

# Impact of Transformative Technologies on Indian Global Capability Centers: A Leadership Perspective

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## Abstract

Since Texas Instruments established the first offshore captive center in Bengaluru in 1985, Global Capability Centers (GCCs) in India have evolved from back-office operations into strategic innovation hubs for multinational corporations. According to a report by consulting major EY on the future of GCCs (Balachandran et al., 2023), the Indian GCC market is projected to exceed US\$100 billion by 2030, housing over 2500 centers and employing more than 4.5 million professionals. Driving this transformation is the rapid adoption of transformative technologies such as artificial intelligence (AI), machine learning (ML), cloud computing, and the Internet of Things (IoT), which are redefining the role and future trajectory of GCCs in India. This research explores the influence of these technologies on the strategic evolution of Indian GCCs, through a mixed-methods approach, combining primary research (surveys and expert interviews) with secondary analysis (industry reports, articles, and blogs). The findings reveal that 92% of surveyed stakeholders—including GCC leaders, consultants, legal experts, and academics—express confidence in the future of Indian GCCs, with 81% acknowledging the significant impact of transformative technologies on operations and strategy. Despite challenges such as talent shortages, integration complexities, and cybersecurity risks, the research underscores the critical role these technologies play in positioning Indian GCCs as global innovation leaders.

## Keywords

Transformative Technologies, GCCs, Global Capability Centers, Indian GCCs, Emerging Technologies, GCC Leadership

## 1. Introduction

The Global Capability Centers (GCCs) are strategic units established by organizations

in locations outside their headquarters (HQs) to access local talent pools, reduce costs, and expand their global impact. These centers are also known as Captive Centers or Global In-house Centers (GICs). Though the term “GICs” is often used interchangeably with GCCs, it specifically refers to centers that focus on financial services, including banks and non-banking financial institutions, investment banks, insurance and reinsurance companies, and financial intermediaries.

The report “ANSR GCC Quarterly Landscape Q4’2023” defines a GCC as a wholly owned, integrated, strategic platform typically established in talent-rich locations such as India to deliver significantly enhanced value. The report explains that the term “wholly owned” means that GCCs are now a mainstream strategy, are “integrated” as an extension of the enterprise, offer “enhanced value” through global top-talent and their ability to build differentiating business capabilities, and serve as a “strategic platform” by evolving into centers of excellence (COEs) which drive enterprise growth, transformation, and innovation (Thomas, 2024). This definition, true to its time, effectively captures what modern GCCs are made of. Similar such sentiment is echoed by ISG Research, which labeled global capability centers as “hot” and mentions that the ones established since 2021 are increasingly being used as innovation hubs, transformation CoEs and centers for emerging (Hannon & Becker, 2024).

But this is not how it all began. When GCCs were first established in India in the 1990s, their primary focus was merely on basic services such as IT support and back-office operations. The idea was to create low-cost centers to tap into India’s large English-speaking talent pool. Over time, GCCs moved up the value chain from business process outsourcing (BPO) to knowledge process outsourcing (KPO) and business process management (BPM). They expanded to include areas such as finance and accounting, customer support, tax and treasury, and other shared services. While cost reduction remained the primary driver, organizations increasingly began to view Indian GCCs as engines for driving operational efficiencies. By the turn of the century, the focus further shifted towards process improvements, transforming GCCs from cost centers to profit centers. In recent years, the integration of transformative technologies has elevated GCCs to “reinvention engines that unlock value and drive growth”, says global consulting major Accenture (Sharma et al., 2024).

As technology innovation hubs, GCCs are not only driving strategic imperatives but also filling global roles in some of the world’s largest multinational enterprises. Sarv Saravanan, for instance, assumed the role of Chief Customer Officer at US based data protection and management company Commvault in September last year. In a Times of India article titled “Why more and newer global roles are coming to India global capability centers”, Pari Natarajan, CEO of Zinnov, calls this a “landmark” move in the sense of the first Chief Customer Officer role being played out of India for a company that has some of its most valuable customers in the US. He attributes this trend to the advancement of both Indian GCCs and the technology in their being able to understand customers remotely

(John, 2023). In another article of the same publication, Lalit Ahuja, founder & CEO of ANSR remarks, “maybe the next Satya Nadella is going to be sitting somewhere in Bengaluru.” (Phadnis & John, 2024).

GCCs of some of the top technology giants such as Microsoft, GE, Facebook, Bosch, SAP, Mercedes, Walmart, Qualcomm, 3M, Oracle, Volvo, and SKF are no longer only about cost cutting but are at the forefront of building technologies of the future such as GenAI, quantum computing, artificial intelligence of things/machine learning (AIoT/ML), big data, edge computing, and cyber security (Srivastava et al., 2023).

This journey from cost centers to profit centers and now to cutting-edge innovation highlights that Indian GCCs are at an inflection point. Our research aims to examine this transformation and its implications.

## 2. Literature Review

Top consulting firms, researchers, academics in business schools, and industry associations have published several reports, articles, and blogs on Indian GCCs and their rapid growth. While these writings undoubtedly discuss how transformative technologies are reshaping the presence of GCCs in India as a recurring theme, none have specifically or exclusively examined the influence of these technologies on Indian GCCs. AI-powered automation, cloud computing, and data analytics are not only streamlining operations and driving innovation but also enabling the creation of digital twins for their global counterparts.

The “ANSR GCC Quarterly Landscape Q4’2023” report states that 90% of the GCCs plan to harness the potential of AI/ML/cognitive computing technologies in the next few years (Thomas, 2024).

According to consulting major McKinsey, by adopting generative AI’s power and taking advantage of their own operational skills, global capability centers (GCCs) can transform from being execution centers to centers of innovation, generating talent pipelines and next-generation leaders across global verticals (Banerjee et al., 2024).

In its report, ‘Rise of the Global Capability Center as a reinvention engine’, technology consulting firm Accenture notes that generative AI (GenAI) will fundamentally transform “every part of the business from innovation and customer interaction to product development and company culture.” And, to drive this change, Accenture posits GCCs as the essential catalysts. The report underscores the dominance of Indian GCCs by declaring that “A global capability center, most often in India, acts as an extension of headquarters and provides access to global, digital-first talent at scale” (Sharma et al., 2024).

According to HFS Research, the pivot in GCCs has rebranded the “Why India” narrative from a mere cost-saving exercise to a strategy of substantial value creation—a vital advantage for enterprises caught in the “digital dichotomy,” struggling to balance macroeconomic challenges with the need for relentless innovation (Fersht, 2024).

In California Management Review (CMR) Insights, leading academics from the

University of Calgary, Dartmouth, and the Indian School of Business (ISB) discuss the role of engineering and research talent in Indian GCCs. The article includes caselets of industry giants such as Microsoft, Bosch, GE, Facebook and Thermo Fisher, among others, and examines the future technologies they are employing (Srivastava et al., 2023).

A recent report by industry representative NASSCOM and consulting firm KPMG on GCCs in India highlighted the leveraging of emerging technologies as one of the top four considerations for Indian GCCs. The other three are managing talent, ensuring regulatory compliance, and addressing concentration concerns. (Tuteja et al., 2024)

Consulting firm EY also noted that GCCs are expanding their service portfolio by including new-age offerings such as AI and data analytics across both business processes such as procurement and knowledge processes such as marketing & communications, legal and ESG. Their report titled “GCCs: Spearheading Innovation with New-Age Services” featured brief case studies from diverse industries showing that GCCs are fostering organization-wide transformations and as a result, are propelled toward exponential growth (Sen et al., 2024).

In its report, ‘Dinosaurs or Unicorns’, management consulting firm BCG presented a nuanced perspective on GCCs with specific examples and exemplars that came up during closed-door discussions amongst industry leaders at the ET GBS event. The report explored contrarian themes such as GCCs in India are ultimately all about costs and not innovation and that despite the rhetoric on talent augmentation and up skilling, the industry remains centered on FTEs and scale. (Gupta & Gambhir, 2023)

### **3. Research and Methodology**

#### **3.1. Study Area and Scope**

The research focuses on the Indian Global Capability Center (GCC) ecosystem, encompassing diverse industries such as technology, finance, healthcare, and automotive sectors. The study aimed to understand how transformative technologies impact GCC operations, challenges, and strategic trajectories.

#### **3.2. Sampling and Respondent Profile**

We employed purposive sampling to target a diverse cross-section of the GCC ecosystem, ensuring representation across industry leaders, consulting experts, legal professionals, and academicians with expertise in GCC operations and strategy. The sampling aimed to include respondents with significant experience and decision-making roles in GCCs to ensure the quality and relevance of responses.

#### **3.3. Sample Size and Formula**

A total of 39 respondents were approached for the survey, of which 24 completed surveys were obtained, yielding a response rate of approximately 61.5%. The male-

to-female ratio among respondents was 18:6. A sample size formula was not employed due to the qualitative nature of this exploratory study.

### 3.4. Inclusion Criteria

- Professionals with significant experience (15+ years) in GCC operations, strategy, or consulting.
- Academicians with published work on GCCs or transformative technologies.
- Legal professionals specializing in corporate law with GCC-related cases.

### 3.5. Exclusion Criteria

- Respondents lacking direct involvement in GCC operations or decision-making.
- Junior professionals without strategic insights into transformative technologies.

### 3.6. Data Collection Methods

#### Online Survey

We distributed an online survey via Google Forms, structured into two main sections:

- **Primary Role of GCCs:** Questions focused on understanding the core functions and operational focus areas of GCCs.
- **Transformative Technologies:** Questions explored the impact of technologies such as AI, ML, cloud computing, and IoT on GCC strategies.

Each section included multiple-choice questions followed by open-ended queries. Open-ended questions enabled respondents to elaborate on their choices, address anomalies, and provide additional insights.

#### Interviews

To complement the survey, we conducted four in-depth interviews with select respondents to gain a comprehensive understanding of the topic.

- Automotive industry expert (insights on industry-specific challenges).
- Law partner (regulatory landscape for GCCs).
- GCC Leader (perspectives on transformative technologies).
- Consulting expert (strategic outlook and trends).

Excerpts from these interviews were integrated into the analysis to provide depth and context.

### 3.7. Data Presentation and Analysis

The findings are presented using graphs, charts, and summaries, supplemented by qualitative insights from open-ended survey responses and interview quotes. Secondary research and external data were used to contextualize results, with all sources appropriately cited.

### 3.8. Ethical Considerations

Given the seniority and high-profile nature of respondents, the following measures were implemented:

- **Confidentiality:** A confidentiality and permission section was included in the survey to ensure candid responses.
- **Anonymity:** Respondents who requested anonymity are not identified.
- **Review Process:** Interview transcripts were shared with respondents for review before publication.
- **Disclaimer:** A disclaimer clarifies that the views expressed by interviewees are personal and not representative of their organizations.

## 4. Survey Results

### 4.1. Section I: Primary Role of GCCs

1) *What do you think is the main role of GCCs in India for your organization or clients?* (Figure 1)

Our survey suggests that cost efficiency is the dominant factor driving the role of Indian GCCs with nearly two-thirds of the respondents choosing this as the primary function. Talent acquisition & innovation are also significant, but they are not prioritized as high as the cost. These findings may suggest two possibilities:

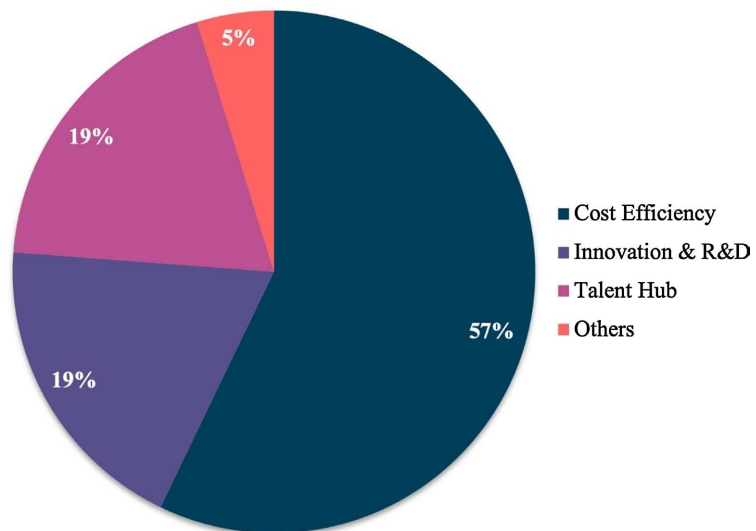


Figure 1. Role of GCCs.

GCCs are ultimately about cost reductions and other factors such as capability and talent are only secondary considerations. However, as the respondents were asked to choose the single biggest factor and not rate them by priority, the results may have been skewed towards cost efficiency. The latter seems to be more likely as supported by survey comments and secondary research. In essence, cost is a necessary criterion, but it is not the only one. Operational efficiency, extensive talent pool and robust infrastructure for innovation are also crucial to the success of GCCs. “Companies are moving away from scale and cost leadership and toward customer centricity and digitalization as sources of competitive advantage, with some business leaders building and retaining these core digital transformation capabilities in-house at GCCs,” says Rohan Lobo, the technology and transformation industry

leader for GCCs at Deloitte South Asia (Shaikh & Ray, 2024).

According to the research report by Global real estate leader CBRE (Joshi et al., 2023), while India scores the highest in terms of talent attractiveness, in overall cost-effectiveness, it is almost at par with its East and Southeast Asian counterparts, namely China and the Philippines. Nevertheless, India's position as the world's GCC capital is reinforced by its scalability, vast skilled workforce, and a supportive ecosystem that fuels innovation and growth.

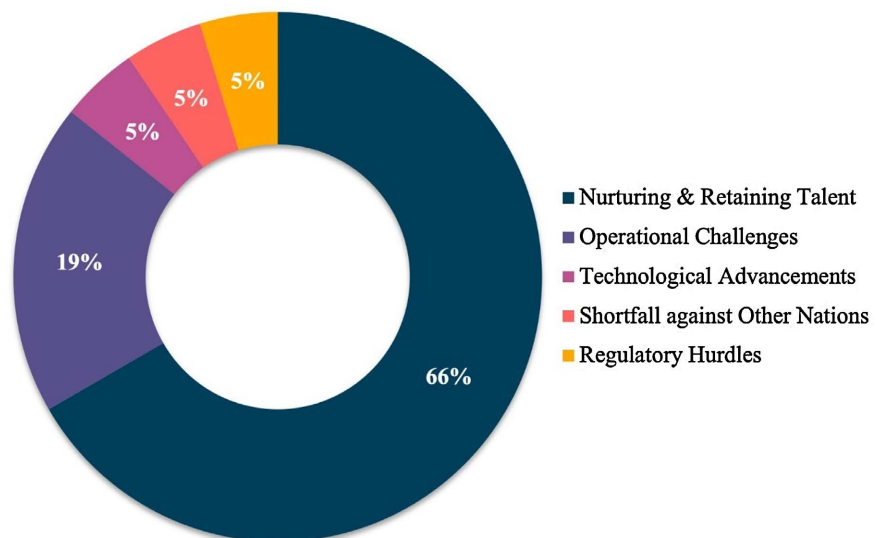
*“Cost is crucial to secure the buy-in and get things off the ground, but then the focus soon shifts to value add more than the cost. To put it differently, Indian GCCs need to deliver great value at the right cost to maintain momentum, and India has just the right talent to achieve that.”*

**Sankara Narayanan, Senior Vice-President, Global Services Group (GSG), American Express**

## 2. What is the single biggest challenge faced by GCCs in India? (Figure 2)

India's success in the GCC sector is largely driven by the scale and depth of its talent base. So, to maintain its competitive advantage, it is imperative for Indian GCCs to nurture and retain their top talent as attested by our survey results. Two-thirds of respondents identified it as the foremost challenge followed by operational challenges, which accounted for about a fifth of responses.

Indian GCCs face tough competition from well-funded start-ups and tech service providers to retain top talent. According to the PwC report on “State of



**Figure 2.** Challenges faced by GCCs.

automotive global capability centers (GCCs)” in India (Thakar et al., 2023), automotive GCCs are witnessing an average attrition rate of 20% due to lack of high-quality work, job dissatisfaction and competition from pure play technology players. Besides the retention issues, India's cost advantage seems to be gradually reducing leading to rising wage bills that strain the GCCs, according to the joint survey study conducted by NASSCOM and KPMG on GCCs in India. To mitigate

these challenges and retain top talent, GCCs may need to better align with global organizations to enhance employee empowerment, collaborate more closely with the start-up ecosystem and academia to build deep functional capabilities in new emerging technologies, and increase investments in upskilling programs.

# Interview 1- Legal Perspective

**Bharath Reddy, Partner at Cyril Amarchand Mangaldas (Top Law Firm in India)**

**Question 1.** How does the regulatory environment for GCCs in India stand in terms of supporting innovation and leveraging transformative technologies? Are there any government policies that have significantly helped or hindered their growth?

**Answer.** India's regulatory environment is generally favorable for GCCs, especially when compared to sectors like defense or agriculture, where prior approval is mandated for FDI. One notable exception is that GCCs need prior approval to set up in GIFT city (Gujarat International Finance Tec-City). However, this approval comes with several benefits, including financial assistance, exemptions from certain local compliance requirements, and the ability to transact in foreign currencies without restrictions. Overall, the ease of doing business in India is a significant advantage for GCCs.

**Question 2.** In your three-part series on key legal considerations for establishing Global Capability Centers (GCCs) in India, you discussed various models, including the Do-It-Yourself (DIY) model, the Build-Operate-Transfer (BOT) model, and a hybrid approach. Could you please elaborate on each of these models?

**Answer.** The DIY model is relatively easier to set up as the foreign entity retains complete control and ownership with employees directly on its roll. Many companies operate under DIY GCC in Bangalore. Then, there's BOT model where a third-party service provider sets up and operates the GCC for the first few years before gradually transferring ownership and control to the foreign entity. The advantage here is that the GCC avoids coming under the jurisdiction of the domiciled country, which in this case is India. There are specialized service providers in India who often serve as third-party providers for setting up GCCs via the BOT route. Finally, there's the hybrid model where the foreign entity retains greater control with fewer requirements as the third-party service provider remains involved. In India, the BOT model is increasingly common.

**Question 3.** You also mentioned in those series that GCCs are a "tried-and-tested model" in India's regulatory and political environments. How have new technologies like AI, blockchain, and cloud computing changed the way GCCs in India operate and their structure?

**Answer.** Cloud computing has streamlined operations but its AI/ML that is truly transforming the way GCCs function. Leveraging AI in India is a double-edged sword as it raises concerns about long-term job displacement. GCCs must carefully consider these implications as they could lead to challenges in employee retention and operational structure down the line.

**Question 4.** How does India's Digital Personal Data Protection (DPDP) Act of 2023 affect the operations of GCCs in India?

**Answer.** India's data privacy laws have traditionally been less stringent compared to Europe where General Data Protection Regulation (GDPR) is a benchmark. The recent DPDP Act is likely to change that landscape. Though in terms of day-to-day operations, nothing much is likely to change as the parent companies of GCCs are accustomed to navigating similar laws in their country, the Act is expected to increase compliance costs for GCCs. Overall, it's a step in the right direction for India's regulatory environment.

**Question 5.** My research suggests that transfer pricing, SEZ laws & STPI regulations, and labor laws are the three major concerns for GCCs in India. Do you agree?

**Answer.** Yes, you're right. India has complex labor laws that vary across states and create compliance hurdles for companies like tech giants which employ thousands of people nationwide. While both the Central and State governments are taking steps to improve the regulatory environment, consolidation of labor laws will immensely benefit the GCC sector. Similarly, transfer pricing remains a complex issue especially for large entities. Despite these challenges, the overall regulatory and political environment for GCCs in India remains friendly and welcoming.

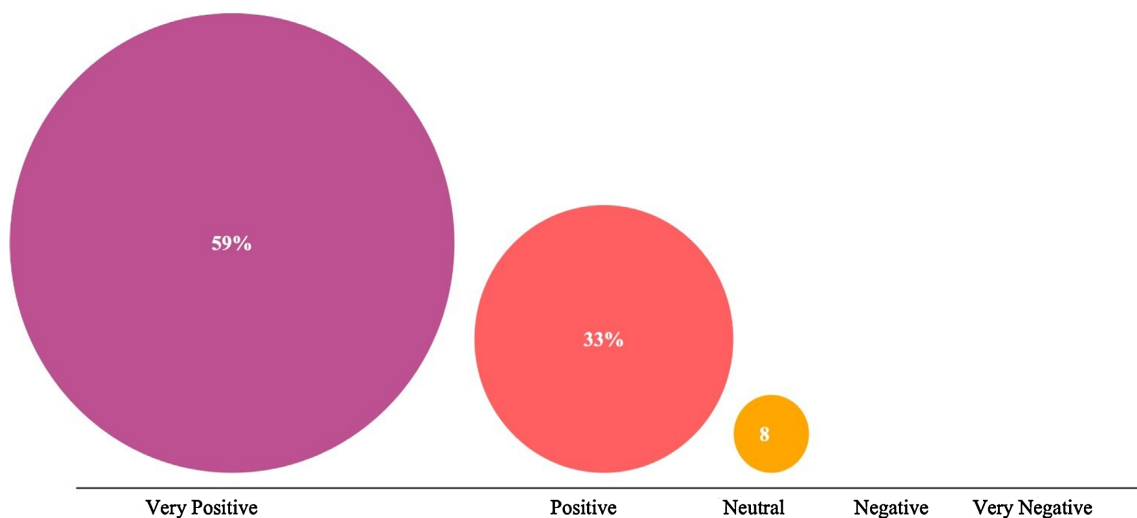
3. What is the outlook for GCCs in India over the next 5 - 10 years? (**Figure 3**)

Survey results demonstrate a strong consensus among respondents regarding the future of Indian GCCs. With over 90% expressing either a very positive or positive outlook, and no negative responses, there is evident optimism about the sector's growth prospects.

This positive outlook is supported by our secondary research which envisions Indian GCCs evolving into 'digital twins' of their global headquarters.

*"GCCs will continue to evolve into innovation hubs with a multi-disciplinary focus. There is a strong push currently to have global leadership located in GCCs."*

**Arindam Sen, Partner and GCC Leader, EY Consulting**



**Figure 3.** Future outlook of GCCs.

## 4.2. Section II: Transformative Technologies

1) Please rank the following emerging technologies in order of importance for GCCs, with 1 being the most important and 7 being the least important. (Figure 4)

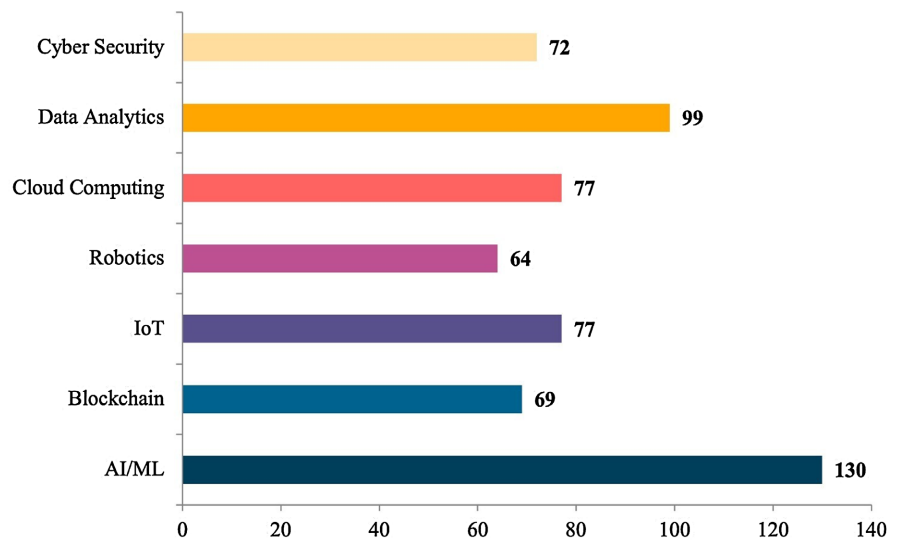


Figure 4. Emerging Technologies for GCCs.

We asked respondents to rank the seven emerging technologies in order of importance for GCCs, with 1 being the most important and 7 being the least important. To quantify rankings, we assigned points inversely: a technology ranked 1st was given 7 points, 2nd place received 6 points and so on. The overall rankings were determined by summing the points across all respondents. AI/ML emerged as the clear frontrunner, accumulating 130 points, followed by Data Analytics with 99 points. There was a tie for 3rd place between cloud computing and IoT, each earning 77 points. Robotics & Blockchain were the least prioritized in our ranking results.

The survey results align closely with industry sentiment and data. GCCs are emerging as proof-of-concept hubs for GenAI applications. Whether to drive improvement in the customer experience on the front end or to reduce costs, artificial intelligence (AI) must play a significant role—and the domain expertise and capability sitting in GCCs will fulfil those opportunities (Iyer, 2024). According to “ANSR GCC Quarterly Landscape Q4’2023”, a third of CIOs rank AI among their top three priorities for FY24. The report further predicts that successful organizations will establish Centers of Excellence (CoEs) for AI integration. Similarly, a Nasscom-KPMG report on Indian GCCs reveals that 70% of CEOs identify GenAI as their top investment priority (Table 1).

*“Consulting firms are designing transformative roadmaps for their clients, and GCCs in developing countries like India are where these plans come to life, thanks to affordable and talented local teams. To sustain long-term relationships, though, GCCs will need deeper engagement and scalable models.”*

**Dr. Rekha Singhal, Head Research, TCS Pace Port New York**

2) What is the outlook for GCCs in India over the next 5 - 10 years? (Figure 5)

Besides the outlook, another topic that garnered a clear and unanimous response in our survey is the influence of transformative technologies on GCCs—the central theme of this paper. An overwhelming 81% of respondents indicated that these technologies would significantly impact GCCs, with no responses indicating only slight or no impact. GCCs are poised to become epicenters for new and disruptive technologies. Experts remark that just as the USA led the software services industry at the end of the last century, this century is set to be defined by

Table 1. Overview of transformative technologies.

Transformative Technologies	Key Aspects		
	Core Functionality	Benefits	Concerns
IoT	Tracks real-time data from connected devices	- Enhances operational efficiency - Improves customer experience	- Security concerns - Data standardization
AI/ML	Automates processes and enables data-based decisions	- Drives innovation across sectors and processes	- Potential job displacement
Cloud Computing	Provides access to advanced technologies like AI, ML, and IoT	- Streamlines processes - Reduces infrastructure costs	- Data security - Vendor lock-in
VR/AR	Enhances customer experiences and employee training	- Creates immersive environments - Simulates real-life scenarios	- High costs - Limited content
Blockchain	Secures and streamlines transactions	- Enhances supply chain management (SCM) - Improves financial transaction security	- Scalability - Energy consumption

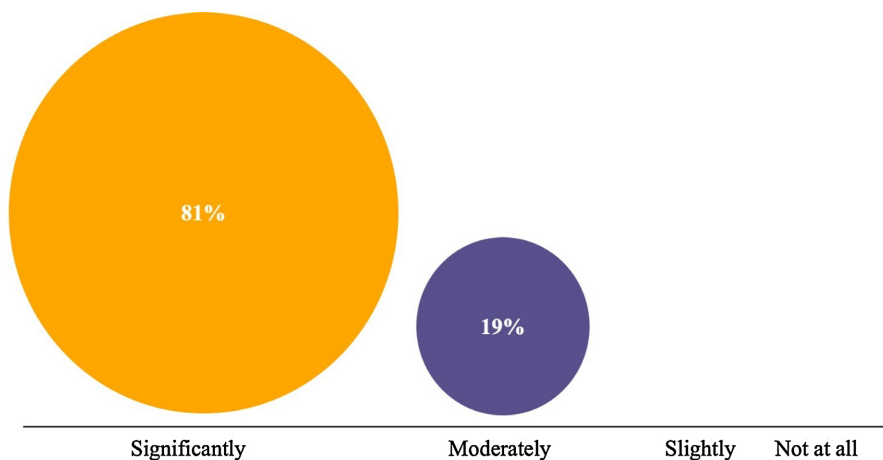


Figure 5. Impact of Transformative technologies on GCCs.

emerging technologies with India taking the dominant position.

# Interview 2 - Industry Insights

**Vandhna Babu, Principal Analyst at NASSCOM (Trade Association, Indian IT)**

**Question 1.** What are the biggest changes you are seeing within GCCs in India over the past few years?

**Answer.** Indian GCCs are steadily moving up the maturity curve with more

and more executives holding global roles and taking ownership of broader portfolios. There's been a significant push towards digital transformation with GCCs leading initiatives across value chain segments. Peer to peer collaboration across geographies is also growing and driving innovation. Finally, the level of engineering work conducted out of India has significantly advanced—not just in terms of quality, but also in terms of the sheer volume of high-impact projects, especially in the post-COVID era.

**Question 2.** What is the biggest advantage and biggest challenge GCCs in India face?

**Answer.** The biggest advantage for GCCs in India is the vast pool of English speaking, younger talent which includes both Millennials and Gen Z. Then, political stability is another advantage with the Modi government being elected to power for the third time. India also holds a significant advantage in terms of cost. So, these are some of the factors unique to India. As far as the challenge is concerned, the perception of India as a low-cost back-office center persists. Cultural differences between Indian and Western workforces at times lead to challenges in gaining leadership support. That said, GCCs in India are increasingly gaining visibility for their ability to handle high-impact projects and therefore, are in a stronger position than ever to demand more strategic, high-value work.

**Question 3.** As a representative body, how do you view the regulatory landscape for Indian GCCs particularly in comparison to countries like Poland, the Czech Republic, or closer home, Vietnam and the Philippines?

**Answer.** Regulations are unique and native to countries so a comparison may not be appropriate or fair. But as far as India is concerned, transfer pricing remains a concern, complexity of labor laws presents another challenge. But both State and Central Governments are actively modulating specific issues as they arise, and India has made significant progress in creating a conducive environment for GCCs.

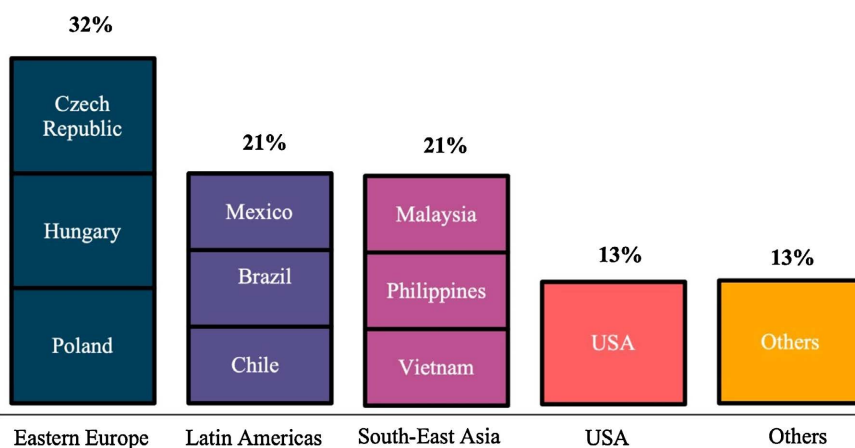
**Question 4.** How are transformative technologies changing GCCs? Which industries are being impacted more than others?

**Answer.** We're seeing a significant increase in the establishment of Centers of Excellence (COEs). Indian centers are now leveraged as hubs for proof-of-concept initiatives especially in future technologies such as GenAI, Blockchain and Robotic Process Automation (RPAs). Companies are also forging strategic partnerships with start-ups and universities to tap into the robust innovation ecosystem that India has on offer. As for specific industries being most impacted, BFSI, Semiconductors and Automotive are leading the transformation but the influence of these technologies is all pervasive and is, therefore, affecting virtually every industry in a big way.

*3) Who do you consider to be the biggest competitor for transformative technologies based GCCs in India? (Figure 6)*

About a third of survey respondents identified Eastern Europe as the biggest competitor to Indian GCCs. Latin America and Southeast Asia were close behind,

each garnering around a fifth of the responses. Additionally, some respondents believe that certain work will be retained by parent companies, making the U.S. another competitor. Interestingly, when given the option of “others” in the survey, some respondents indicated that India has no real competition, while one respondent mentioned China as a potential competitor.



**Figure 6.** Biggest Competitor for Indian GCCs.

India is often considered the “GCC capital” of the world, accounting for about 50% of the global GCCs. While cities such as Bengaluru, Hyderabad, Delhi NCR, Mumbai, Pune, and Chennai remain the most popular destinations for GCCs, over 200 Tier-II and Tier-III cities including Ahmedabad (Gujarat), Kochi (Kerala), Thiruvananthapuram (Kerala) and Coimbatore (Tamil Nadu) are also fast shaping up as GCC hubs (Tiwari et al., 2024).

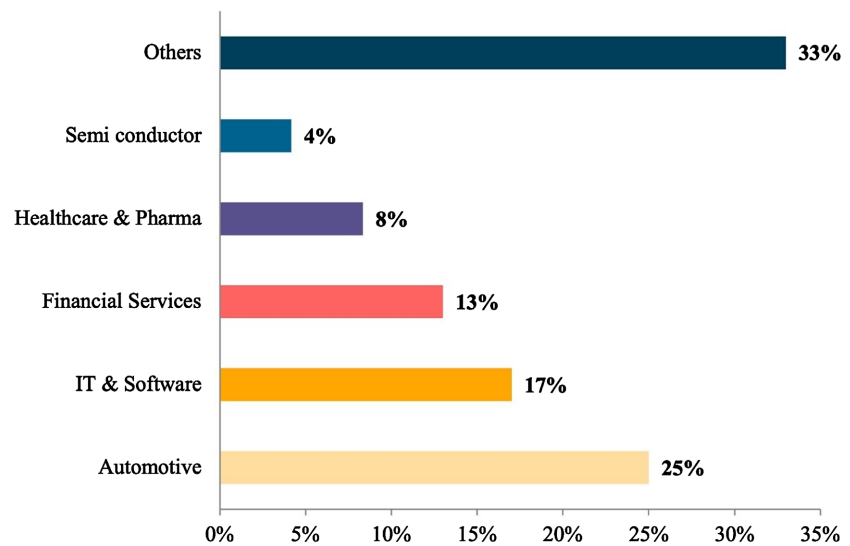
India retains its dominance in the sector owing to its scale, cost advantage, vast skilled talent, and mature ecosystem. Each of the top three competing regions has its own set of advantages and disadvantages. Eastern Europe boasts a highly skilled talent pool pioneering disruptive technologies but is a higher-cost alternative. Latin America scores over its proximity to the US, home to many parent companies looking to establish GCCs, time zone alignment, and cultural similarities, but language barriers in the region persist, plus infrastructure in Brazil and Chile is not as robust. Also, while Brazil faces economic volatility, Chile’s talent pool is smaller compared to India’s. Southeast Asia serves as a hub for shared services due to its low-cost operations, but the region lacks the scale and vitality to manage large-scale, complex projects, and limited English proficiency is another barrier.

In essence, India retains its dominance as its competitors while strong in certain aspects, do not match India’s comprehensive offering.

*“India is in a league of its own when it comes to GCCs and faces no major competition in the near future.”*

**Krishna Kabra, Head, Orange GCC India**

4) Which industry do you believe is making the most use of transformative technologies such as AI, ML, IoT, and Blockchain? (Figure 7)



**Figure 7.** Industry adoption of transformative technologies.

The question about which industry is getting most impacted by transformative technologies yielded results that required closer examination, as a third of responses fell into the “others” category. We noticed that many respondents interpreted the question to identify their own industry rather than the industry they perceived as most affected by transformative technologies. For instance, as telecommunication wasn’t listed among the options, a Vice President of a telecommunications GCC chose “others” and specified “telecommunications” as the answer. Moreover, the “others” category was also inflated by respondents who listed multiple or all sectors as their response. Despite this, the survey identifies automotive and IT & software as the two sectors most impacted by transformative technologies, with 25% of respondents choosing the former and 17% the latter.

This result aligns intuitively and empirically as the landscape of the automotive sector is undergoing a shift like never before with cutting-edge technologies changing the face of mobility. As a result, the road ahead for Indian automotive GCCs holds both promises and challenges. According to a PwC report on the State of automotive GCCs in India, the number of these centers has grown from seven in the early 2000s to over 60 today, with 20% established in the last three years alone.

Similarly, the prowess of Indian engineers is reflected in the global IT & Software sector in not only having heavy weights such as Alphabet, Microsoft, Adobe and IBM led by Indian-educated engineers but also with top multinational technology companies such as Microsoft, Facebook, Oracle, GE, Volvo, SAP, Bosch having established a GCC in India. These centers are conducting cutting-edge research that is difficult to scale or replicate in their home countries due to limited manpower. For instance, Bosch operates its largest R&D center in Bangalore, outside of Germany where critical automotive technologies such as advancements in anti-lock braking systems, and driver assistance features along with big data solutions relating to Internet of things (IoT) are worked out.

While the automotive sector leads the pack in the adoption of Global Capability Centers (GCCs), the airline industry stands in stark contrast, with a relatively low presence of GCCs. About 20 airlines are responsible for 70 percent of the industry's total revenue, but only nine of them have GCCs (Sinha et al., 2024).

#### # Interview 3 – Sector Focus

##### **Anonymous, Automotive Expert at Big 4 Consulting Firm**

**Question 1.** What are the biggest changes you are witnessing within Automotive GCCs in India in recent times?

**Answer.** The automotive industry is going through a massive overhaul, and GCCs are right at the heart of it. The big buzzwords right now are electric vehicles (EVs), connected cars, autonomous driving, green energy and shared mobility. We're seeing a huge push towards developing advanced driver assistance systems (ADAS), hydrogen fuel cell technology, connected cars, and battery management systems (BMS). Beyond the tech, there's a growing focus on customer centric approaches with car companies adapting to tech-savvy consumers who are demanding more tech and better features. All of this is driving the need for robust engineering, R&D, and innovation, which is why India is becoming a hotbed for automotive GCCs.

**Question 2.** How are automotive GCCs evolving into the future? What are the headline trends for automotive GCCs in India?

**Answer.** Automotive GCCs are no longer just back-office support but innovation powerhouses. Virtual collaborative tools like VR and digital twins mean they are now lock stepped with their global counterparts. More mature GCCs are entrusted with end-to-end development solutions leading to the establishment of Centers of Excellence (COE) in specialized areas like embedded systems cybersecurity, and vehicle design. For instance, a certain car manufacturer may create models based on their market understanding but the mobility landscape in India is very different from that of advanced countries So, GCCs in India are fine-tuning them to better suit Indian conditions.

**Question 3.** Could you provide insights into the transformative technologies and how they are shaping Automotive GCCs?

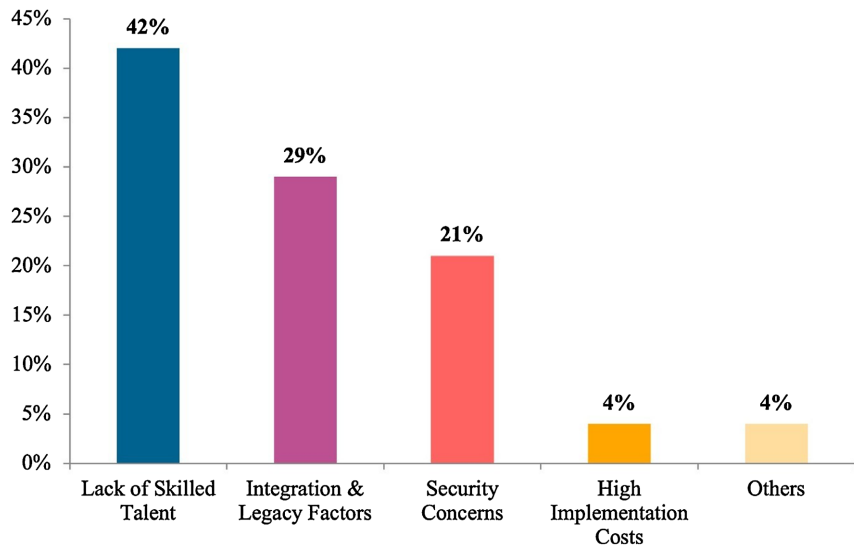
**Answer.** GenAI is streamlining manufacturing by simulating processes and using data feeds to quickly diagnose and fix issues. Augmented and virtual reality (AR/VR) is enhancing in-vehicle experiences while deep learning is advancing autonomous vehicle technology. Cloud computing and cyber security are crucial for protecting these innovations. Disruptive technologies are not only building capabilities in areas like ADAS, software-defined vehicles, telematics, and vision-based technology, but they are also enhancing core automotive capabilities such as vehicle aerodynamics and architecture.

**Question 4.** What are some of the key challenges faced by Automotive GCCs in India?

**Answer.** The biggest challenges relate to attrition. The teams in automotive GCCs are often small comprising high skilled workers. So cultural and training

alignment is important, attrition rates must be controlled to ensure focus remains on product development and less time is spent on knowledge transfer.

5) *What challenges have been encountered when implementing transformative technologies in GCCs in India?* (Figure 8)



**Figure 8.** Challenges in GCC tech implementation.

According to our survey, the two main challenges for GCCs when implementing transformative technologies are lack of skilled talent and issues relating to integration and legacy factors.

While India boasts a significant STEM talent pool with 34% of students graduating in STEM fields according to UNESCO, ensuring a consistent supply of specialized talent remains a challenge. To address this, a survey study by NASSCOM and KPMG highlights that GCCs are stratifying their workforce models. For strategic areas, they follow a hire, build, and scale approach, addressing skill gaps through reskilling programs and collaborating with academia to shape future talent. For immediate to short-term needs, they leverage a gig workforce through vendor partners, while for niche capabilities, they use the Build-Operate-Transfer (BOT) model. For leadership roles, a “2 in a box” model is followed whereby for critical roles, a counterpart role within the parent organization is co-created. Besides this, initiatives like Leadership Circles to mentor high-potential women leaders are increasingly resorted to.

Furthermore, GCCs, especially in the financial sector, are beginning to engage with the start-up community and universities through various channels, including accelerators, incubators, and hackathons. For example, Accelerator 2030 is a collaboration between HSBC Bank and start-up incubator T-Hub (Gupta & Katna, 2019).

On the integration front, GCCs must often grapple with fragmented technology stacks, API limitations, and data silos. Cybersecurity and data concerns further complicate the adoption of new technologies. To overcome these challenges, technology modernization, and cloud adoption are paramount.

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#### # Interview 4 - Consulting Lens

**Arindam Sen, Partner and GCC Sector Lead, EY India**

**Question 1.** How have transformative technologies, such as AI, machine learning, and blockchain, impacted the operations and strategies of Indian GCCs in recent years?

**Answer.** In recent years, GCCs have increasingly embraced transformative technologies like AI, machine learning, data analytics, etc., to drive innovation, product development, and operational efficiency. These technologies have enabled GCCs to establish themselves as Centers of Excellence (COE) within their enterprises, focusing on delivering specialized solutions that extend beyond mere cost optimization and scope expansion. According to our latest GCC Pulse Survey, 55% of GCCs have developed mature data and analytics practices, which are integral to their digital strategies. Additionally, advancements in cybersecurity and AI are playing a crucial role in supporting GCCs' digital transformation, enhancing value across various business functions. For instance, use cases like automating customer experience processes are being actively explored to boost efficiency and minimize manual efforts.

**Question 2.** What are the main challenges Indian GCCs face in adopting and integrating transformative technologies? Conversely, what opportunities do these technologies present for GCCs in India?

**Answer.** Key challenges GCCs face in adopting and integrating transformative technologies include the continuous upskilling and reskilling of the workforce to keep pace with rapid technological changes, which is especially demanding given the scale of operations in India. Data management and security are also critical concerns, as GCCs handle vast amounts of sensitive data, requiring robust governance and compliance with global regulations. Additionally, integrating new technologies with legacy systems can be complex and time-consuming, often necessitating significant investment and careful planning.

On the other hand, transformative technologies present significant opportunities for GCCs. By embracing AI, machine learning, and automation, GCCs can enhance operational efficiency, reduce costs, and offer more advanced services to their headquarters, positioning themselves as strategic partners. Additionally, adopting these technologies helps attract and retain top talent by offering opportunities to work on cutting-edge projects, further solidifying India's position as a global hub for innovation.

**Question 3.** Given the rapid pace of technological advancement, what are the critical talent and skill gaps that Indian GCCs are facing? And, what the GCCs are doing to address those gaps?

**Answer.** With rapid advancements in AI, GenAI, machine learning, data analytics, and cybersecurity, closing talent and skill gaps is increasingly challenging. The demand for professionals with deep expertise in these areas is growing, and there is a critical need for leadership that combines technical expertise with strategic vision, especially in large-scale digital transformation projects. Additionally,

shifts in workforce dynamics, driven by technology and the entry of Gen Z, are reshaping the landscape. Traditional expertise alone no longer guarantees an edge, making it essential for GCCs to embrace diversity and democratize technology to unlock global value.

To address these gaps, GCCs are investing in continuous learning and development, partnering with academic institutions and global tech companies for upskilling. They are fostering a culture of innovation through cross-functional collaboration and cutting-edge projects, which helps in both skill development and talent retention. Moreover, GCCs are building balanced operating models that integrate insourcing and outsourcing to adapt swiftly to technological changes to stay competitive.

**Question 4.** Can you share any success stories where transformative technologies have significantly enhanced the performance or capabilities of an Indian GCC?

**Answer.** There are numerous success stories in India today. For example, a major retail GCC has built a global e-commerce platform by modernizing its technology landscape, enhancing agility for timely and relevant customer experiences. An automotive GCC developed a one-stop digital health tracking solution for warehouses, optimizing overall health, safety, and efficiency. A leading manufacturing GCC created an end-to-end storage product that enables customers to deliver more innovative solutions in their devices. Additionally, a top alcohol GCC is piloting an AI-based career management tool that offers reskilling and upskilling recommendations backed by real-time data and insights.

**Question 5.** Based on your experience, what futuristic models do you foresee Indian GCCs leveraging to capitalize on transformative technologies and gain a competitive edge in the global market?

**Answer.** The GCCs are evolving from functional centers to strategic business partners by focusing primarily on 4 major areas i.e., building CoEs to provide sector-specific solutions, nurturing a culturally aligned workforce to build agility, adopting an outcome-based service delivery model to create value, and building concrete roadmaps for integrating AI into their solutions to shift to the next s-curve.

## 5. Limitations & Further Discussion

Like any study, this research paper has certain limitations and areas for further exploration.

The research primarily relied on survey and interviews with a select group, and the sample size of respondents was small so generalizations across the entire GCC landscape may be limiting. Further research could benefit by increasing the sample size to include a wide range of GCCs across India and bring more participation representing the broader GCC ecosystem. Additionally, the scope of the research can be extended to include case studies from specific industries or other GCC markets.

Access to proprietary data from GCCs was nil so we based our commentary on

secondary data and industry analysis which may introduce biases and affect the accuracy of the conclusions. Future research could incorporate quantitative data directly from GCCs on factors such as financial performance metrics, employee retention rates, etc.

In essence, the study serves as a foundational overview on Indian GCCs and their relationship with transformative technologies, laying the groundwork for more detailed future research.

## **6. Conclusion**

The evolution of Indian Global Capability Centers (GCCs) from cost-centric back-office operations to strategic innovation hubs underscores their critical role in global enterprise transformation. The integration of transformative technologies such as AI, ML, IoT, and cloud computing has catalyzed this shift, positioning GCCs as reinvention engines that drive innovation and global competitiveness. The findings of this research highlight that while cost efficiency remains a vital factor, talent acquisition, innovation, and operational efficiency are equally crucial to the success of GCCs.

Challenges such as talent retention, rising wage pressures, and competition from regions like Eastern Europe, Latin America, and Southeast Asia pose significant hurdles. However, India's vast skilled workforce, robust infrastructure, and supportive ecosystem provide it with a distinctive advantage, ensuring its dominance in the GCC space for the foreseeable future.

In conclusion, Indian GCCs are at a pivotal moment in their journey. By leveraging transformative technologies and addressing critical challenges, these centers are poised to redefine the global landscape of innovation and establish India as a leader in the knowledge economy of the 21<sup>st</sup> century.

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## **Disclaimer**

The views and ideas expressed by respondents, interviewees, and individuals quoted in this paper are their own and do not necessarily reflect the views of their respective organizations or their official positions.

## **Conflicts of Interest**

The author declares no conflicts of interest regarding the publication of this paper.

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