airtel is preparing to play a bigger role in the enterprise segment through a new cloud and data center strategy, under which it will undertake the following

- Airtel's wholly-owned data center unit, Nextra Data Ltd, [is planning to set up 10 new data centers](#), including four in Pune, Chennai, Mumbai, and Kolkata
- The company's new data centers are being planned to tap the cloud opportunities that have [emerged following the Indian government's regulation on data localization](#)

## Sify Technologies' Key USPs for Data Center Services

### Build your own SLA

Sify's Golnfinet VPE allows customers to build their IT infrastructure with single or multiple nodes across one cloud site or distant cloud sites. This enables customers to build their private cloud for test / development with 99.50% SLA (single – site) alongside 99.90% SLA for production IT in HA architecture.

### Managed Services

Sify offers an integrated managed services portfolio that includes services for captives, AWS, Microsoft Azure, and SAP infra. It extends a wide range of services, including disaster recovery, managed security, database management, and middleware management, and leverages ServiceNow and CA UIM (industry best tool platforms) to offer best-in-class ITSM and automation

### Flexible Consumption Model

Sify's Private cloud (VPE) offers a combination of pricing models, as under

- Committed Model: Customers pay for a committed capacity for a minimum contract period, and scale up as their businesses require
- Metered Consumption: Customers' usage is metered on a monthly basis, and they are billed as per usage

### Seamless Connect

Sify can provide seamless connectivity to datacenters and hyperscale cloud service providers (through Cleanconnect service), as it operates a national MPLS network that connects 45+ datacenters, including third-party datacenters. Its collaboration with global carriers also allows Sify to support Indian MNCs with their international hosting and cloud requirements

### Expertise in Managing Third-party Cloud Environment

Sify has experience in supporting Microsoft environment and VMware; it is SAP-certified for hosting cloud, HANA, and application services, as well as SAP migration

### Robust Data Center Infrastructure

- Data Centers are running on 100% uptime since 2008
- 3 to 4 distinct fiber entry paths to the Data Center building provides resiliency on fiber routes
- Truly Carrier Neutral: More than 90% of fiber links are from non Sify Telecom providers
- Power densities from 3 KW to 15 KW per cabinet
- Hyper scale Data centers from 12 to 36 MW in key cities providing ample expansion capabilities
- Multiple Internet Exchange Ecosystem facilitating OTTs and ISPs interconnect in Sify Data Centers
- Services include Prepaid bulk Fiber (as per specifications), single to 10+ cross connects on demand with minimum lead-time

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