# Everest Group ACES Automotive Engineering Services PEAK Matrix® Assessment 2023: Navigating the Future of Automotive Landscape

**Focus on Capgemini**
September 2023

# Introduction

The automotive industry is at an inflection point, where global sustainability concerns, increasing consumer demands, and rapid technological advancements have coalesced to propel rapid growth. In this dynamic landscape, the focus is shifting from conventional mobility solutions to a more captivating and immersive automotive experience. Automotive enterprises are now eagerly hopping on to this transformative paradigm, embracing the idea of enhancing customer experience and redefining the future of mobility. Some of the major areas of investment include:

- Autonomy Advancements: Investments in L3 to L5 autonomous technologies, intelligent adaptive cruise controls, safety systems, and sensor fusion tech to transform driving experiences
- Connected Ecosystems: Connectivity and data management are forging powerful collaborations between automotive players and players from diverse verticals such as fintech, insurance, technology, and telecommunication to bring in several after-sales services
- Software-Centricity: With the emergence of software-defined vehicles, there is an increased level of investments in software development and partnerships with technology players
- Electrification Imperative: The need to address environmental concerns and stringent governmental regulations has accelerated the investments in electric, hybrid, and fuel cell technologies

This research, the fourth edition of Everest Group's ACES Automotive Engineering Services PEAK Matrix® Assessment 2023: Navigating the Future of Automotive Landscape, evaluates 26 engineering service providers, features 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 automotive engineering leadership, client reference checks, and ongoing analysis of the engineering services market.

**The full report assesses the following 26 leading engineering service providers featured on the ACES Automotive Engineering Services PEAK Matrix:**

- **Leaders:** Alten, Capgemini, HCLTech, KPIT, LTTS, TCS, and Wipro
- **Major Contenders:** Akkodis, AVL, Bertrandt, Cognizant, Cyient, DXC Technology, FEV, FPT, IAV, Infosys, NTT DATA, Tata Elxsi, Tata Technologies, Tech Mahindra, and T-Systems
- **Aspirants:** Onward Technologies, Sasken, Semcon, and Sigma Software

**Scope of this report**

**Geography**
Global

**Providers**
26 leading broad-based and pureplay service providers

**Services**
Automotive engineering services

# ACES Automotive Engineering Services PEAK Matrix® characteristics

**Leaders**

Alten, Capgemini, HCLTech, KPIT, LTTS, TCS, and Wipro

- The Leaders segment comprises a mix of pure-plays, and well-established IT-heritage firms that have excelled in providing comprehensive automotive engineering services across multiple disciplines
- Leaders differentiate themselves by offering a comprehensive value proposition that spans emerging domains, service elements, and traditional automotive solutions
- They leverage assets and partnerships effectively, particularly in software and embedded systems development, resulting in a diverse portfolio of offerings in autonomous, connected, and electric mobility
- These players make significant investments in Intellectual Property (IP), Centers of Excellence (CoEs), employee certifications, and labs, showcasing their expertise in ADAS, sensor fusion, infotainment, V2X communications, battery management systems and software

**Major Contenders**

Akkodis, AVL, Bertrandt, Cognizant, Cyient, DXC Technologies, FEV, FPT, IAV, Infosys, NTT DATA, Tata Elxsi, Tata Technologies, Tech Mahindra, and T-Systems

- The Major Contenders segment comprises a mix of IT-heritage firms, pure-play engineering firms with a broader industry focus, and players that have a dedicated focus on automotive engineering services
- While these players have made significant investments in building automotive engineering expertise, their service portfolio is not as extensive as that of Leaders (in terms of presence across the value chain elements, geographies, or service functions)
- They are also focusing on expanding their delivery presence and leveraging partnerships with hyperscalers, technology firms, and academia to strengthen their presence in automotive engineering services

**Aspirants**

Onward Technologies, Sasken, Semcon, and Sigma Software

- Aspirants possess strong capabilities in specific technology areas and value chain elements; however, their global presence and ability to serve projects with wider scopes is limited
- They are making focused investments for enhancing their solutions portfolio, improving service enablement capabilities, and expanding their footprint and client base

# ACES automotive engineering services overview

## ACES automotive engineering services – market definition

ACES automotive engineering services cover the emerging segments of autonomous, connected, electric, and shared mobility within the auto industry.

**Autonomous**

Advanced Driver Assistance System (ADAS), L1-L5 autonomous capabilities, driver monitoring, object detection and tracking, and intelligent systems

**Connected**

Vehicle-to-vehicle communication, telematics, systems integration, diagnostics, Human Machine Interface (HMI), and advanced infotainment

**Electric**

Battery and powertrain engineering, charging systems, energy optimization, and power electronics

**Shared**

Platforms for shared mobility services, fleet and network management, and integrated transportation systems

Product design → Product development → Product testing → Product support

**Software engineering services**

ADAS software, autonomous driving, telematics, core automotive software platform, Vehicle-to-everything(V2X) communication, Over-the-Air (OTA) updates

**Embedded engineering services**

Infotainment and navigation system, heads-up displays, Heating, ventilation, and air conditioning (HVAC) systems, Printed Circuit Board (PCB) designing

**Mechanical engineering services**

Chassis/body development, engine systems development, design analysis, powertrain, battery management systems

Note: While the ACES segments may in some cases overlap or work in conjunction with one another, this assessment aims to capture both individual and aggregated views of these segments within the automotive space

# Factors shaping the ACES automotive engineering space

### Technological advances

Progress in sensor technology, artificial intelligence, and connectivity

### Competitive landscape

Next-generation startups are pushing the boundaries of technologies, challenging traditional players to invest in ACES technologies

### Increasing consumer demand

Consumers are seeking sustainable, connected, and convenient transportation options

### Cost savings and new business opportunities

Optimal utilization of resources and with ACES, new post-sale business models (subscription services)

### Changing regulatory environment

Stricter regulations on emissions to combat climate change and increase safety

### Improved safety and efficiency

ACES vehicles can reduce human errors and accidents; increased connectivity can drive efficiency

# Key growth drivers for ACES segments

## While sustainability, safety, and regulations are the primary drivers, all four segments are seen to be growing in conjunction, with considerable overlap in their growth drivers

### Autonomous

- Higher safety and reliability on account of stringent testing requirements, leading to fewer road accidents
- Reduction in travel times as a result of optimized navigation routes based on continuous traffic updates
- Enablement of newer business models such as pay-per-use and subscription-based services for self-driving cars, thereby reducing the cost of vehicle ownership

### Connected

- Internet access, advanced infotainment features, regular software upgrades, and remote monitoring capabilities, which are features similar to modern computing devices, are driving growth
- On account of V2X, connected cars will reduce travel times through optimized routing and offer higher efficiency
- Enablement of newer business models such as on-demand infotainment platform subscriptions, personalized advertisements, and software upgradeability

### Electric

- Reduced dependence on fossil fuels, emissions, and sustainability driven further by regulatory requirements
- Cost of transportation is lower on account of lower electricity prices as compared with fuels such as gasoline
- Many EV components are modular in nature, allowing for future upgrades based on functionality, performance, etc., thus improving long-term ownership prospects

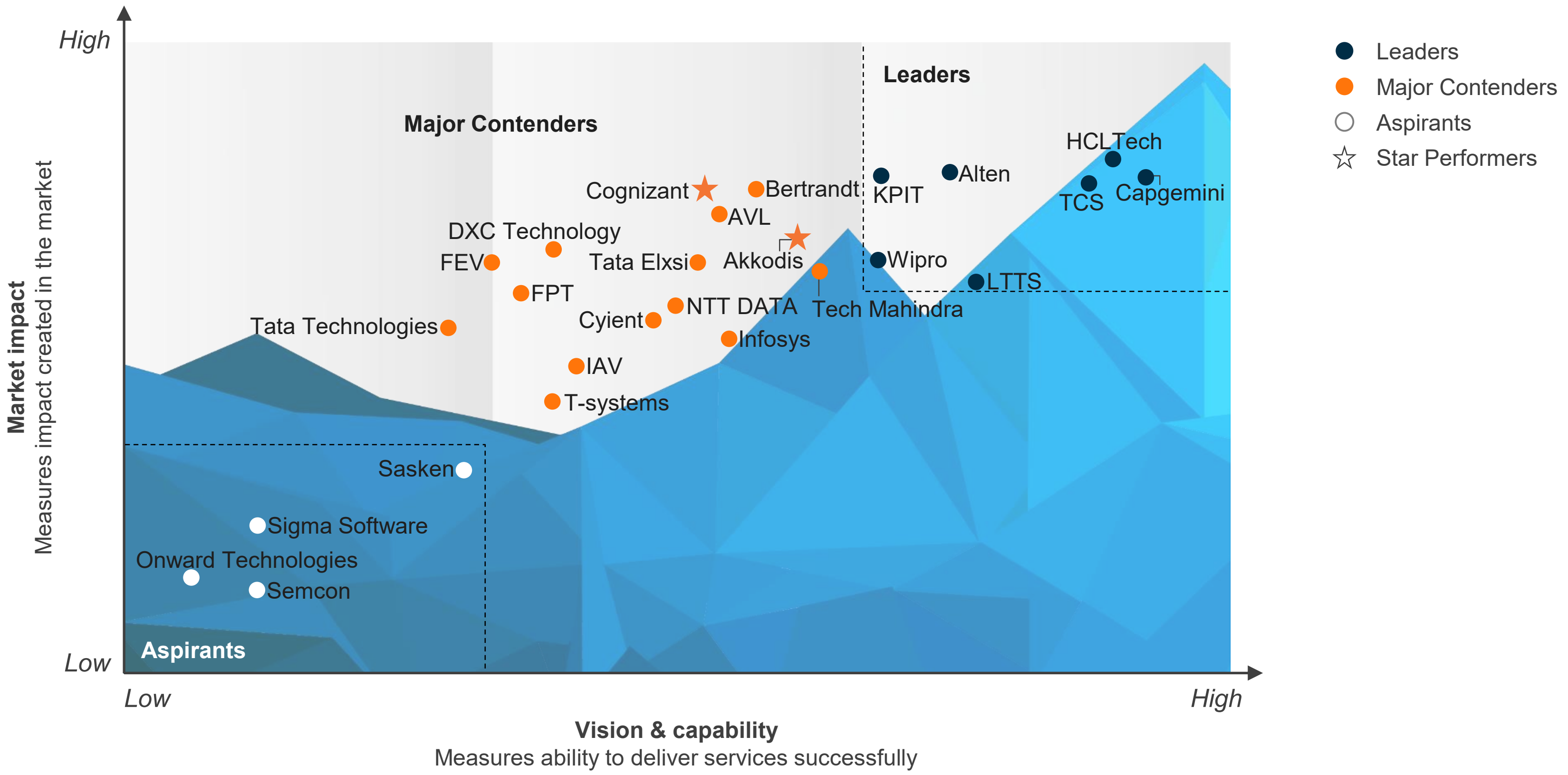
### Shared

- Reduced cost of ownership and higher vehicle utilization enabled by shared mobility services such as e-hailing, ride pooling, and P2P services
- Reduced fuel consumption and emissions as a result of shared transport, which also translate into cost savings
- Enablement of newer business models and use cases such as fleet management, tracking, and diagnostics

# Everest Group PEAK Matrix®

## ACES Automotive Engineering Services PEAK Matrix® Assessment 2023 | Capgemini is positioned as a Leader

### Everest Group ACES Automotive Engineering Services PEAK Matrix® Assessment 2023[1]




1 Assessments for Alten, AVL, Bertrandt, DXC Technology, FEV, IAV, Semcon, Sigma Software, and Tata Technologies 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 buyer

Source: Everest Group (2023)

# **Capgemini profile** (page 1 of 4)

## Overview

### Vision and strategy

The automotive industry is undergoing a paradigm shift. The new world of automotive must offer safe, sustainable, and smart mobility solutions. Capgemini's vision for the future of mobility is to inspire the move to a people-centered era of personalized travel and it aims to create an automotive industry that is dedicated to ensuring sustainability and leveraging innovation and emerging technologies for a better future.

Capgemini, with its capabilities, assets, and experience, is positioned to assist automotive companies in their automotive journey, including commercial vehicle players. Its offering portfolio is focused on three key domains: sustainability, software, and supply chain enhancement. Its positioning in the engineering services ACES domain ensures its ability to cater to the changing needs of automotive entities and their end-user customers. This is achieved within the framework of the larger group portfolio, allowing Capgemini to deliver enhanced safety, sustainability, and intelligence in the mobility sector, aligning with industry demands, and creating an affordable, ever-smarter, and software-driven mobility ecosystem.

**ACES automotive engineering services revenue** (January 2022 – December 2022)

| <US$50 million | US$50-100 million | US$100-200 million | **>US$200 million** |
|---|---|---|---|

**YoY growth rate in ACES automotive engineering services revenue** (January 2022 – December 2022)

| **<25%** | 25-50% | 50-75% | >75% |
|---|---|---|---|

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

**Revenue by ACES automotive engineering subsegments**

| Autonomous | Connected | Electric | Shared |
|---|---|---|---|
| High | High | Medium | Low |

**Revenue by value chain functions**

| Design | Development | Testing | Support |
|---|---|---|---|
| Medium | High | Medium | Medium |

**Revenue by buyer size**

| Small (revenue <US$0.5 billion) | Medium (revenue US$0.5-2.5 billion) | Large (revenue >US$2.5-10 billion) | Very large (revenue US$10-50 billion) | Mega (revenue >US$50 billion) |
|---|---|---|---|---|
| Medium | High | Low | Medium | Low |

**Revenue by geography**

| | | | | | |
|---|---|---|---|---|---|
| North America | Low | South America | Low | Japan | Low |
| South Korea | Low | UK | Medium | India | Low |
| Rest of APAC | Low | Germany | High | Rest of Europe | High |
| China | Low | MEA | Low | Others | Low |

# **Capgemini profile** (page 2 of 4)
## Case studies and solutions

| Case study 1 | Delivered a safe Advanced driver-assistance systems (ADAS) and Autonomous Driving (AD) experience |
|---|---|

**Business challenge**

The client is a prominent automotive company focused on the efficient deployment of its ADAS functions within a complex ecosystem and a multi-disciplinary team environment.. Its primary objective was to verify and validate functions, fine-tune sensor calibrations, and carry out hardware and software deployments. This encompassed considerations for system safety and cybersecurity, in addition to compliance with legislative and certification standards.

**Solution and impact**

Capgemini adopted a flexible and agile plan to onboard skilled ADAS experts with experience covering the complete AD and ADAS life cycle. It deployed a solution based on its ADAS expertise from data production through tests, simulation, and homologation to support the client's transformation journey towards ADAS Verification & Validation(V&V). It resulted in automated processes to accelerate the approach, optimizing the team scalability.

| Case study 2 | Developed the sixth generation of a high voltage battery system |
|---|---|

**Business challenge**

A leading automotive player needed to develop a completely new high-voltage battery system platform for its upcoming generation of electric cars, encompassing both hardware and software components, slated for release in 2026.

**Solution and impact**

Capgemini supported the whole project with more than 10 years of unique expertise in hardware and software development of battery management systems of all the existing generations in the market. The goal to reduce weight and expenditure by 50% while increasing electrical range by 50% and to use more than 90% recyclable and sustainable materials was successfully achieved.

**Proprietary solutions** (representative list)

| Solution | Details |
|---|---|
| Adaptive Cruise Control | This driver assistance system is a convenience feature that allows the driver to keep the cruise control engaged while driving without having to constantly reset the system when approaching slower-moving vehicles |
| ADAS/AD data real-time cloud processing | Capgemini brings the power and speed to support autonomous driving with its cloud-enabled data management solution, which includes live streaming of encrypted vehicle sensor data (camera, Light Detection and Ranging (LiDAR), GPS, and bus signals) from driving test cars, with real-time cloud process and AI-driven object detection |
| Autonomous Driving Training Center | This AD center solution gathers training and coaching practices offering the opportunity to engineers to adapt and develop new skills that are fully aligned to the technology disruptions of the autonomous mobility markets in domains such as Validation & Verification (V&V), system engineering, software development or electrical and electronic engineering |
| Digital cockpit software engineering for a better connected mobility and user and in-car experience | This solution encompasses complete end-to-end embedded software solutions that cover all cluster areas, including booting, communication, diagnosis, security, and safety |
| Driving automation systems validation | Capgemini provides an end-to-end solution in ADAS V&V to make autonomous vehicle development and driving safe and powered by data. The solution is based on building and managing data sets for training vehicle algorithms centered on both simulations and real-world data and implementing autonomous and safety functions in all vehicles |
| Immersive Remote Audit (IMRA) solution for sustainable automotive operations | Capgemini helps companies to gain agility and adapt to a dynamic environment, proposing a sustainable digital platform for enabling an immersive remote audit, combining a digital transformation approach to audit processes with connected tools, and contributing to CO2 emissions reduction |
| Proprietary Transformational Frameworks: example: Automotive Test Automation Framework (AutoTAF) | Capgemini's proprietary transformational frameworks and engineering process, methods, and tools aim at scaling and accelerating the transition to the new business (AI, digital, and software), while maintaining and improving the legacy one. Example: AutoTAF: a complete test automation solution (black box) for a QNX-based In-Vehicle Infotainment (IVI) system |

# **Capgemini profile** (page 3 of 4)
## Investments and partnerships

**Key alliances and partnerships** (representative list)

| Company | Details |
|---|---|
| Joint venture with Audi | Created XL2, a joint venture with Audi, aimed at building the right skills for digital transformation in production and logistics at Audi |
| Partnership with Microsoft | Partnership aims to create sales leads, improve technology skills, create competence networks as well as track certifications and capabilities |
| Being part of the Eclipse Foundation | Being part of the Eclipse Foundation, a working group of leading tech and tech-service companies united by the goal of developing an open technology platform for the software-defined vehicle of the future |
| Being part of SOAFEE Special Interest Group | Being part of SOAFEE special interest group, an industry-led collaboration intended to deliver a cloud-native architecture enhanced for mixed-criticality automotive applications with corresponding open-source reference implementations |
| Capgemini joins forces with Peugeot Sport | Signed a multi-year partnership with Peugeot Sport to accelerate and optimize the development of its Hybrid Hypercar; this new partnership embodies the commitment of both companies to the energy transition |
| Alliances with industry-leading technology and engineering companies | Forged alliances with technology and engineering companies such as Dassault Systems, PTC, Siemens, IBM (and Red Hat), Microsoft, Google, AWS, and Intel to ensure that clients can benefit from best-in-class solutions and constant innovation |

**Recent ACES automotive engineering services investments/acquisitions** (representative list)

| Investment/target | Description |
|---|---|
| Infotainment Lab | Lab dedicated to the infotainment systems for connected mobility for North America and Japanese clients |
| ADAS Solution center | Center for IoT Solutions is an end-to-end offering that enables IoT and data-driven transformation |
| Software Platform of the Future | With software-driven transformation for automotive, Capgemini works with its clients to develop the core software platform of future vehicles |
| Hefei Automotive Engineering Center | Automotive Engineering Center in Hefei, China, is dedicated to delivering vehicle connectivity and infotainment projects locally. The objective is to offer management consulting, technology, and engineering R&D services to support automotive players' transformation journey in China |
| CoEs – Software driven transformation | Help clients in their transformation to develop the new generation of software platforms for their future vehicles through various CoEs worldwide |

# **Capgemini profile** (page 4 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 offered | Innovation and investments | Delivery footprint | Overall |
| | | | | | | | | |

### Strengths

- Capgemini has made strategic investments to enhance its ACES automotive engineering capabilities in the form of IP, labs, CoEs, and partnerships, especially in the areas of autonomous and connected subsegments
- Customers appreciate Capgemini's technical expertise and domain knowledge in the ACES automotive engineering space, and highlight that these have been decision-making factors in choosing it for current engagements
- Capgemini has a balanced client portfolio consisting of small, midsized, and large enterprises
- It has a strong presence in all phases of the automotive engineering services value chain, from product design to product support, while maintaining a balanced presence across software, embedded, and mechanical engineering service functions
- Capgemini showcases a good mix of pricing models in both traditional as well as emerging models such as outcome-based pricing

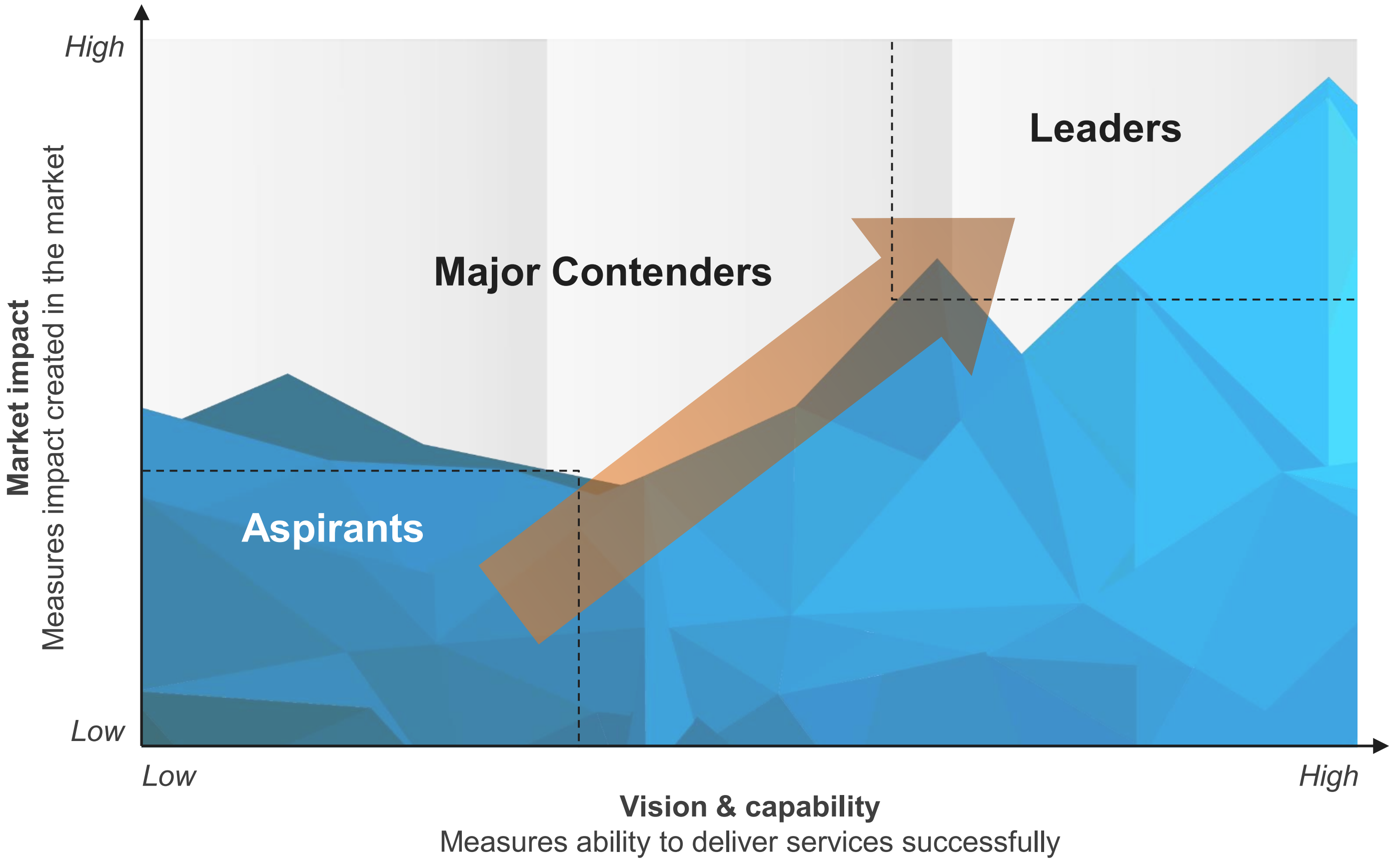
### Limitations

- While Capgemini has a strong foothold in areas of autonomous and connected subsegments, it could focus on building more capabilities in the form of IP and CoEs to capitalize on the growing electric subsegment market
- Capgemini's client portfolio is majorly skewed toward Europe, with lower focus on North America and APAC
- While Capgemini has focused on investments in the form of IP, labs, and partnerships, it has a relatively lower coverage of investments in employee certifications specific to ACES subdomains (such as power electronics, V2X, and HMI) and other quality standard certifications
- While Capgemini engages primarily through onshore and nearshore delivery centers, it could consider expanding its offshore delivery presence to optimize costs and access a larger talent pool

# Appendix

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

Everest Group PEAK Matrix



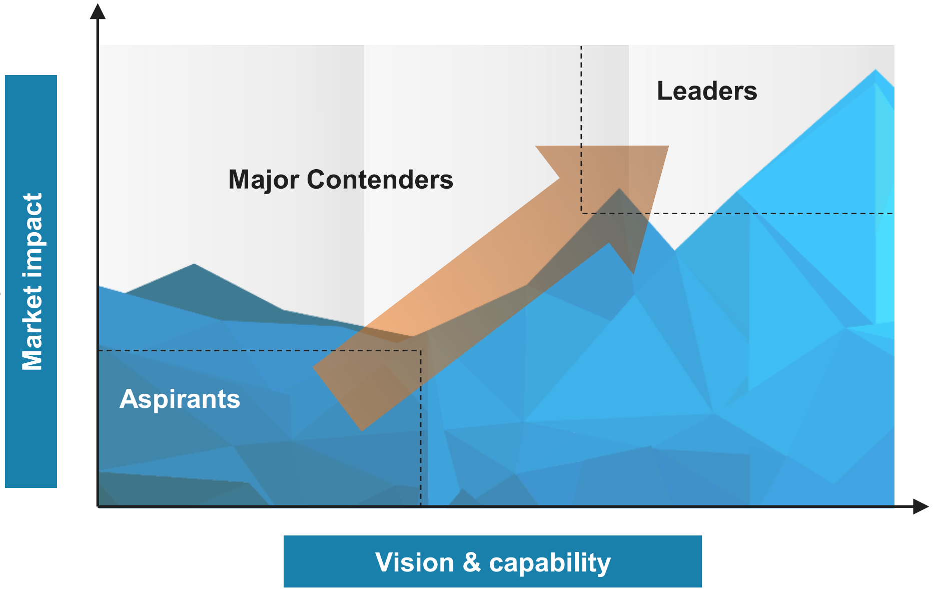
# Services PEAK Matrix® evaluation dimensions

Measures impact created in the market – captured through three subdimensions

**Market adoption**
Number of clients, revenue base, YoY growth, and deal value/volume

**Portfolio mix**
Diversity of client/revenue base across geographies and type of engagements

**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, innovative commercial constructs, alliances, M&A, etc.

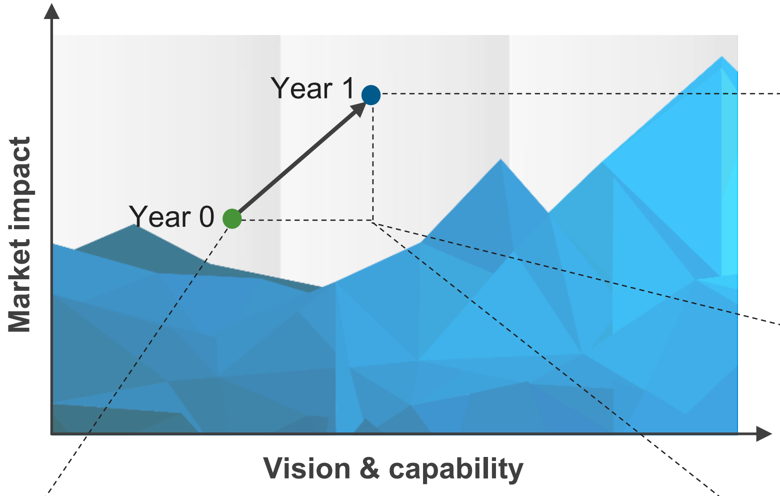
**Delivery footprint**
Delivery footprint and global sourcing mix

# Everest Group confers the Star Performers title on providers that demonstrate the most improvement over time on the PEAK Matrix®

## Methodology

Everest Group selects Star Performers based on the relative YoY improvement on the PEAK Matrix




In order to assess advances on **market impact**, we evaluate each provider's performance across a number of parameters including:

- Yearly ACV/YoY revenue growth
- # of new contract signings and extensions
- Value of new contract signings
- Improvement in portfolio mix
- Improvement in value delivered

In order to assess advances on **vision and capability**, we evaluate each provider's performance across a number of parameters including:

- Innovation
- Increase in scope of services offered
- Expansion of delivery footprint
- Technology/domain specific investments

We identify the providers whose improvement ranks in the top quartile and award the Star Performer rating to those providers with:

- The maximum number of top-quartile performance improvements across all of the above parameters
  AND
- At least one area of top-quartile improvement performance in both market success and capability advancement

*The Star Performers title relates to YoY performance for a given vendor and does not reflect the overall market leadership position, which is identified as Leader, Major Contender, or Aspirant.*

# FAQs

**Does the PEAK Matrix® assessment incorporate any subjective criteria?**
Everest Group's PEAK Matrix assessment takes an unbiased and fact-based approach that leverages provider / technology vendor RFIs and Everest Group's proprietary databases containing providers' deals and operational capability information. In addition, we validate/fine-tune these results based on our market experience, buyer interaction, and provider/vendor briefings.

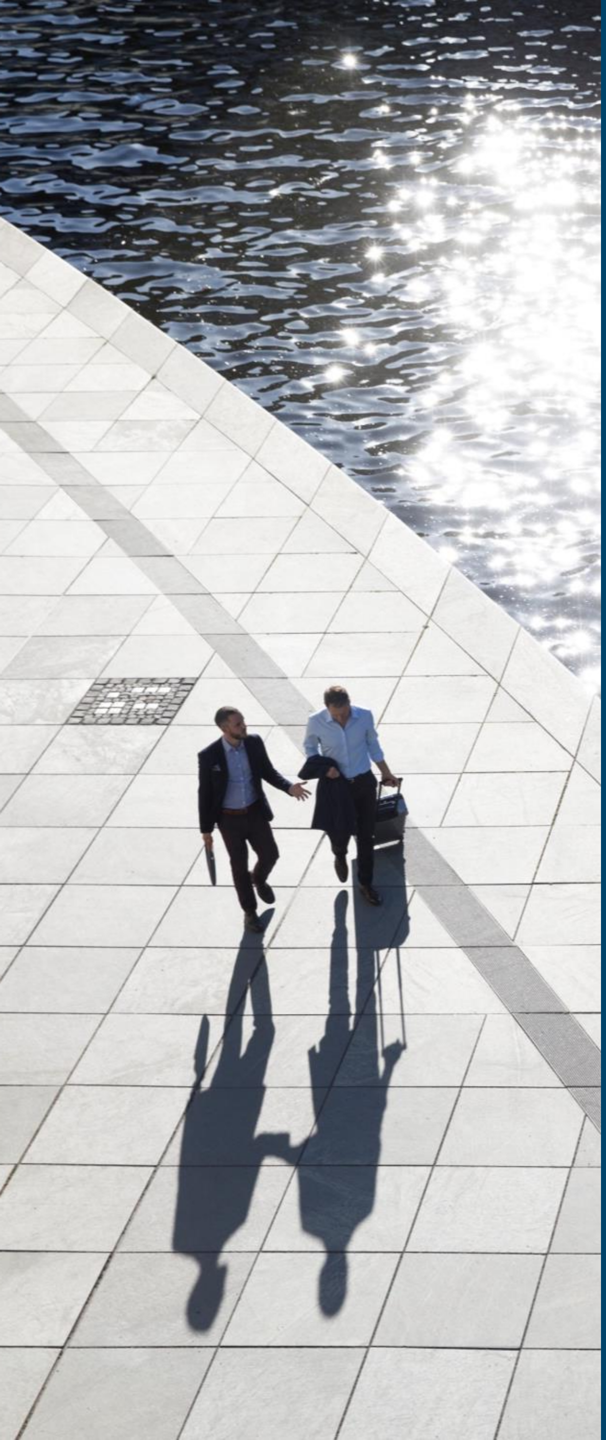
**Is being a Major Contender or Aspirant on the PEAK Matrix, an unfavorable outcome?**
No. The PEAK Matrix highlights and positions only the best-in-class providers / technology vendors in a particular space. There are a number of providers from the broader universe that are assessed and do not make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

**What other aspects of the PEAK Matrix assessment are relevant to buyers and providers other than the PEAK Matrix positioning?**
A PEAK Matrix positioning is only one aspect of Everest Group's overall assessment. In addition to assigning a Leader, Major Contender, or Aspirant label, Everest Group highlights the distinctive capabilities and unique attributes of all the providers assessed on the PEAK Matrix. The detailed metric-level assessment and associated commentary are helpful for buyers in selecting providers/vendors for their specific requirements. They also help providers/vendors demonstrate their strengths in specific areas.

**What are the incentives for buyers and providers to participate/provide input to PEAK Matrix research?**
- Enterprise participants receive summary of key findings from the PEAK Matrix assessment
- For providers
  - The RFI process is a vital way to help us keep current on capabilities; it forms the basis for our database – without participation, it is difficult to effectively match capabilities to buyer inquiries
  - In addition, it helps the provider/vendor organization gain brand visibility through being in included in our research reports

**What is the process for a provider / technology vendor to leverage its PEAK Matrix positioning?**
- Providers/vendors can use their PEAK Matrix positioning or Star Performer rating in multiple ways including:
  - Issue a press release declaring positioning; see our citation policies
  - Purchase a customized PEAK Matrix profile for circulation with clients, prospects, etc. The package includes the profile as well as quotes from Everest Group analysts, which can be used in PR
  - Use PEAK Matrix badges for 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 Everest Group; please contact your CD or contact us

**Does the PEAK Matrix evaluation criteria change over a period of time?**
PEAK Matrix assessments are designed to serve enterprises' current and future needs. 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 and to serve enterprises' future expectations.



Everest Group®
With you on the journey

Everest Group is a leading research firm helping business leaders make confident decisions. We guide clients through today's market challenges and strengthen their strategies by applying contextualized problem-solving to their unique situations. This drives maximized operational and financial performance and transformative experiences. Our deep expertise and tenacious research focused on technology, business processes, and engineering through the lenses of talent, sustainability, and sourcing delivers precise and action-oriented guidance. Find further details and in-depth content at **www.everestgrp.com**.

## Stay connected


**Dallas (Headquarters)**
info@everestgrp.com
+1-214-451-3000

**Bangalore**
india@everestgrp.com
+91-80-61463500

**Delhi**
india@everestgrp.com
+91-124-496-1000

**London**
unitedkingdom@everestgrp.com
+44-207-129-1318

**Toronto**
canada@everestgrp.com
+1-214-451-3000

**Website**
everestgrp.com

**Social Media**
@EverestGroup
@Everest Group
@Everest Group
@Everest Group

**Blog**
everestgrp.com/blog