

GLOBAL CAPABILITY CENTRES

Making India the
Cradle of Global
R&D

Introduction

India made rapid strides towards establishing itself as a key tech outsourcing/offshoring market in the early part of the new millennium. However, the subsequent transformation of its services sector and its emergence as a value-accretive, innovation engine for global industries has been nothing short of remarkable.

The global outsourcing boom began in India when global multinationals, largely information technology firms, flocked to the country attracted by its quite substantial, competitively priced talent workforce, quite affordable operating costs and its rapidly growing IT capabilities. This was also the time when home grown champions such as Tata Consultancy Services, Infosys and Wipro were making a mark in the global tech ecosystem and providing global corporations crucial infrastructure and back office support. Since those early days of growth fuelled by tech firms, India's services sector has come a long way. The country is currently a global engineering and R&D hub of foreign multinational banks, software conglomerates, consulting biggies and large manufacturers.

Operational excellence, product innovation and cost optimization are the new essences which have given a new set of wings to India's continued dominance in the global offshoring industry, particularly the tech, financial and consulting segments. India continues to attract in greater numbers, global businesses to its shores, who are looking to tap into its vast workforce which is second to none when it comes to providing R&D capabilities across all conceivable domains. And, this is what has been the key behind making India a major destination for Global Capability Centres (GCCs).

In this report, we look closely at the Indian GCC industry, its evolution over the years, key drivers and how the industry is now driving strategic innovation for global corporations. We analyse top Indian cities which are at the core of the GCC ecosystem and visualise the synergies between specific industries and cities.

It is quite interesting to note that during our analysis, we saw that while multinationals in the IT and Business Process Management (BPM) space continue to dominate the GCC industry in India, engineering and manufacturing companies follow close behind, especially in the key markets of South and West India, which are multi-sector cities and have a well-developed, robust manufacturing ecosystem in place.

As we aim to decipher what the future holds given how the world, businesses and technology will evolve post-COVID, GCCs will also have to adapt to the 'Digital New Normal' while developing and building on their expertise in new age technologies such as artificial intelligence (AI) and machine learning (ML) as they continue to be the innovation engines for global firms. For India, it will mean enhancing its workforce's skillsets and create a firmer footing in the global technology leadership while ensuring it also maintains its cost competitiveness at the same time.

It will also be quite pertinent to delve into the Tier 2 cities ecosystem and explore opportunities for the next wave of growth for GCCs even as they continue to scale up in established locations. Even as the sectors forming the fulcrum of growth remain intact, with India flexing its muscles and aiming for a greater share of the global manufacturing pie, India's emergence as a centre of excellence for engineering services, especially cutting-edge R&D and service & product innovation is likely to add a new arrow in its quiver.

The future looks exciting and one with immense potential.

GCC Ecosystem in India: Cost to Value to Process to Innovation

The Captive Centre Model



BPO Emergence

- Development of India's IT capabilities
- Focus on cost optimization, operational efficiency
- Limited service lines, mostly BPO functions
- Contribution to bottom lines of parent organization
- Lower utilization of India's talent pool

The early 2000s witnessed the development of India's IT capabilities helped by government policies and the country's large, competitively priced talent pool. While Indian companies such as Infosys and TCS witnessed healthy growth in outsourced IT projects, a number of global corporations set up their captive centres immediately after the Y2K issue in 2000. Much of these captive units focused on BPO services. By 2005, India had over 600 captive centres.

The move from GICs to GCCs



Move towards R&D, Digital

- Post GFC, development of Global In-house Centres (GICs)
- Building R&D capabilities and ensuring process, delivery excellence
- Investments in Engineering R&D (ER&D) centres
- Development of subject matter experts
- Higher revenue contribution of GICs

Following GFC, multinational corporations ramped up their investments in Indian Global In-House centres (GICs). Process excellence, building capabilities and skill augmentation were the key focus areas. This led to greater confidence in Indian IT capabilities and set the stage for Indian innovation centres. Investments in ER&D centres started increasing with GICs working on more complex assignments.



Shared Services Growth

- Growing Shared Services Model
- Addition of new service lines (HR, finance, sales)
- Continued focus on value addition, efficiency, workforce productivity
- Better utilization of skilled talent pool

From around 2005, global corporations started pursuing the 'Shared Services' model in Indian captive centres. Indian captives centres became efficient in performing relatively more complex transactions across services lines including IT, finance and after-sales. This led to greater value addition, process efficiency and higher productivity. By 2009, India was home to almost 1000 captive centres.



Innovation through CoEs

- GCCs driving innovation
- Robust growth in ER&D centres positioned as Centres of Excellence (COEs)
- Development of innovation capabilities
- Part of global service lines
- Research on new products, higher patents filed in AI/ML, IoT etc.

As a vote of confidence in the country's IT capabilities, India has attracted significant investments in Global Capability Centres (GCCs) from around 2015. The focus has been on product development and digital engineering leveraging AI/ML, Big Data in a number of sectors such as IT, Manufacturing, Automotive etc. Going ahead, the country will remain a major destination for ER&D centres, which are positioned as Global Centres of Excellence (COEs)

India and the World - Global distribution of GCCs



India's emergence as a key hub of R&D has had an enormous impact on the global distribution of GCCs. NASSCOM estimates that India accounts for around 45% of global GCCs at present. A large proportion of these GCCs are R&D centres and cater to the IT and banking and financial services sectors followed by the engineering and manufacturing industries. Application development, technical support and customer experience management are some of the key functions in these GCCs. The growth of GCCs is largely based on the three pillars of cost efficiency, innovation and delivery excellence. However, with global multinationals based in the US, Europe and Japan increasingly looking at India as an innovation and knowledge centre, GCCs have been focusing on the next phase of growth. Digital analytics, artificial intelligence and machine learning are some of the futuristic technologies in which expertise is being built to support the R&D strategies of parent organizations.

The growth of GCCs is largely based on the three pillars of cost efficiency, innovation and delivery excellence.

While India maintains its software leadership, China is a major global hub for industrial R&D. Multinational corporations, particularly those based in Japan and Europe, have been investing in Chinese manufacturing operations and R&D for over two decades. The rise of China as one of the world's largest manufacturers and exporters coincided with higher manufacturing R&D centres to develop products for global markets. In recent years, multinational corporations have invested heavily in Chinese ER&D centres. China is home to 60% of GCCs installed by APAC-based companies, especially from Japan. Prominent manufacturers such as Apple, Panasonic, Toyota, General Motors have ER&D centres in China. Chinese GCCs are driving innovation and product development in electric vehicles and self-driving cars. The country's large, low cost engineering talent base and robust university research systems have facilitated growth in ER&D centres.

The rise of China as one of the world's largest manufacturers and exporters coincided with higher manufacturing R&D centres to develop products for global markets.

India and the World - Global distribution of GCCs



Singapore's reputation as a global engineering and R&D hub is well documented. The city state is also home to an advanced biomedical manufacturing ecosystem and continues to attract a large number of global corporations. Over the past decades, the government has pursued dedicated policies to accelerate industrial development and JTC Corporation is the leading government agency spearheading this initiative. Currently, Singapore has a number of business parks, which are key industrial and R&D centres for sectors such as IT, telecom, electronics, healthcare services and BFSI. Prominent business parks include Changi Business Park, Tuas Biomedical Park and Seletar Aerospace Park. Tuas Biomedical Park, for instance, is a global manufacturing hub for pharmaceutical and medical technology companies such as GlaxoSmithKline, Novartis and Pfizer. Changi Business Park houses leading high- technology enterprises and R&D divisions of companies such as Honeywell, IBM, Citibank, Credit Suisse among others.

The city state is also home to an advanced biomedical manufacturing ecosystem and continues to attract a large number of global corporations.

Eastern Europe is fast emerging as a favourable outsourcing destination for multinational corporations based in Western Europe. Countries such as Poland, Hungary and Romania have earned a reputation as low cost manufacturing centres and offer technically adept software developers and programmers at a relatively lower cost. For instance, Poland is home to a number of business process outsourcing (BPO) centres, including those set up by Indian IT companies. However, over the past few years, the focus has shifted to high-end R&D and software development centres. The region has attracted investments from major technology companies such as Google, Accenture and IBM. Within the region, Poland is an automobile manufacturing and ER&D hub. The automotive industry is one of the highest R&D investors in Europe and Poland has attracted large investments from German and French manufacturers. Volkswagen has invested heavily in automobile manufacturing in Poland while Faurecia and Delphi have ER&D centres in the country.

The region has attracted investments from major technology companies such as Google, Accenture and IBM.

India GCC Snapshot Riding the Technology Wave



India GCC Snapshot Riding the Technology Wave

The captives, Global In-house Centres (GICs) or Global Capability Centres (GCCs), however we classify them, have been in India for more than two decades. They have steadily grown over the years but the pace of growth has been significant in the last 5-6 years. They have rapidly expanded across cities to enable the parent global organization's digital transformation journey. As evident in the commercial office trends, space leased by GCCs has grown fivefold during 2014-19. The share of captive centres in overall office demand has also risen from 8.0% to more than 27% during this period.

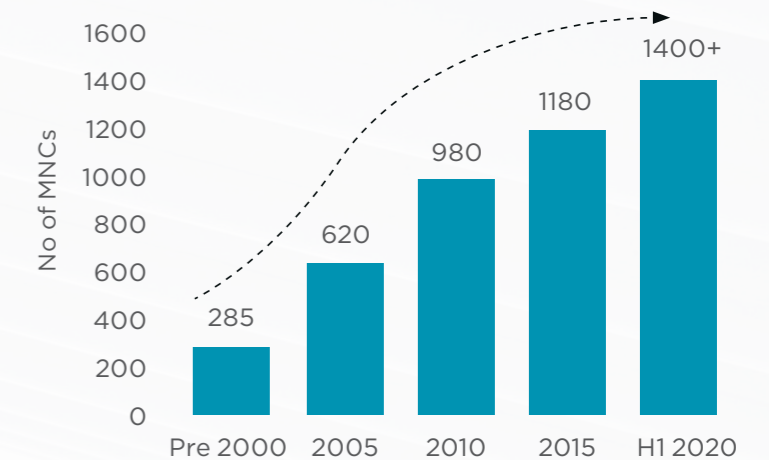
Another important trend is how robust demand in Bengaluru has been feeding the growth in other markets. While Bengaluru remains the "Silicon Valley" of India and accounts for a major share of Indian tech business and GCCs, in recent years, other cities like Hyderabad, Pune, and Chennai have gained ground, especially as tech, financial services and manufacturing sectors have started expanding to other talent-rich geographies. These locations have established themselves as key alternatives or additional expansion cities backed by investments in infrastructure and creating a competitive ecosystem.

India remains a major destination for MNCs setting up GCCs over the last two decades

Total GCCs: **1750+**

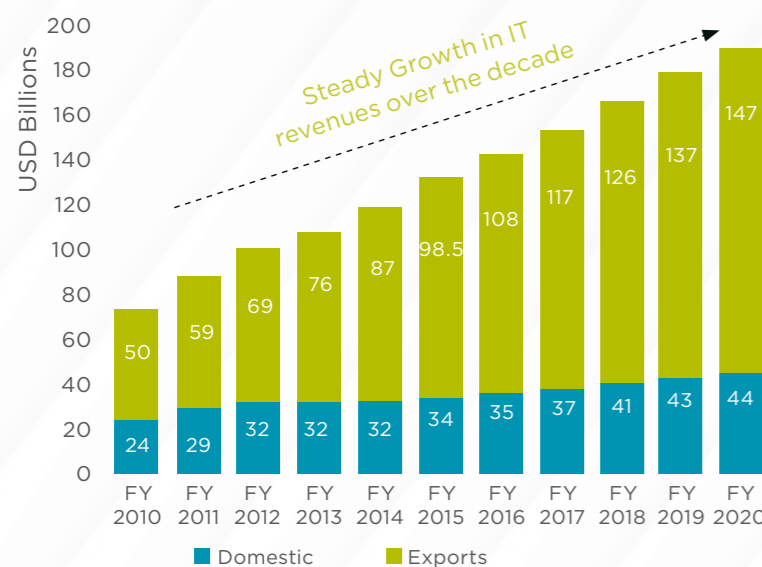
GCC talent: **1.2 million+**

No. of companies that have set up GCCs in the country: **1400+**



* Nearly 60 smaller R&D facilities, which are part of larger manufacturing establishments, are excluded from the totals above.

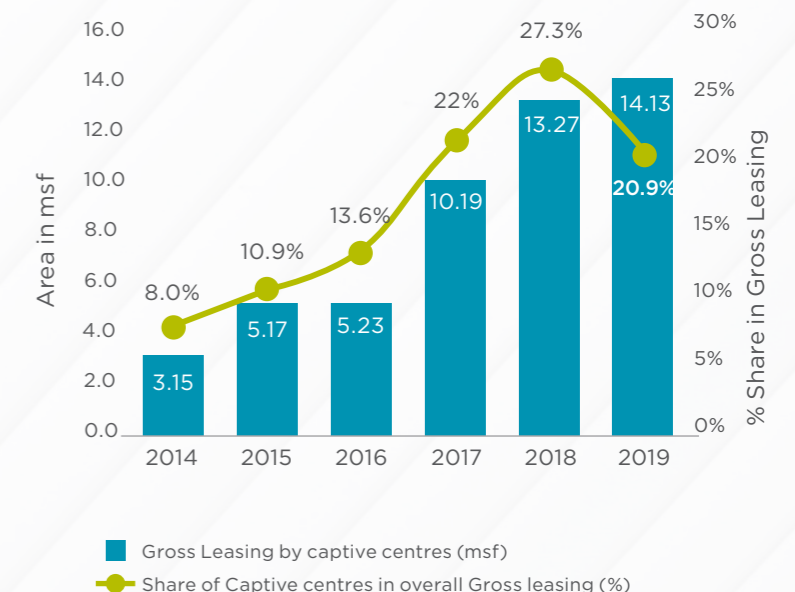
Indian IT sector is driving technology-enabled transformation of businesses across the world



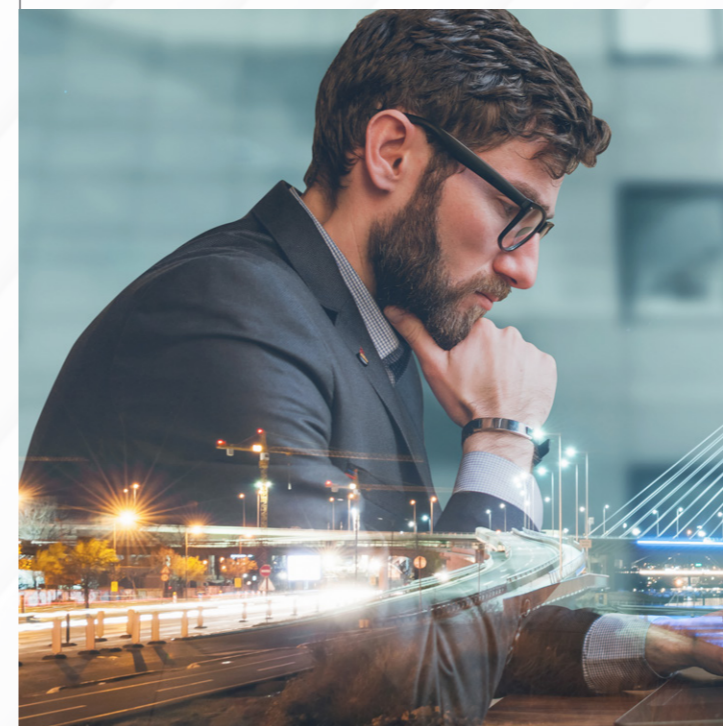
While the IT-BPM sector remains the most prominent occupier, office space demand from other sectors has been accelerating in recent years. The IT-BPM industry now accounts for only 40-45% of all leasing activities compared to a high of 62% in 2012; while the captives, financial, professional services and flexible space sectors have risen to a combined 50-60% compared to just 30% in 2012. Given the scaling up of skills and talent, India has moved quickly towards a cost advantage not only in back-end processes but also in high-end processes over the last two decades, especially across other industry sectors such as manufacturing, engineering, deep tech - cloud, artificial intelligence (AI), Machine Learning (ML) and big data analytics etc.

Source: NASSCOM, C&W Research

Captive centres have gained a major share in recent years



Source: C&W Research



GCC Drivers

ER&D centres

Strategic innovation hubs of global MNCs
High-skill programming, data analytics
Abundant engineering talent

Large talent pool

Large, cost competitive tech talent
Skilled in programming, software coding
Trained in delivery excellence



Competitive office rentals

Most competitive rentals globally and in APAC
Favours large office spaces and R&D centres
Bengaluru is a global hub for ER&D centres

Digital skills

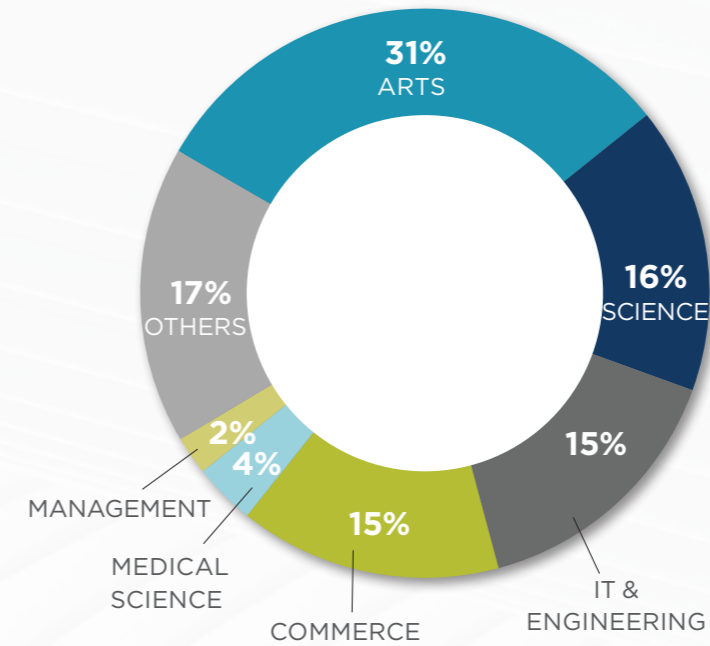
Preparing for digital transformation
Constant training and reskilling
AI/ML experts, DevOps managers, UX experts

APAC-based GCCs

ER&D centres of Japanese companies
APAC-based startups and unicorns
Product engineering, new product development

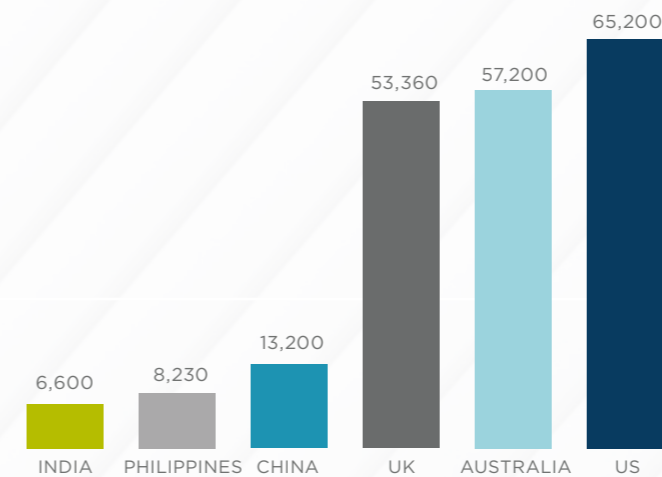
Large Talent Pool

Subject wise break up of graduates



Source: Ministry of Education, Government of India

Indian Software Engineers are highly cost competitive globally



Average Early-Career Software Engineer Salary (US\$)

Source: Payscale, C&W Research

Large, cost competitive skilled talent pool

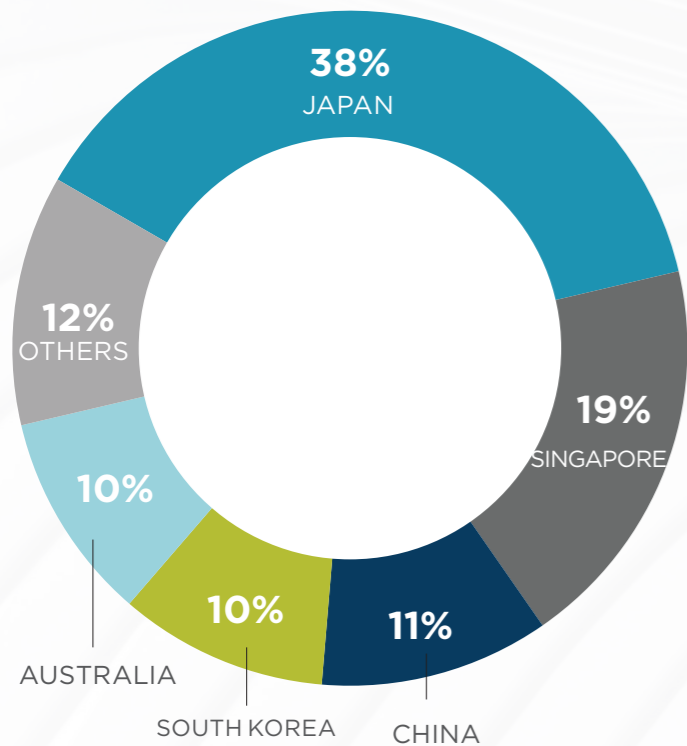
- India offers a large talent pool of around 1 million engineering graduates annually
- Engineers graduate from some of the best technical institutes in the APAC region
- Highly skilled in software programming, coding and developing algorithms
- Annual salaries are extremely competitive compared to US, Europe as well as other Asian nations



APAC-based GCCs

Japan accounts for the largest proportion of APAC based GCCs

APAC based GCCs strengthen the R&D ecosystem



- While US and Europe account for the highest proportion of GCCs, the share of Asian nations is growing
- Asian multinationals are increasingly leveraging Indian tech talent for product development and data analytics
- Prominent regional start-ups and unicorns such as Grab and Gojek have set up R&D centres in recent years
- Going forward, this trend is expected to continue with an increasing number of Indian ER&D centres supporting global operations

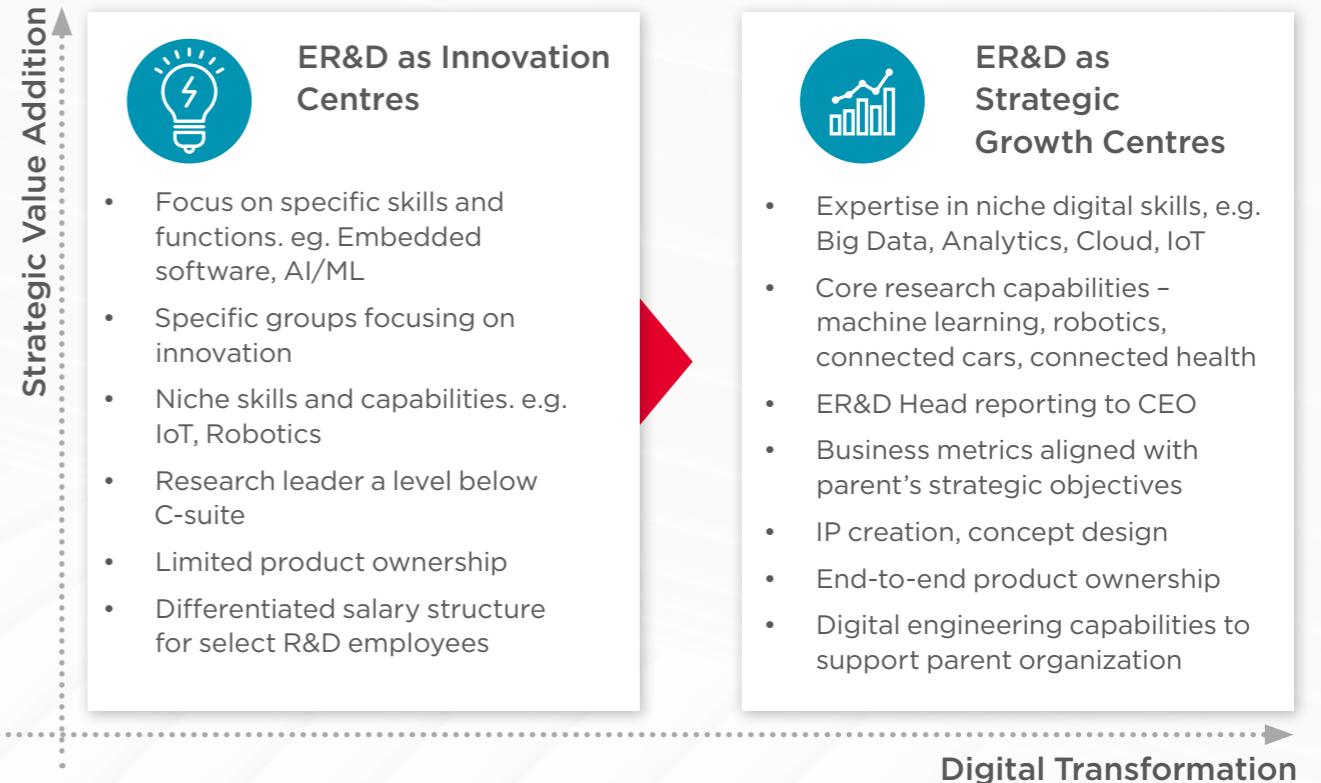
Prominent APAC based companies with GCCs in India

105+ APAC - baseds GCCs

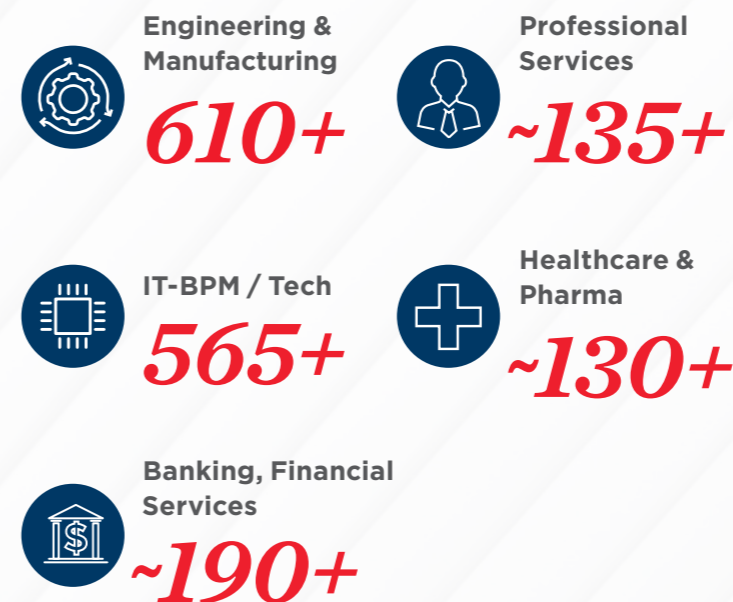


ER&D Centres

ER&D centres driving digital transformation and innovation



Number of GCCs

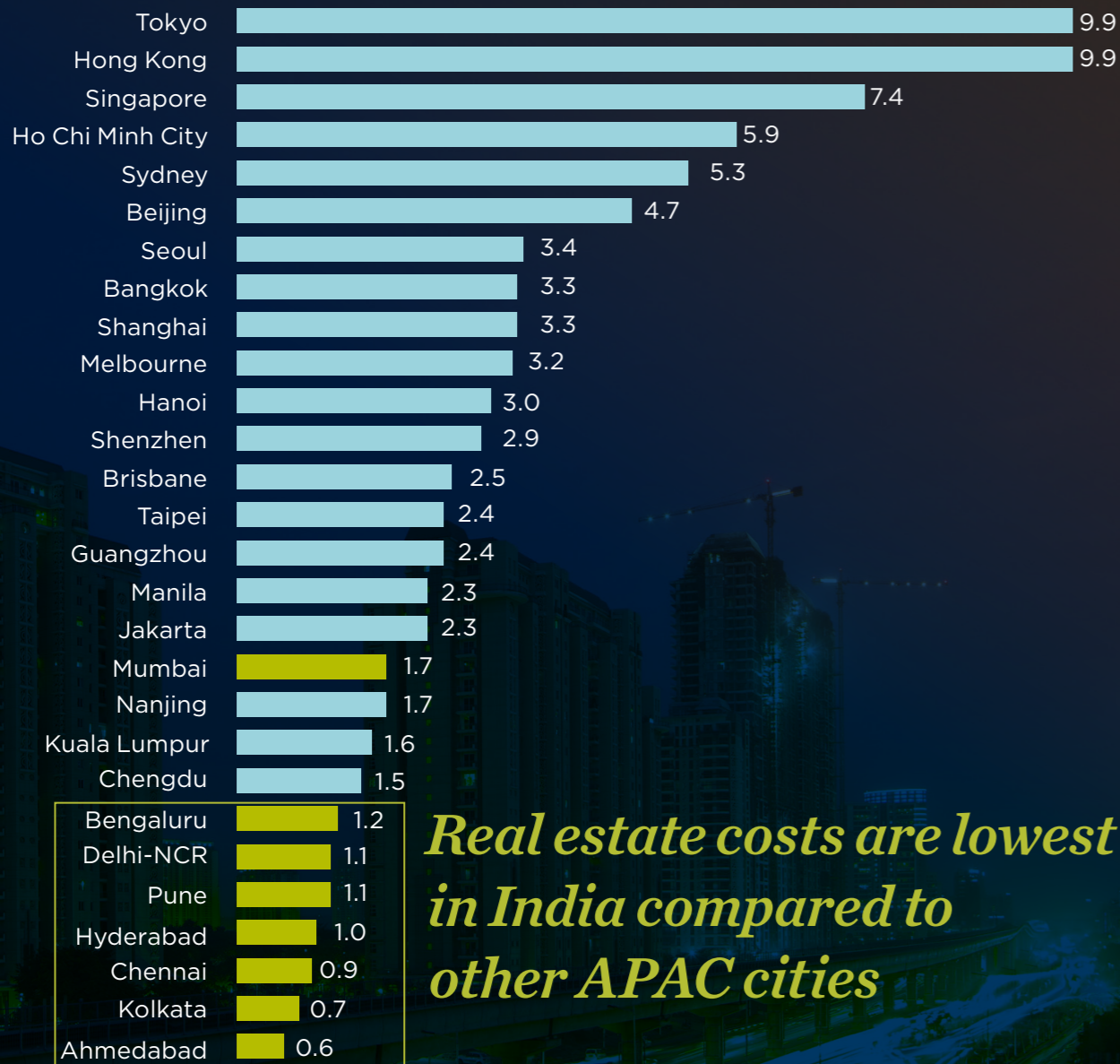


- ER&D centres are the hub of premium skills such as artificial intelligence, machine learning, data analytics etc.
- India's abundant engineering talent favours the country's ER&D ecosystem
- Going forward, global multinational will continue to expand their Indian R&D operations to drive digital transformation

GCCs of 12 global unicorns, valued at over \$60 bn signify India's cutting-edge R&D excellence

Competitive Office Rentals

Rental comparison across APAC Cities

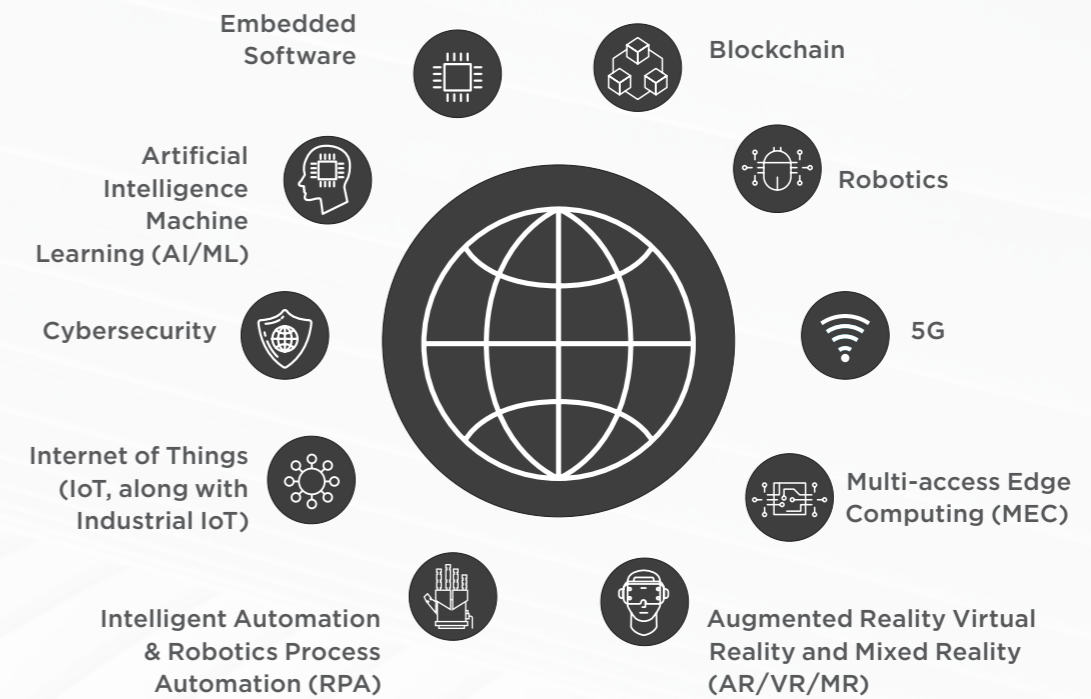


Real estate costs are lowest in India compared to other APAC cities

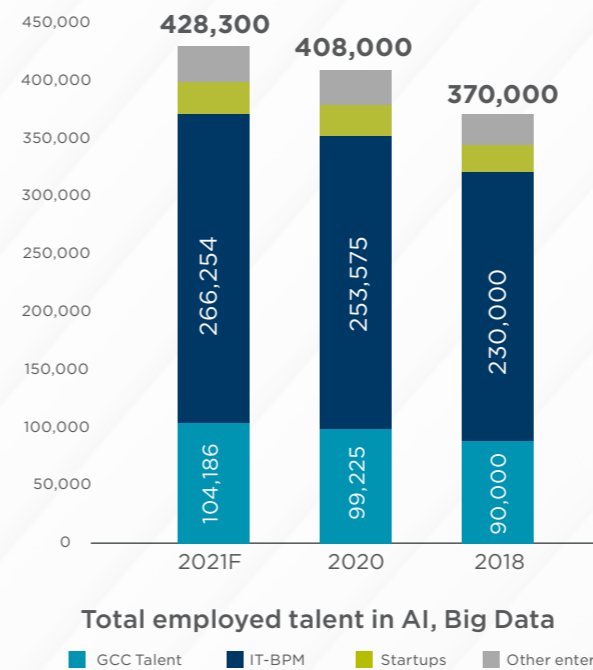
- Global multinational corporations prefer large Grade A office spaces at competitive rentals for their ER&D operations and India with lowest rents in the region offers biggest cost savings among the peers. Cities such as Bengaluru and Hyderabad have emerged as major GCC hubs over the years.
- With rupee depreciation against the dollar of around 10-12% already in 2020, and considering a further 2-3% y-o-y depreciation in the rupee further, we could be looking at lower costs in dollar terms for occupiers, even if RE costs were to rebound slightly in 2022-23, both of which will offset each other.

Digital Skills

Digital skills and technologies of the future



Healthy growth in AI and Big Data Talent Pool

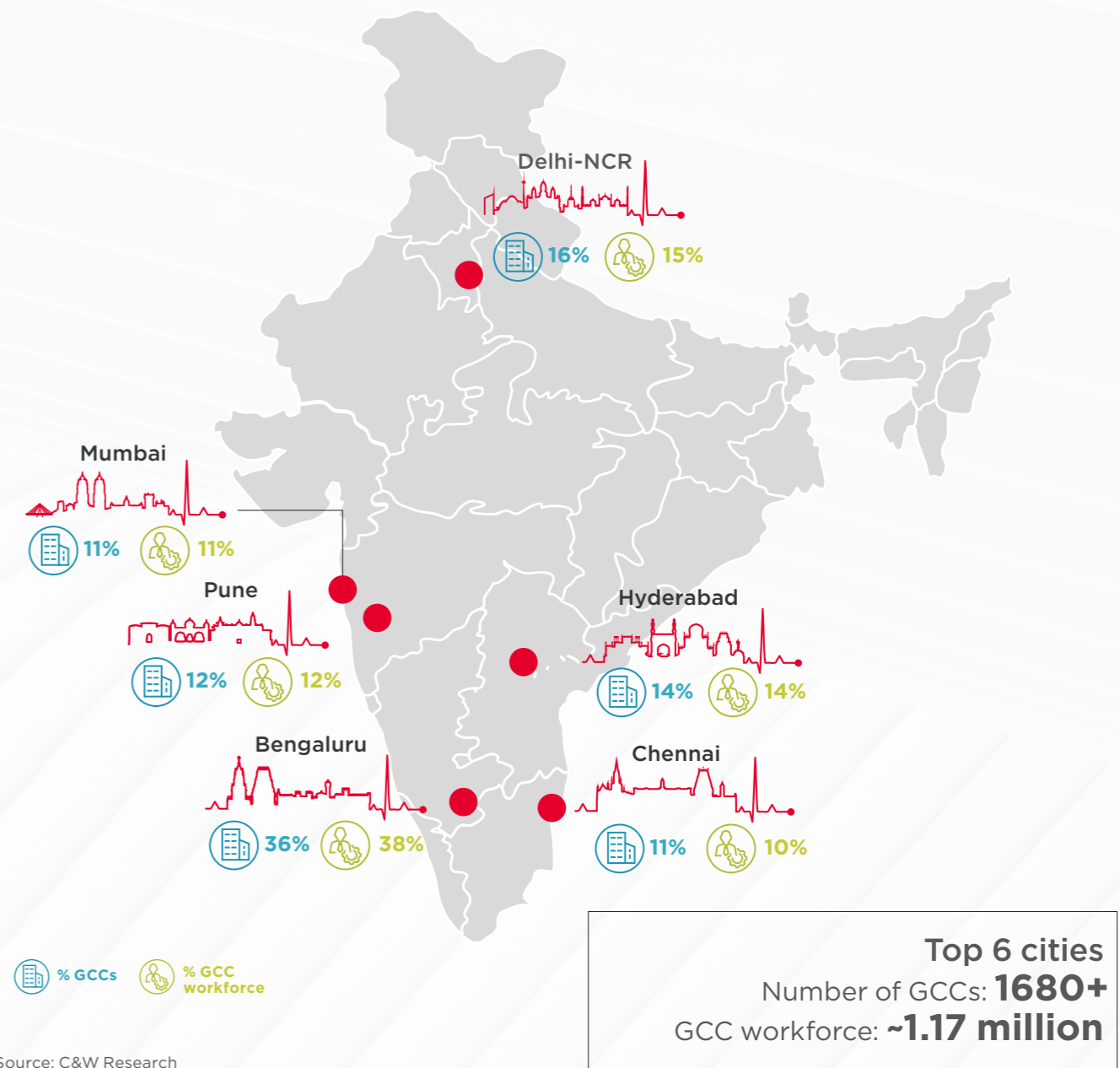


- GCCs driven by new digital engineering roles and robust training systems
- Total AI and Big Data employed talent pool expected to reach 430,000 by 2021; demand for AI, Big Data talent likely to reach around 800,000 by 2021
- GCCs employ around 25% of AI, Big data talent
- Constant reskilling to be the key factor to augment expertise in technologies of the future
- AI/ML experts, DevOps managers, user experience (UX) experts will be the in-demand roles
- Indian GCCs will remain at the forefront of new age technology-enabled solutions such as connected cars, cloud computing and home automation systems

India **GCC** landscape

Tier 1 Cities

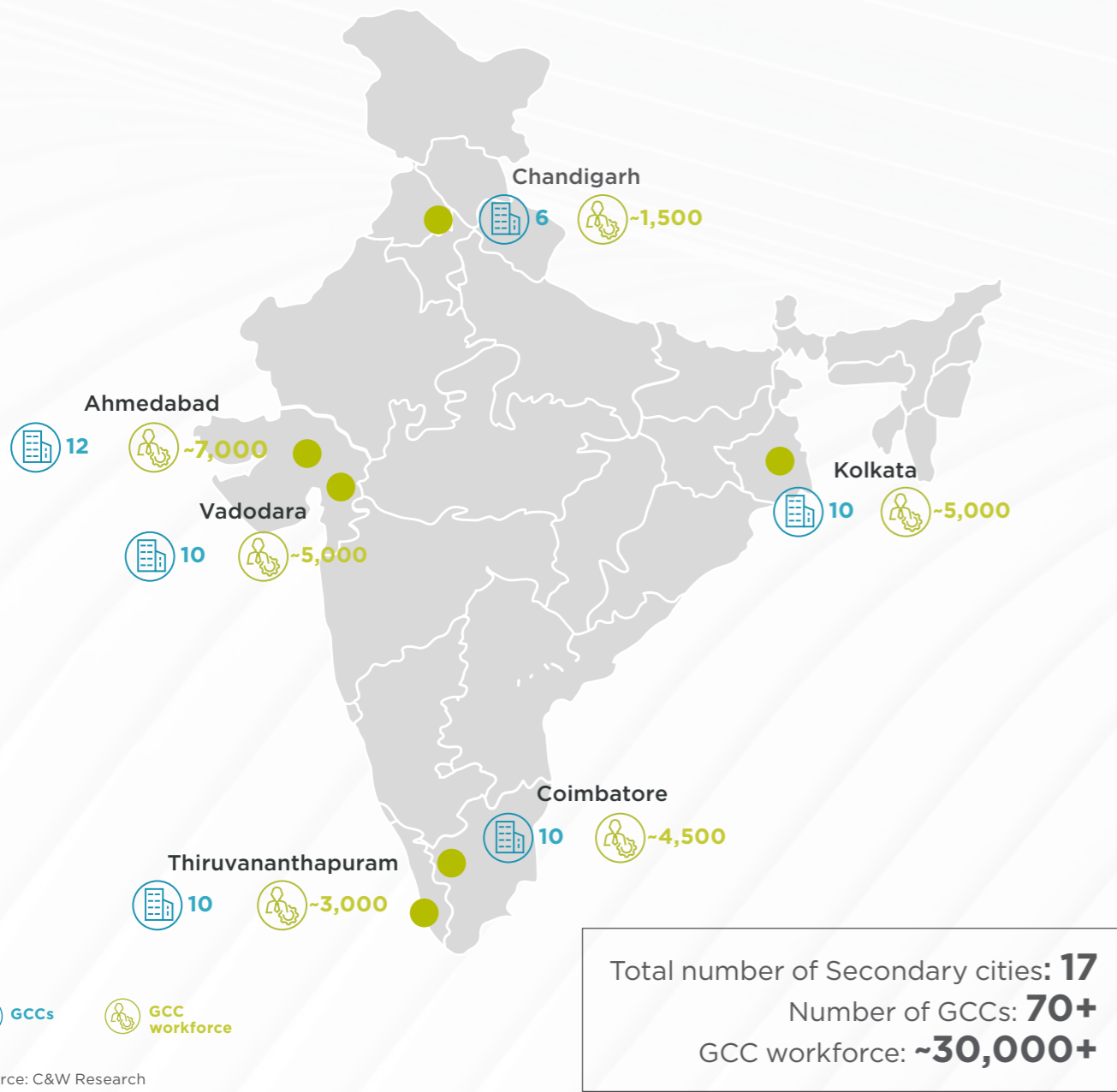
Spread of GCCs in Top 6 cities



- Bengaluru is the undisputed GCC capital of India. Delhi-NCR region is also a major GCC destination with the presence of corporate HQs.
- Hyderabad is increasingly favored by tech, Engineering R&D companies besides the traditional healthcare & pharma base.
- BFSI, auto/industrial, engineering & manufacturing ecosystems drive the growth of GCCs in Chennai and Pune.

Other Cities

Spread of GCCs in major secondary cities

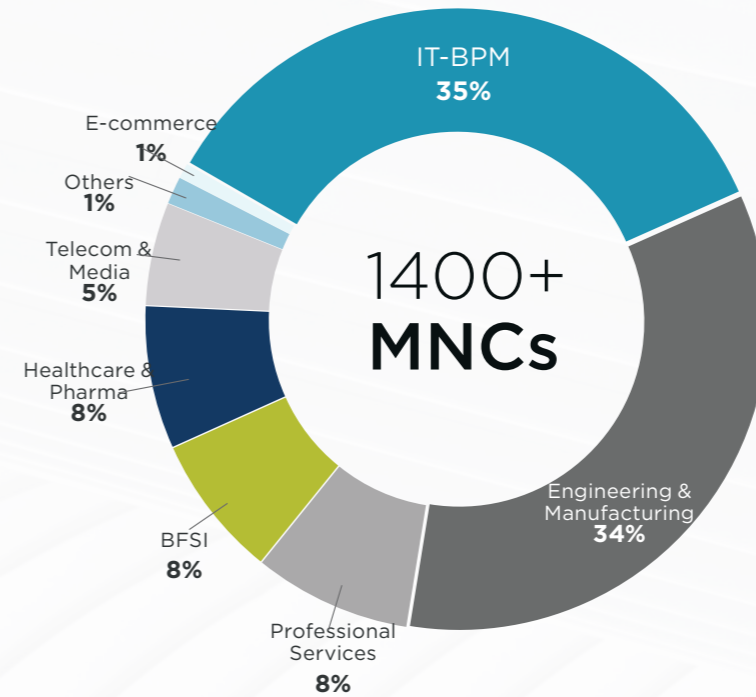


Source: C&W Research

Secondary / tier 2 Cities such as Ahmedabad, Vadodara, Coimbatore, and Chandigarh are also attracting start-ups as well as GCCs because of talent pool availability and lower costs.

GCCs - Industry Analysis

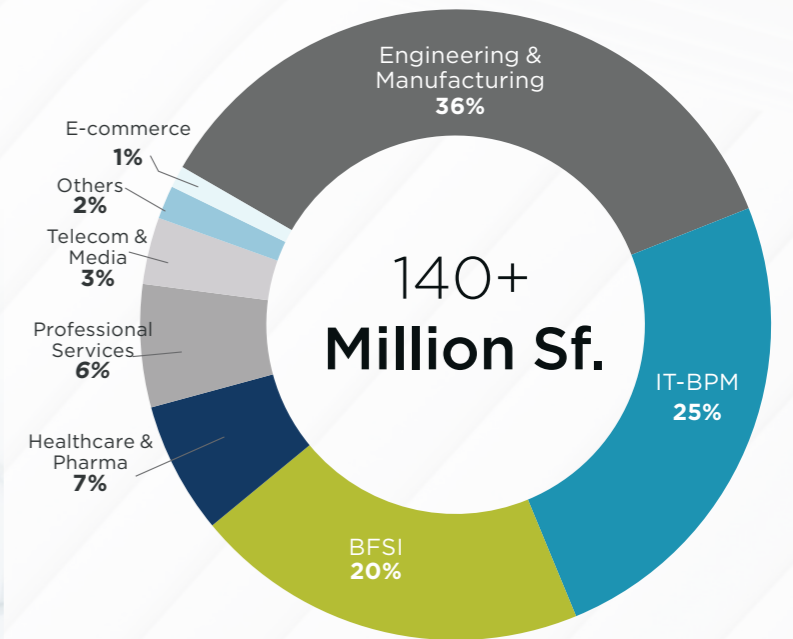
Classification of MNCs by industry sector



Source: C&W Research

One fourth of Global Fortune 500 companies leverage Indian GCCs for R&D and innovation

Area occupied by GCCs by industry sector



RE Space Dynamics by Industry Sector

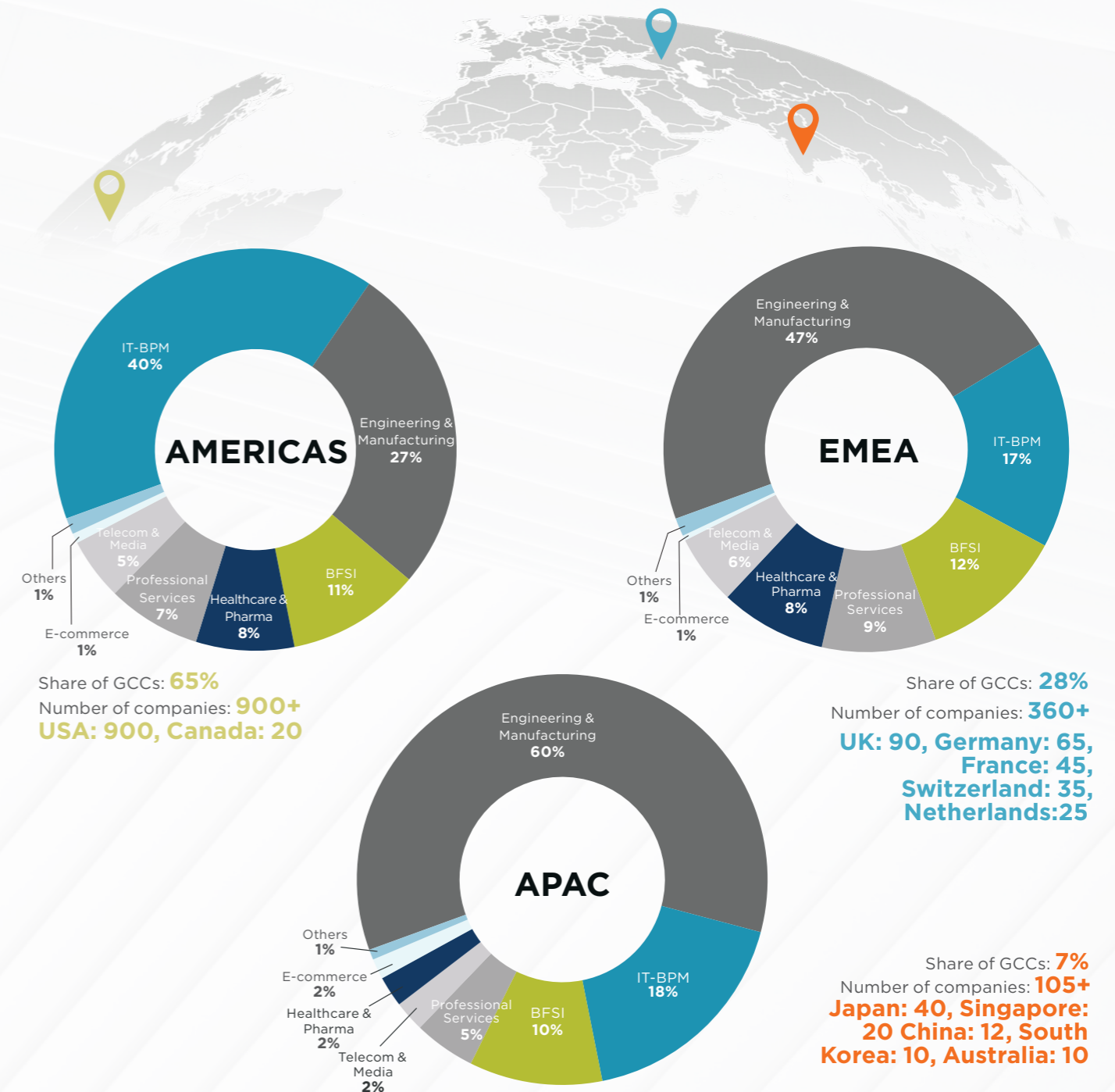
SECTOR	TOTAL NO. OF GCC EMPLOYEES	AVERAGE SPACE TAKE-UP PER GCC
BFSI	200,000	148,500 Sf
Engineering & Manufacturing	355,000	83,000 Sf
Healthcare & Pharma	86,000	71,000 Sf
Professional Services	88,000	65,000 Sf
IT-BPM	410,000	62,000 Sf

Source: C&W Research

BFSI MNCs, though smaller in number are leasing 3X more space per GCC as compared to tech companies. Similar is the case with ER&D centres where average space leased is higher by about 34% against tech. As such, per employee office space provided by tech GCCs is relatively smaller compared to other sectors.

- Engineering & Manufacturing has the most number of GCCs across India (34%) followed by IT-BPM (32%). However, the number of tech companies that have set up GCCs in the country is marginally higher than Engineering & Manufacturing. Together they dominate the Indian GCC landscape with nearly 2/3rds of the market share. Sectors such as Banking, Financial, Professional Services, Healthcare & Pharma, Telecom & Media etc account for the rest.
- Engineering & Manufacturing has a higher real estate footprint compared to other sectors indicating that ER&D centres require larger spaces and the processes of digital transformation and innovation in the sector are relatively complex. Real estate footprint of the tech sector is fairly lower (compared to Engineering & Manufacturing) followed by Banking, Healthcare and Professional Services.
- Over the last 4-5 years, global MNCs are expanding from single-function global in-house centres to other functions and are moving toward multi-function centres or Hybrid GCCs as reflected in their growing space requirements.

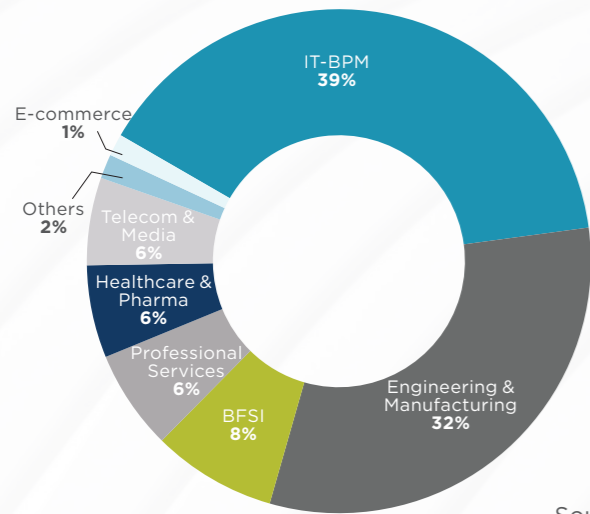
Distribution of GCCs by Country of Origin and Industry Sector



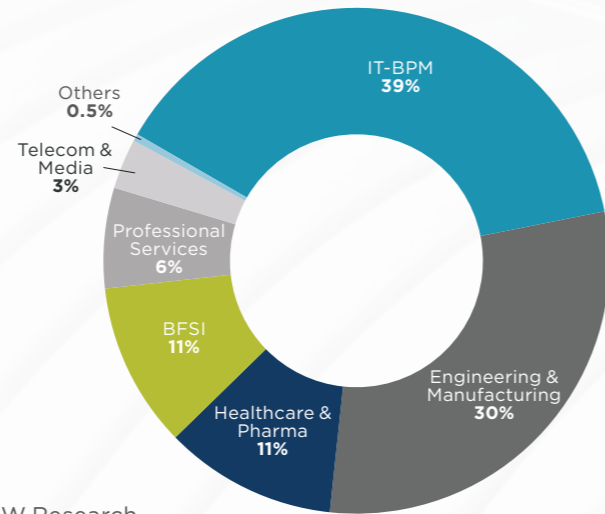
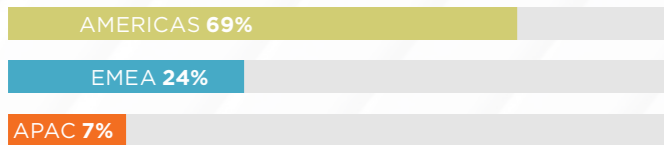
US remains the largest driver of GCC footprint in India followed by EMEA and APAC. Tech companies account for a major share of MNCs from Americas but Engineering & Manufacturing sector dominates from EMEA and APAC regions. Together, these two sectors account for 2/3rds of MNCs across all regions setting up GCCs in India.

Source: C&W Research

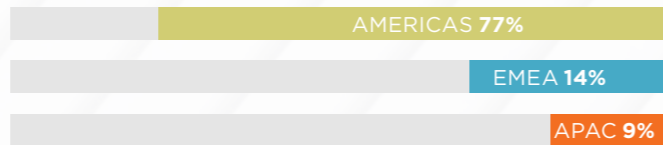
GCC Market Dynamics Across Major Indian Cities



Source: C&W Research



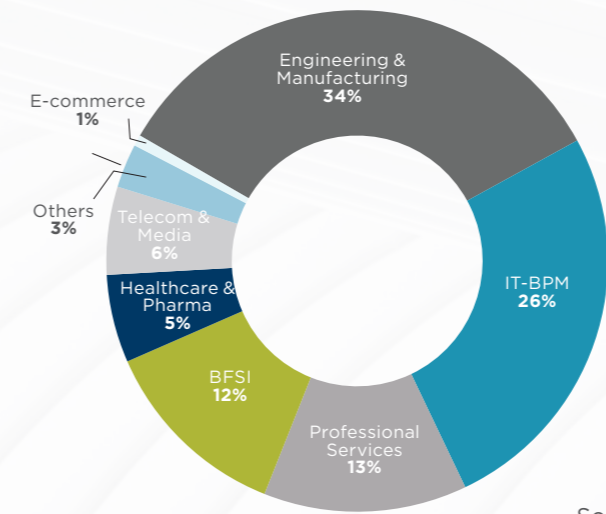
Source: C&W Research



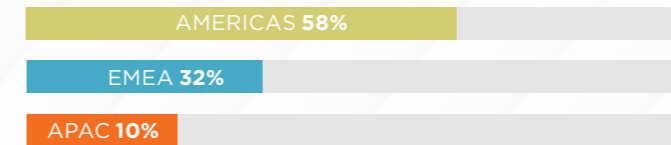
- Bengaluru, the Silicon Valley of India, is the largest hub of GCCs in the country. It accommodates more than 1/3rd of all MNCs that have set up GCCs over the last 10-15 years.
- Besides the larger players, the city is home to several smaller tech establishments which are working on cutting edge technologies.
- Presence of large scale tech support system is also beneficial to GCCs from other sectors.
- With tech being the focus, American MNCs have a higher share of GCCs in the market.

- Hyderabad has one of the best state-supported business ecosystems in the country. Despite a period of relatively sluggish growth compared to other GCC centres post GFC, the city has emerged as a major competitor to Bengaluru in recent times and is increasingly attracting companies that are looking to enter India.
- It has all the requisite elements of talent, relatively lower RE and living costs and consistently better infrastructure which make it a major growth destination for global GCCs.
- While the city is driven by its technology affinity and talent pool, support for manufacturing and R&D has also allowed for creation of a growth ecosystem for the Pharma segment in a big way in the city.

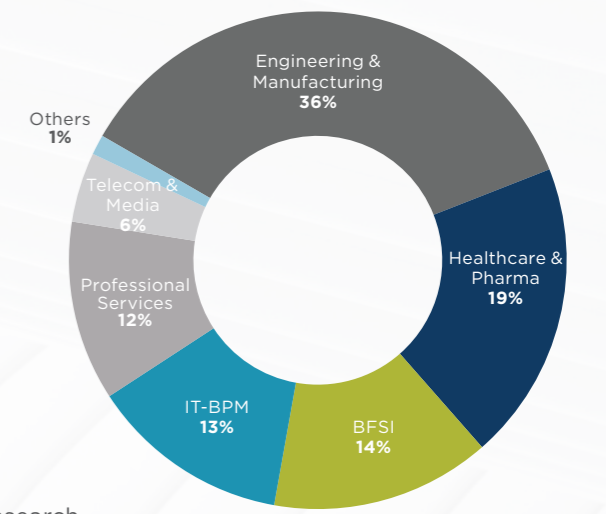
GCC Market Dynamics Across Major Indian Cities



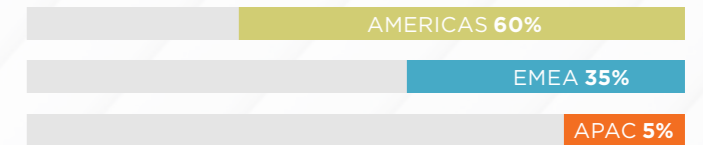
Source: C&W Research



- Delhi NCR, surprisingly emerges as the second biggest hub of GCCs in India. The well-diversified work talent makes it a major hub across a wider cross-section of the industry segments.
- Development of tech hubs like Gurgaon and Noida have made it a more homogeneous GCC hub.
- The Engineering & manufacturing segment is the leader in the GCC segments and while IT-BPM features prominently, the urban agglomeration also is a key hub for consulting and BFSI firms.

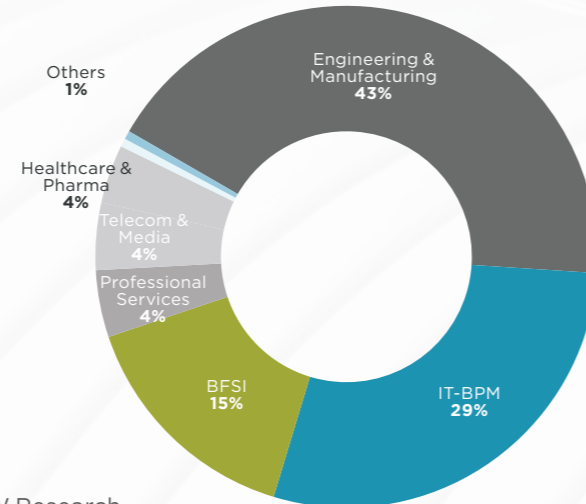
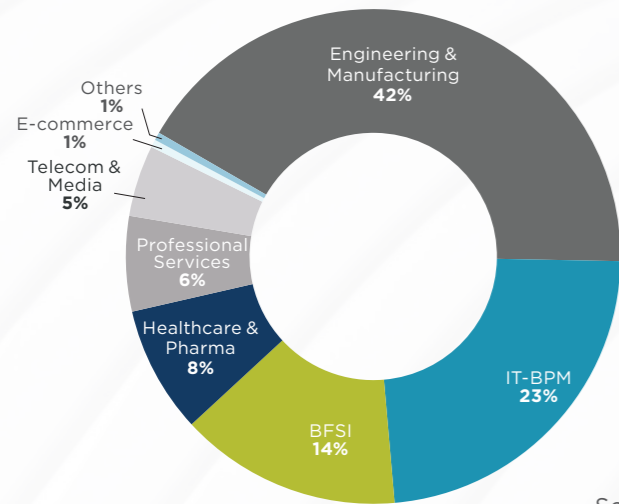


Source: C&W Research

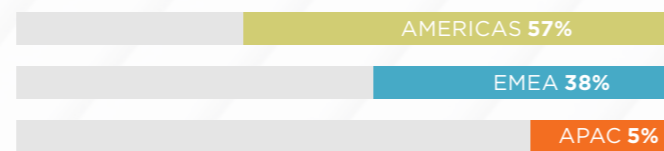
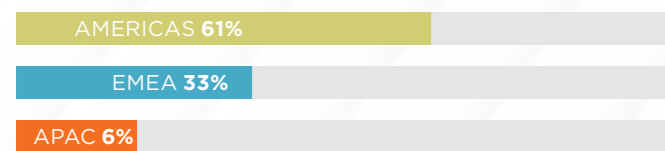


- Mumbai is quite the exception, in that IT-BPM as a segment is not a prominent driver though it is gaining a firmer foothold in the peripheral markets of the city.
- Mumbai has not an immense but a quite varied talent pool and the Engineering & Manufacturing and Healthcare & Pharma segments are key drivers of the GCC ecosystem in the city.
- As the financial capital of the country, there is ready talent pool for the financial services domain and hence BFSI GCCs are also quite prominent in the city.

GCC Market Dynamics Across Major Indian Cities



Source: C&W Research



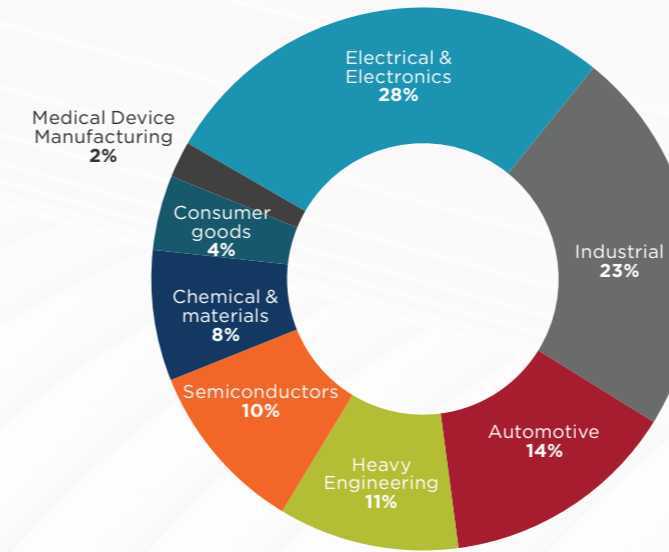
- Chennai's growth drivers are very similar to Pune, but it is unique in the sense that its growth has been driven by the engineering and manufacturing sector primarily.
- It has the highest share of ER&D GCCs among all the other major cities, which strongly underlines its talent capabilities in this domain.
- It is also becoming a more favoured destination of IT-BPM and BFSI GCCs as its talent pool across these two domains and its relatively lower RE costs make it a major competitor to the other major cities.

- Pune has emerged as a technology and manufacturing hub and it is not surprising that these two segments make up 72% of the entire GCC footprint established in the city.
- As an education hub specializing in engineering graduates, there is a ready talent pool that is available to these firms and that has put Pune firmly in the limelight as a major GCC destination.
- Advantages of lower RE costs, comparably affordable living costs and the ready, quality talent pool make it a major growth corridor for GCCs in the country.

GCC Market Dynamics Across key Segments



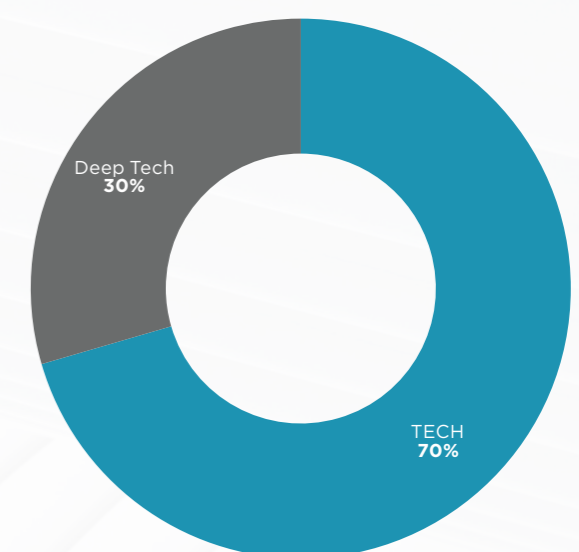
Engineering & Manufacturing



- The next level of growth in digital technologies within the Indian industry is driven by Global Capability Centres (GCCs) and the growing domestic market.
- Engineering Research & Development (ER&D), which includes various processes such as digitization & advanced analytics /IoT tools for auto, electrical and electronics industries, AI, ML and intelligent solutions, automation, development of processors for big data analytics etc. is leading the growth story of GCCs in India. ER&D has grown at an average of 11% over the last 5 years.
- In the BFSI sector, GCCs are involved in processes such as big data analytics, adoption of automation and machine learning which could help in fraud detection and cyber security etc.



IT-BPM



- Electrical & Electronics, Automotive, Industrial and Heavy Engineering etc. account for a major share in the Engineering & Manufacturing sector. These GCCs are increasingly combining skills from other sectors to drive growth in R&D.
- Employing digital technologies for innovation, problem solving and adoption/implementation and enhancement of tools, solutions and processes such as AI/ML based predictive analytics, SaaS, PaaS, IaaS etc. are driving the growth of captives in IT-BPM sector. Digital transformation will be one of the biggest drivers of GCCs in the sector. Not surprisingly, nearly 30% of the current GCCs in the sector have already adopted deep tech such as AI, ML, IoT, AR/VR, Robotics, Blockchain etc. to significantly improve existing products and solutions.

What's Next for GCCs

Key GCC focus areas

Global business models

- Understand global business models
- Innovation and focus on global strategies
- Align delivery excellence with global solutions



Innovation-ready workforce

- Skill upgradation of workforce
- Focus on global solutions, not just on process excellence
- Digital transformation is the game-changer

Enterprise performance

- Linking GCCs to global business performance
- GCC contribution measured against global parameters
- GCC contribution to topline growth

Leadership and Talent

- Develop leadership talent for digital future
- Skills to manage a diverse digital workforce
- Delivery excellence and global vision for greater leadership impact

What's Next for GCCs: Adjusting to the Digital 'New Normal'

Process excellence, cost competitiveness combined with Innovation

Indian GCCs have undergone a huge transformation over the last decade. The initial focus on cost arbitrage and limited strategic operational capabilities have made way to full-fledged operations cutting across service lines. Innovation is increasingly a key highlight of GCCs with parent organizations looking to leverage the large, cost-competitive skilled manpower in India to build research excellence and feed into the global business strategy. Indian GCCs are being modelled as global centres of excellence across industries such as IT, finance and banking and manufacturing.

Over the last few years, Indian GCCs have come into prominence as centres of innovation. This is a key change from GICs earlier, where the focus was on building capabilities and value-addition. The increasing number of Indian ER&D and Global Delivery Centres (GDCs) show that these are an integral part of their parent organization's global service lines and a key source of ideas for new revenue channels.

GCCs need to be completely prepared for Digital 'New Normal'

The evolution of Indian GCCs into centres of innovation has meant that senior managements across organizations have much higher expectations from them. Over the next few years, as the GCC model matures, they will be required to scale up their competencies further and align themselves with the strategic priorities of their parent organizations. **Greater operational agility, customer centricity and digital readiness** will be the key requirements. As organizations navigate through technology-induced disruption of business models, GCCs in India will play ever increasing role to predict changes in demand, prioritise key enterprise solutions and improve profitability of organizations.

Traditional IT or 'business as usual' will be replaced by new-age technologies such as data analytics, automation and machine learning. GCCs will, therefore, have to play important roles to prepare organizations for the 'new normal' but, at the same time, adhere to the principles of cost excellence. Collaboration across global offices is the new norm and GCCs will have to demonstrate greater efficiency and expertise in developing new products and services while working closely with their global counterparts.

Global focus, strategic alignment, digitally-ready workforce

- *Indian GCCs need to enhance capabilities to gauge business disruptions and deliver solutions aligning with global strategic priorities*
- *Workforce training and skill development to deliver cutting edge solutions instead of just project delivery expertise*
- *Right leadership with global vision to guide GCCs through rapid technological change*
- *Measurement of GCC performance against global business parameters*

Way Forward: ER&D Centres will usher the next phase of GCC growth

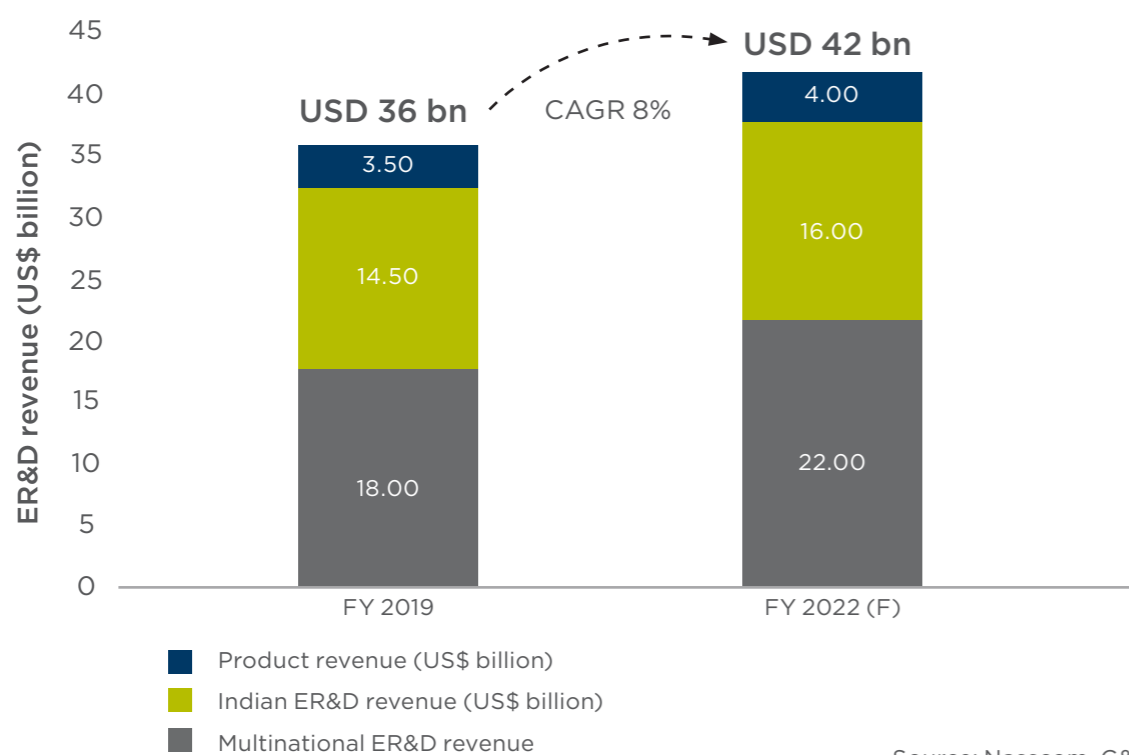
Process excellence, cost competitiveness combined with Innovation

The Indian GCC ecosystem is being driven by digital engineering or ER&D centres across several industry verticals such as software, automotive and BFSI. Over the medium to long term, India is expected to become a hub of global ER&D centres and contribute significantly to the digital strategies of global multinational corporations. Going forward, ER&D revenues are expected to surpass revenues from BPM services, thereby consolidating the former's position as the second highest contributor to software revenues after IT. Moreover, Indian ER&D centres are moving fast into new-age technologies and applications such as AI, ML, Cloud, predictive analytics, smart devices etc.

As of FY 2019, ER&D centres accounted for around 20% of cumulative software revenues. Multinational corporations contributed around half of ER&D revenues. Going forward, by FY 2022, ER&D revenues are forecasted to register a compound annual growth of around 8% with multinationals driving growth across products and services. This is expected to have a favourable impact on development of the R&D ecosystem in India as well as job creation over the medium to long term.

India is expected to become a hub of global ER&D centres and contribute significantly to the digital strategies of global multinational corporations.

Multinational corporations will continue to drive growth in ER&D revenues



Source: Nasscom, C&W Analysis

Way Forward: Measuring GCC Potential of Tier 2 Cities

A number of Tier 2 Indian cities exhibit potential for the establishment of Global Capability Centres (GCCs). We have evaluated and assigned scores to Tier 2 cities based on certain key parameters to evaluate the favourability of GCC investments in these cities. This gives us a list of potential locations which multinational corporations can focus on to establish ER&D centres over the next few years. The parameters for our scoring methodology are given below.

Taking into account the below-mentioned parameters and computing the scores for smaller cities, we arrive at the list of cities with potential to emerge as GCC hubs going ahead. Most of these are state capitals and are able to attract fresh talent besides having better connectivity, superior physical and social infrastructure etc. In addition, they are ranked higher on the Ease of Living and Doing Business indices.

List of Parameters for scoring GCC potential

No	Parameter	Description
1	Availability of Human Capital and fresh talent	Annual number of graduates and post graduates passing out from NIRF ranked institutes.
2	Ease of Living Index	Standards that combine aspects of socio-physical infrastructure, governance and economic opportunity. Index released by The Ministry of Housing and Urban Affairs (MoHUA).
3	Ease of Doing Business	The rankings, jointly prepared by the World Bank and DIPP, serves as a check-list for evaluating states on a 340-point Business Reform Action Plan.
4	City Classification	Tier 1, Tier 2 or Tier 3 based on the population of cities
5	State Capital	The city under consideration serves as state capital? (Yes/No)
6	Smart City	Covered under central assistance for smart city mission? (Yes/No)
7	International Airport	Is the city served by an international airport? (Yes/No)
8	GCC Presence	Is there a presence of GCCs? (Yes/No)

City Positioning: Mature and Emerging GCC Centres

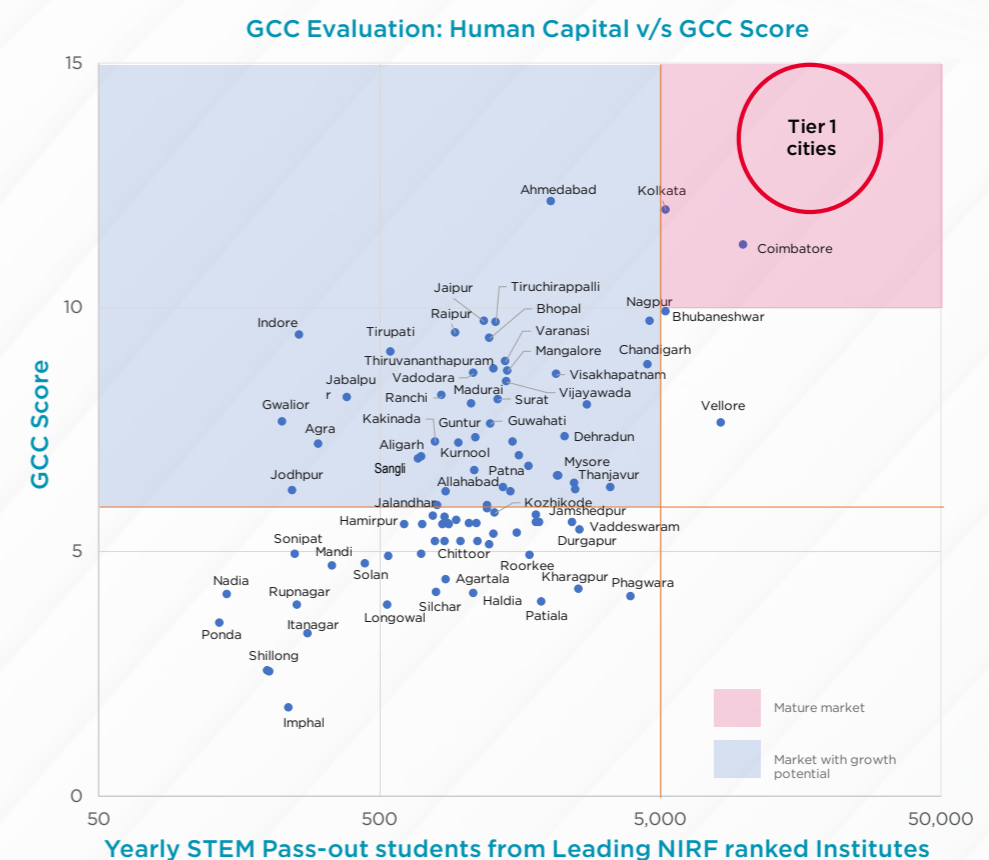
The scatter plot shows the relative position of city in providing fresh talent every year vis-a-vis GCC score based on key parameters discussed earlier.

The upper right corner has cities such as Bengaluru, Hyderabad, Delhi-NCR, Chennai, Mumbai, Pune (referred to as Tier 1 cities) that have established GCCs over the last decade. These are the largest cities which have high GCC scores and steady supply of fresh talent. These are major IT, engineering and manufacturing centres and provide a mature market for GCCs.

There are a few Tier 2 cities as well which might offer multinational corporations alternative, high potential locations for GCCs. For instance, Bhubaneswar is fast emerging as an IT hub in eastern India and the government has instituted policies to encourage start-ups. Coimbatore in southern India is also emerging as an attractive destination for manufacturing and IT companies.

The upper left blue quadrant provides a list of smaller, Tier 2 cities, which could drive the Indian GCC ecosystem, provided they are helped by the right policies and infrastructure initiatives. Many of these cities have been improving their scores in the ease of living and doing business indices but they lack adequate supply of fresh talent, which is attracted by the larger Tier 1 cities. Better policies to attract investors and greater improvement in the business landscape will lead to higher GCC investments and help these cities retain skilled workers. Already, some of the bigger Tier 2 cities such as Jaipur and Indore are developing on the lines of Tier 1 cities.

The cities in the bottom left quadrant are feeder cities to the established centres in terms of providing fresh talent. Most of the cities in the North-East rank at the bottom with respect to ease of doing business, though they provide fresh talent to bigger cities. However, Guwahati, one of the largest cities in the North East, might emerge as a potential GCC hub in the region with the help of coherent policy initiatives.



Conclusion

In a world being continuously reshaped by COVID and its aftermath, innovation and R&D will be critical for global firms for evolving their businesses even as they will look for newer avenues to sustain and grow. Global Capability Centres (GCCs) in India are already at the forefront of driving such initiatives and delivering cutting-edge data science and insights for business and ensuring delivery excellence.

Going forward, such Centres of Excellence are expected to drive product/service innovations and handle a greater share of complex technology-driven work for the parent organizations who will be looking to accelerate business recovery while focusing on the next level of growth. India with its distinguished record of service delivery with cost optimization, is now riding the wave of its large and capable talent pool which is augmenting the quantum and quality of work being undertaken by GCCs of multinational corporates, especially in the field of Artificial Intelligence, Cybersecurity, Internet of Things, Edge Computing, Machine Learning and Digital Analytics and Product Innovation. This unique cost-value proposition will continue to remain extremely attractive over the next several years. This also means that GCCs will be responsible for a greater depth of services such as global sourcing strategies, vendor management and development of new products and platforms. This will enable them to become strategic growth partners of their parent organizations in the truest sense.

India's bid to enhance its manufacturing ecosystem will also play into the rising role of Engineering R&D centres in the Indian GCC space. While, already the ER&D centres outstrip other GCC segments in terms of their footprint, they are going to be vital in fuelling the next wave of growth of GCCs in India. The other segments will continue to hold fort and grow, not the least the IT segment where India remains the undisputed leader in product and service delivery excellence.

The growth of GCCs also augurs well for job creation, also given the fact that in a post-COVID scenario, evolving workplace trends may allow for Tier 2 cities to garner a fair share of the GCC growth. However, it remains to be said that a city with a holistic ecosystem of talent pool and infrastructure will gain an edge, given that operational costs would be similar across most.

As GCCs in India continue to be the drivers of the parent business through innovation, their contribution will become increasingly pronounced in not just the bottom line but the revenue growth of their parent organisations. Increasingly, they will be at the forefront of driving global digital transformation. And, that will be another feather in the cap of the Indian tech industry.

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