



Everest Group PEAK Matrix® for 5G Engineering Service Providers 2021

Focus on Infosys
October 2021



Background and introduction of the research

5G is much more than increased speed of data transfer. It has the potential to enable a paradigm shift in the way things work around us. Additionally, it is a key enabler of the fourth industrial revolution. Enterprises have already started preparing themselves for a shift to 5G. Some of the trends in 5G include:

- The low latency and high-speed characteristics of 5G make a variety of (erstwhile impractical) use cases possible, such as remote factory monitoring and maintenance via the Digital Twin concept, education and research using holographic interactions, high speed multi-player gaming, real-time fleet management of autonomous and connected vehicles, amongst others
- Advancements in technology have also led to a variety of developments that work in tandem with and assist 5G in creating an ecosystem capable of exponentially more vis-à-vis the incumbent networks. These include network slicing, Multi-edge Access Computing (MEC), Software Defined Networks (SDN), Network Function Virtualization (NFV), etc.
- Enterprises and institutions are increasingly investing in private 5G networks for Industrial Internet of Things (IIoT), public places such as stadiums and transport terminals, and educational establishments. This allows administrations to enable multi-vertical applications all the while ensuring data security by maintaining control over the data generated
- Since 5G is a new technology, new use cases of the same are conceived regularly in different industry verticals. As such, enterprises require assistance in designing, implementing, and scaling these use cases; service providers are increasingly collaborating with partners for use case engineering services

These developments have fueled the need to establish a compelling ecosystem of partners, and engineering service providers are actively enhancing their capabilities and offerings to help enterprises tackle these challenges in their 5G engineering journey, stay relevant, and create more value by exploring novel applications.

This research is the first edition of Everest Group's **5G Engineering Services PEAK Matrix® Assessment 2021**. It evaluates 18 engineering service providers, positions them on the PEAK Matrix®, and shares insights into enterprise sourcing considerations. The study is based on RFI responses from service providers, interactions with their 5G engineering leadership, client reference checks, and an ongoing analysis of the engineering services market.

The report assesses the following 18 leading engineering service providers featured on the 5G Engineering Services PEAK Matrix®:

- **Leaders:** Accenture, Capgemini, HCL Technologies, Infosys, TCS, and Tech Mahindra
- **Major Contenders:** Cognizant, Cyient, DXC Luxoft, HARMAN Connected Services, L&T Technology Services, NTT DATA, Tata Elxsi, Virtusa, and Wipro
- **Aspirants:** GS Lab, TietoEVRY, and VVDN Technologies

Scope of this report:



Geography
Global



Service providers
18 leading broad-based and pure-play engineering service providers



Services
5G engineering services

5G Engineering Services PEAK Matrix® characteristics

Leaders:

Accenture, Capgemini, HCL Technologies, Infosys, TCS, and Tech Mahindra

- This segment includes broad-based global players. Leaders have existing capabilities to build on as well as wide client bases giving them a head start over other service providers
- Leaders have end-to-end offerings across sub-segments and enjoy larger resource pools to train and deploy for engagements which makes rapid scaling of projects seamless
- Leaders are consistently investing in CoEs and labs to develop and refine their capabilities in areas such as ORAN, device and network testing, and accelerators for network transformation
- Leaders have unique partnership-led GTM strategies. They leverage their existing relationships with Telecom Service Providers (TSPs), Network Equipment Providers (NEPs), software technology firms, and hyperscalers in different geographies to gain access to a wider audience and tap into the credibility and expertise of their partners for engagements with new logos

Major Contenders:

Cognizant, Cyient, DXC Luxoft, HARMAN Connected Services, L&T Technology Services, NTT DATA, Tata Elxsi, Virtusa, and Wipro

- The Major Contenders segment comprises both broad-based global players and pure-play engineering service providers with credible presence in the 5G engineering space across the globe
- Major Contenders have strong capabilities in some areas whereas in the others they are actively investing in gaining strong market presence. The areas of investment for the Major Contenders include building delivery accelerators, network infrastructure virtualization, network automation and orchestration, and labs for use case design and development
- Most Major Contenders are mid-sized firms that have strong vision and strategies to cover ground in the coming years

Aspirants:

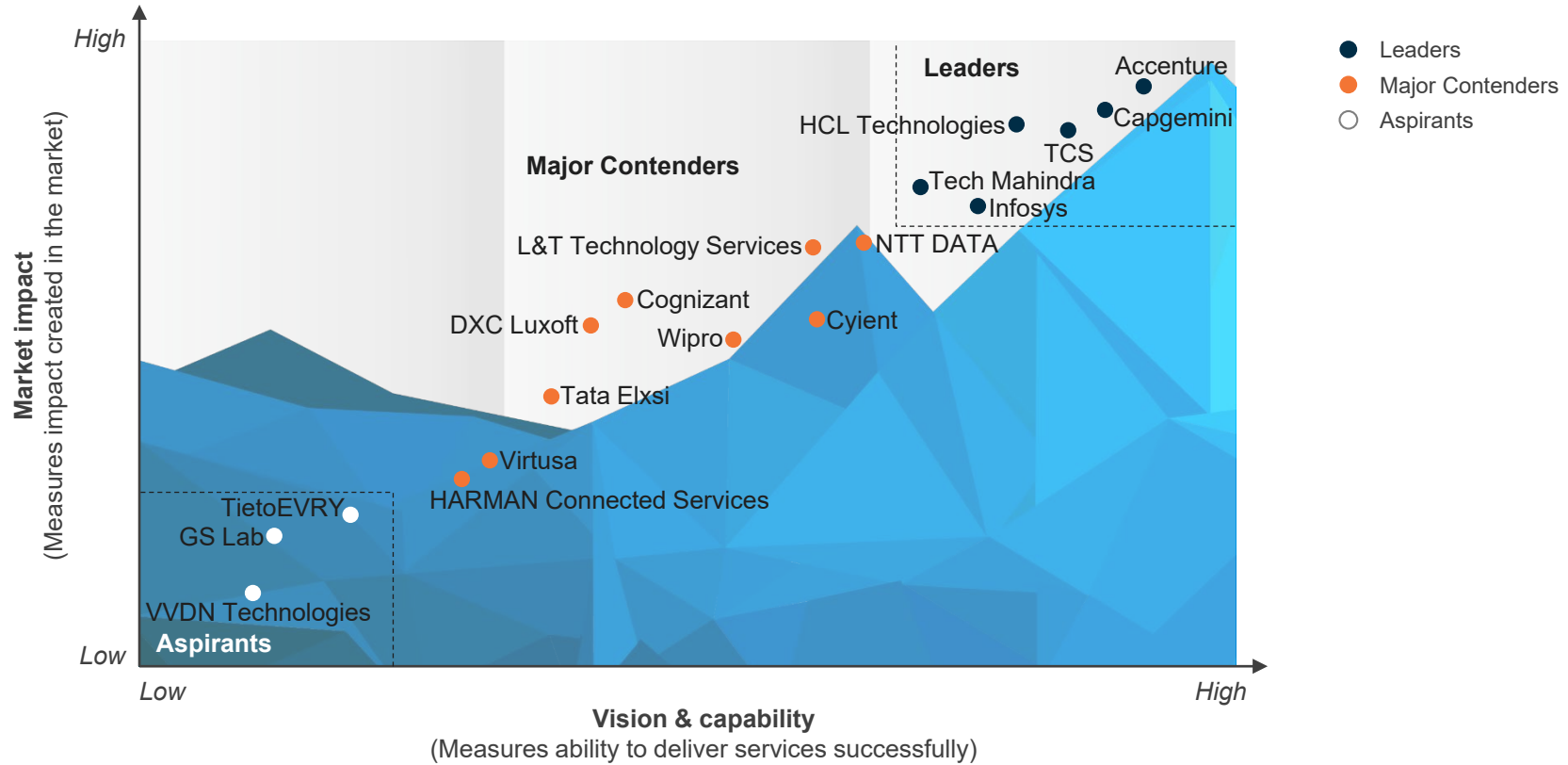
GS Lab, TietoEVRY, and VVDN Technologies

- Aspirants possess strong capabilities in specific technology areas and value chain elements. However, they have limited global presence and limited resource pool to tap into, making it difficult for them to gain traction globally. This might make it difficult for them to gain exposure with large projects dealing in end-to-end 5G engineering services
- Majority of the partnerships in this segment are focused on enhancing existing capabilities rather than aiming at exploring domains that these players are not active in

Everest Group PEAK Matrix®

5G Engineering Services PEAK Matrix® Assessment 2021 | Infosys positioned as Leader

Everest Group 5G Engineering Services PEAK Matrix® Assessment 2021^{1,2}












1 Assessments for Cognizant, L&T Technology Services, TietoEVRY, VVDN Technologies, and Wipro exclude service provider inputs, and are based on Everest Group's proprietary Transaction Intelligence (TI) database, service provider public disclosures, and Everest Group's interaction with buyers.
 2 Assessment of Capgemini is inclusive of Altran (part of Capgemini group) and reflects their joint capabilities and market impact.

Source: Everest Group (2021)

Infosys | 5G engineering services profile (page 1 of 4)

Everest Group assessment – Leader

Measure of capability:  Low  High

Market impact				Vision & capability				
Market adoption	Portfolio mix	Value delivered	Overall	Vision and strategy	Scope of services	Innovation & investments	Delivery footprint	Overall
								

Strengths

- Infosys has a strong portfolio of solutions and services across the value chain with strengths in 5G network development, deployment, and maintenance
- Has one of the most balanced delivery centers and FTE distributions among the Leaders
- Has dedicated focus on private 5G with services such as private 5G core development and deployment, private 5G network platforms, and 5G in a Box
- Infosys also has significant number of partnerships with technology companies for developing offerings in SDN, NFV, MEC, radio access network development and integration, etc.

Limitations

- Can increase investments in training and other talent building initiatives; clients suggest that attrition and finding resources with the right skillsets from the internal resource pool is a challenge
- Pricing is not considered competitive by clients; clients also feel that they could improve on commercial flexibility
- Despite investments in private 5G, the revenue from it is not as significant as it is for other Leaders; Infosys may want to reconsider its GTM for private 5G

Infosys | 5G engineering services profile (page 2 of 4)

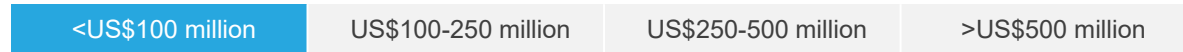
Overview

Cloud services vision

Infosys' 5G vision is to drive enterprise digital transformation by engineering innovative platforms, products, and solutions in collaboration with the ecosystem partners.

Its strategy is based on the following six pillars of open source and open forums: collaborate with the right forums for hardened solutions for ORAN, TIP, ONF, ONAP; ecosystem integration (build end-to-end ecosystem) - product/device, hyper scalers, platform providers, niche service vendors; as service models (move from bespoke to as a service for solutions) - private network, security, MEC, IoT, IIoT, edge analytics; open and flexible platforms (co-develop & own open platforms) - open hardware, virtualization, cloud-enabled; vertical use cases (develop vertically integrated use cases) - media, retail, health, manufacturing, auto, and utility; and live & connected enterprises (provide digitization roadmap to enterprises) – AI-powered, autonomous, self-healed, remote, fully cloud enabled, and omnichannel connected. This is aligned with the SCALE framework of the engineering services unit of Infosys.

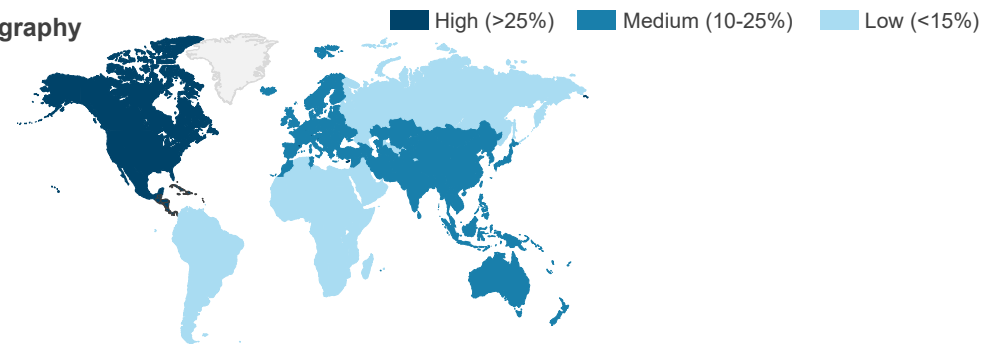
5G engineering services revenue (April'20-March'21)



YoY growth rate in 5G engineering services revenue (April'20-March'21)

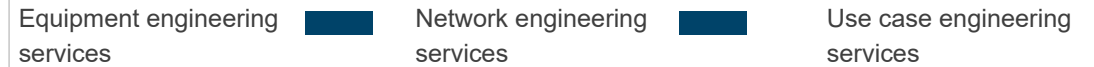


Adoption by geography



High (>30%) Medium (15-30%) Low (<15%)

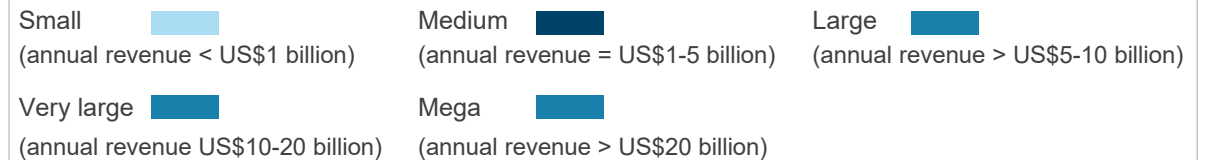
Revenue by subsegments



Revenue by value chain elements



Projects by buyer size



Infosys | 5G engineering services profile (page 3 of 4)

Case studies and solutions

Case study 1	Product development for North America-based 5G network equipment manufacturer
<p>Business challenge</p> <p>Wireless 5G core product development and Quality Assurance (QA) for a North American OEM to ensure rapid time-to-market.</p> <p>Solution and impact</p> <p>Infosys launched next-generation 4G and 5G solutions, enhanced 5G nodes, performed validation services for the 5G core products AMF, SMF, PCF, SMSF, and UPF. This included the development of PCAP-based message validation tool for HTTP2, NGAP, and NAS protocols, and platform development of CaaS and PaaS to enable cloud deployment. The project led to rapid time-to-market for North American tier-1 and Japanese service providers rolling out 5G services with 40% cycle time reduction through a release and platform-independent reusable automation framework. This increased test coverage by 30%, and reduced testing gaps through a customized keyword-driven framework.</p>	

Case study 2	5G network systems transformation for a leading North American telco
<p>Business challenge</p> <p>The client needed a transformation partner for 5G platforms, to design and implement their entire network life cycle platform for 5G across planning, engineering, provisioning and activation, service assurance, and field operations and digitizing (NAAS) OSS to support 5G (in long-term 6G) and MEC.</p> <p>Solution and impact</p> <p>Infosys transformed legacy systems to cloud native scalable architecture through Infosys Application Modernization Platform (iAMP). It used an innovative pod-based outcome-driven operating model driving more than 40% cost savings for the client due to vendor consolidation.</p>	

Proprietary solutions (representative list)	
Solution	Details
Infosys Network Function Automation (INFA)	Workflow automation tool for automated onboarding of VNFs and CNFs, which helps speed up time-to-market
Infosys NextGen Network Integration Test Engine (IGNITE)	A protocol test framework for simulated nodal testing of 4G and 5G network functions. 4G part is contributed to open source with ONF
Infosys Private 5G Solution	Pre-integrated and tested solution for private 5G deployments, leveraging OEM solutions for core and RAN with Infosys management plane
Infosys Smart Network Assurance (ISNA)	Closed loop assurance platform enabled by AI/ML and automation
Infosys virtual network infra platform	PaaS based on Kubernetes to host CNFs & IT workloads; accelerates NFVi platform setup, leveraging multiple open source software
Infosys digital network manager, active monitoring, and active Inventory	End-to-end monitoring and assurance capability for legacy and next-generation networks. The solution focuses mainly on monitoring the challenges raised by SDN – NFV Networks and 5G networks
Infosys 5G slice manager	Infosys 5G slice management provides end-to-end slice configuration covering the VRAN, core, network, and infrastructure
Infosys 5G security framework	A unique vendor-agnostic security framework that helps service providers to protect their network from attacks that may originate from within their network due to a compromised vendor network function
ORAN deployment automation	Automation tool for deployment of ORAN solution for service providers. It includes ZTP, CICD, MDT, and SSV
Unified MEC management	Single pane view for quota and user management, deployment of workloads, management of policies, and health monitoring
Infosys entertainment experience platform / Infosys Hexa	Next-generation comprehensive fan engagement platform that leverages venue infrastructure powered by hi-density Wi-Fi solution
Infosys service manager	Light weight, single point management solution for software networks. Real-time analytics and dynamic scaling requirements of software-based networks

Infosys | 5G engineering services profile (page 4 of 4)

Investments and partnerships

Key alliances and partnership (representative list)

Company	Details
Cisco	Partnership for core network solutions to build the Infosys private 5G solution stack
Airspan	RAN solution partner to build the Infosys private 5G solution stack
Affirmed	Partnership for core network solutions to build the Infosys private 5G solution stack
Metaswitch	Partnership for core network solutions to build the Infosys private 5G solution stack
Asocs	RAN solution partnership to build the Infosys private 5G solution stack
Athonet	Partnership for core network solutions to build the Infosys private 5G solution stack
HPE	Partnership for computing and storage solutions for 5G network infra stack
Parallel Wireless	Partnership to build solutions around MEC and ORAN for service providers
Commscope	RAN solution partnership to build the Infosys private 5G solution stack
Saguna	Partnership for software-based MEC solutions for multiple clients
TIP (Telecom Infra Project)	Partnership for building ORAN automation solutions for reducing cost of deployment and optimization leveraging the software centric ORAN solution stack

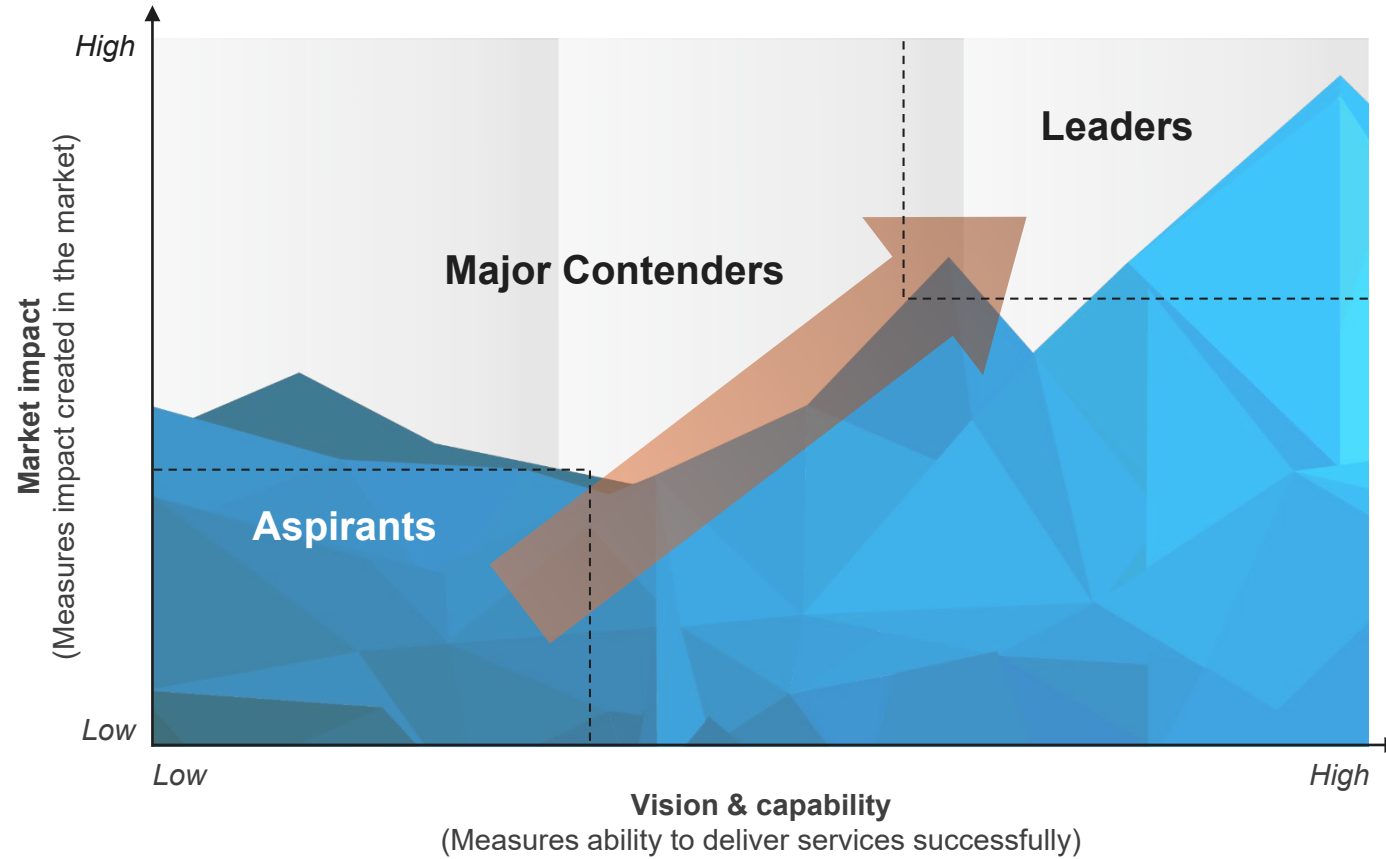
Recent 5G engineering services investments/acquisitions (representative list)

Investment/Target	Company description
LivingLabs (Private 5G labs and test labs)	Investment in labs for private 5G network testing
5G academy for training and certification	Investments in certifications and online courses
Innovations and solutions	Investments in test simulators, OEM equipment, experimental spectrum licenses, etc. 2-3% of the total revenue invested in people
Medical devices and wearables	Investments for driving human experience through device design for 5G-enabled devices. State-of-the-art dedicated lab facility with variety of devices
Infosys digital innovation hubs in the US	Investment into six technology & innovation hubs in the US focused on new technologies
Infosys cobalt cloud community	Investment to develop reusable cloud assets that can be applied to solve business challenges
Kaleidoscope Innovation	Acquisition which serves a marquee and diversified customer base with state-of-the-art, in-house labs, 3D design environments, and customer experience centers
Open source contributions	Investment in building a community to support open source programs- SEBA – ONF, AETHER – ONF, TRELIS – ONF, Kubernetes – for Comcast, IP – deployment tools, Security framework (5G security skin project)
5G platforms	Investments into platforms such as RxR realty platform, entertainment experience platform for AO and French Open

Appendix

Everest Group PEAK Matrix® is a proprietary framework for assessment of market impact and vision & capability

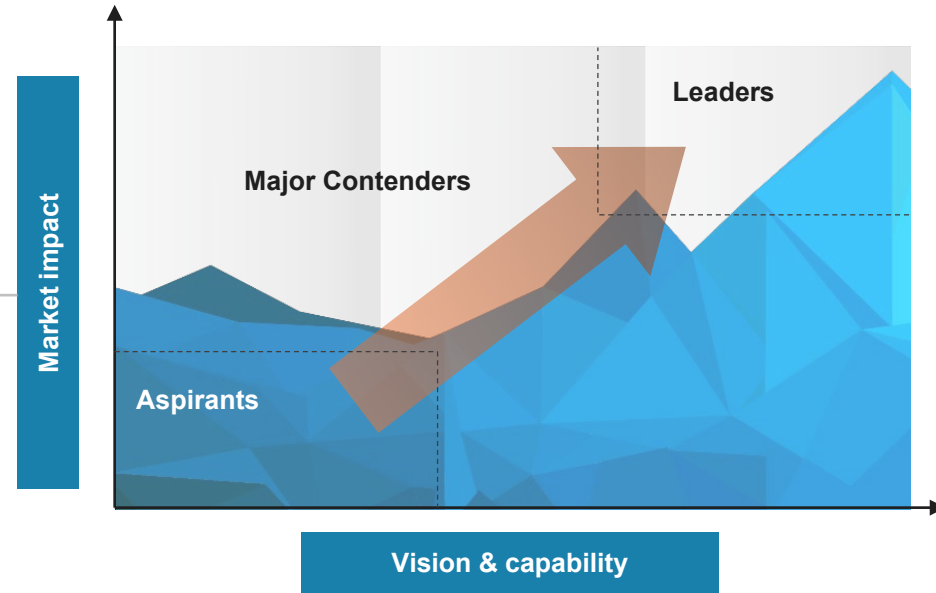
Everest Group PEAK Matrix®



Services PEAK Matrix® evaluation dimensions

Measures impact created in the market – captured through three subdimensions

- Market adoption**
Number of clients, revenue base, YOY growth, new client wins, prominent pricing models, and deal value
- Portfolio mix**
Diversity of client/revenue base across geographies, verticals and type of clients
- Value delivered**
Value delivered to the client based on customer feedback and transformational impact



Measures ability to deliver services successfully. This is captured through four subdimensions

- Vision and strategy**
Vision for the client and itself; future roadmap and strategy
- Scope of services offered**
Depth and breadth of services portfolio across service subsegments/processes
- Innovation and investments**
Innovation and investment in the enabling areas, e.g., technology IP, industry/domain knowledge, alliances, M&A, and service enablement
- Delivery footprint**
Delivery footprint and global sourcing mix

FAQs

Does the PEAK Matrix® assessment incorporate any subjective criteria?

Everest Group's PEAK Matrix assessment adopts an unbiased and fact-based approach (leveraging service provider / technology vendor RFIs and Everest Group's proprietary databases containing providers' deals and operational capability information). In addition, these results are validated / fine-tuned based on our market experience, buyer interaction, and provider/vendor briefings

Is being a “Major Contender” or “Aspirant” on the PEAK Matrix, an unfavorable outcome?

No. The PEAK Matrix highlights and positions only the best-in-class service providers / technology vendors in a particular space. There are a number of providers from the broader universe that are assessed and do not make it to the PEAK Matrix at all. Therefore, being represented on the PEAK Matrix is itself a favorable recognition

What other aspects of PEAK Matrix assessment are relevant to buyers and providers besides the “PEAK Matrix position”?

A PEAK Matrix position is only one aspect of Everest Group's overall assessment. In addition to assigning a “Leader”, “Major Contender,” or “Aspirant” title, Everest Group highlights the distinctive capabilities and unique attributes of all the PEAK Matrix providers assessed in its report. The detailed metric-level assessment and associated commentary is helpful for buyers in selecting particular providers/vendors for their specific requirements. It also helps providers/vendors showcase their strengths in specific areas

What are the incentives for buyers and providers to participate/provide input to PEAK Matrix research?

- Participation incentives for buyers include a summary of key findings from the PEAK Matrix assessment
- Participation incentives for providers/vendors include adequate representation and recognition of their capabilities/success in the market place, and a copy of their own “profile” that is published by Everest Group as part of the “compendium of PEAK Matrix providers” profiles

What is the process for a service provider / technology vendor to leverage their PEAK Matrix positioning and/or “Star Performer” status ?

- Providers/vendors can use their PEAK Matrix positioning or “Star Performer” rating in multiple ways including:
 - Issue a press release declaring their positioning. See [citation policies](#)
 - Customized PEAK Matrix profile for circulation (with clients, prospects, etc.)
 - Quotes from Everest Group analysts could be disseminated to the media
 - Leverage PEAK Matrix branding across communications (e-mail signatures, marketing brochures, credential packs, client presentations, etc.)
- The provider must obtain the requisite licensing and distribution rights for the above activities through an agreement with the designated POC at Everest Group.

Does the PEAK Matrix evaluation criteria change over a period of time?

PEAK Matrix assessments are designed to serve present and future needs of the enterprises. Given the dynamic nature of the global services market and rampant disruption, the assessment criteria are realigned as and when needed to reflect the current market reality as well as serve the future expectations of enterprises



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