



Verification and Validation (V&V) Engineering Services PEAK Matrix® Assessment 2020: Enhancing Brand Assurance Through Intelligent and Integrated Quality Engineering

Engineering Services

Market Report – February 2020: Complimentary Abstract / Table of Contents

Our research offerings for global services

<ul style="list-style-type: none"> ▶ Market Vista™ Global services tracking across functions, sourcing models, locations, and service providers – industry tracking reports also available 	
<ul style="list-style-type: none"> ▶ Application Services 	<ul style="list-style-type: none"> ▶ Human Resources
<ul style="list-style-type: none"> ▶ BPS Banking & Financial Services 	<ul style="list-style-type: none"> ▶ ITS Banking & Financial Services
<ul style="list-style-type: none"> ▶ BPS Healthcare & Life Sciences 	<ul style="list-style-type: none"> ▶ ITS Healthcare
<ul style="list-style-type: none"> ▶ BPS Insurance 	<ul style="list-style-type: none"> ▶ ITS Insurance
<ul style="list-style-type: none"> ▶ Catalyst™ 	<ul style="list-style-type: none"> ▶ IT Services Executive Insights™
<ul style="list-style-type: none"> ▶ Cloud & Infrastructure 	<ul style="list-style-type: none"> ▶ ITS Life Sciences
<ul style="list-style-type: none"> ▶ Customer Experience Management Services 	<ul style="list-style-type: none"> ▶ Locations Insider™
<ul style="list-style-type: none"> ▶ Data & Analytics 	<ul style="list-style-type: none"> ▶ PricePoint™
<ul style="list-style-type: none"> ▶ Digital Services 	<ul style="list-style-type: none"> ▶ Procurement
<ul style="list-style-type: none"> ▶ Engineering Services 	<ul style="list-style-type: none"> ▶ Recruitment & Talent Acquisition
<ul style="list-style-type: none"> ▶ Enterprise Platform Services 	<ul style="list-style-type: none"> ▶ Service Optimization Technologies
<ul style="list-style-type: none"> ▶ Finance & Accounting 	

More about membership

In addition to a suite of published research, a membership may include

- Accelerators™
- Analyst access
- Data cuts
- Pinnacle Model® reports
- PriceBook
- Virtual Roundtables
- Workshops

Custom research capabilities

- Benchmarking | Pricing, delivery model, skill portfolio
- Peer analysis | Scope, sourcing models, locations
- Locations | Cost, skills, sustainability, portfolio – plus a tracking tool
- Tracking services | Service providers, locations, risk
- Other | Market intelligence, service provider capabilities, technologies, contract assessment

Membership information

- This report is included in the following research program(s)
 - [Engineering Services](#)
- If you want to learn whether your organization has a membership agreement or request information on pricing and membership options, please contact us at info@everestgrp.com

Table of contents (page 1 of 2)

Topic	Page no.
Background and methodology	5
Summary of key messages	10
V&V engineering services market trends	13
• Key market trends	14
• V&V global outsourcing market size and segmentation	20
PEAK Matrix® for V&V engineering services	27
Profiles of V&V engineering service providers	41
• a1qa	42
• Accenture	45
• Capgemini	48
• Cognizant	51
• Cybage	54
• Cyient	57
• eInfochips	60
• Happiest Minds	63
• HARMAN Connected Services	66
• HCL Technologies	69
• Infosys	72
• L&T Technology Services	75
• Mphasis	78

Table of contents (page 2 of 2)

Topic	Page no.
Profiles of V&V engineering service providers (continued)	
• Semcon	81
• TCS	84
• Tech Mahindra	87
• Wipro	90
Appendix	93
• Glossary of terms	94
• Research calendar	95
• References	96

Background of the research

- The integration of digital features across mechanical, embedded, network, and software spectrums is making products increasingly intelligent and interconnected. As a result, V&V requirements are evolving from merely ensuring functional and performance validation of these products to enhancing business brand value by ensuring seamless customer experience across channels
- Enterprises are having to constantly innovate to roll out products at an increasingly faster rate to meet evolving customer demands; while at the same time, ensuring compliance with stricter regulatory norms and policies
- As a result, enterprises are seeking ecosystem partners who can help in reducing the time-to-market without compromising on product quality, driving the growth of the V&V engineering services outsourcing market
- Service providers are catering to this demand by investing in skilled resources, physical infrastructure to enable them to validate complex products, and partnerships with third parties to leverage their tools and platforms across the V&V engineering value chain
- In this research, we present fact-based trends impacting the V&V engineering services market, along with the assessment and detailed profiles of 17 engineering service providers on their V&V capabilities across four service lines – mechanical, embedded, network, and software. Each service provider profile gives a comprehensive picture of their V&V engineering services vision, scale and scope of operations, key solutions, and partnerships

Scope of this report

- **Services:** Verification and Validation Engineering Services
- **Geography:** Global
- **Service providers:** 17 leading verification and validation engineering service providers

Methodology

The assessment is based on Everest Group's annual RFI process concluded over Q4 2019, interactions with leading V&V engineering service providers, and analysis of the marketplace.

Overview and abbreviated summary of key messages (page 1 of 2)

This report provides a comprehensive assessment of the V&V engineering services market and maps the leading service providers on Everest Group's PEAK Matrix. It also includes detailed profiles of featured service providers.

Some of the findings in this report, among others, are:

Market growth

- The global V&V engineering services outsourcing market stood at ~US\$13 billion in 2019, with a YOY growth rate of ~12%
- Software testing continues to form the bulk of the V&V outsourcing market, driven by the proliferation of software in products across industries

Market trends

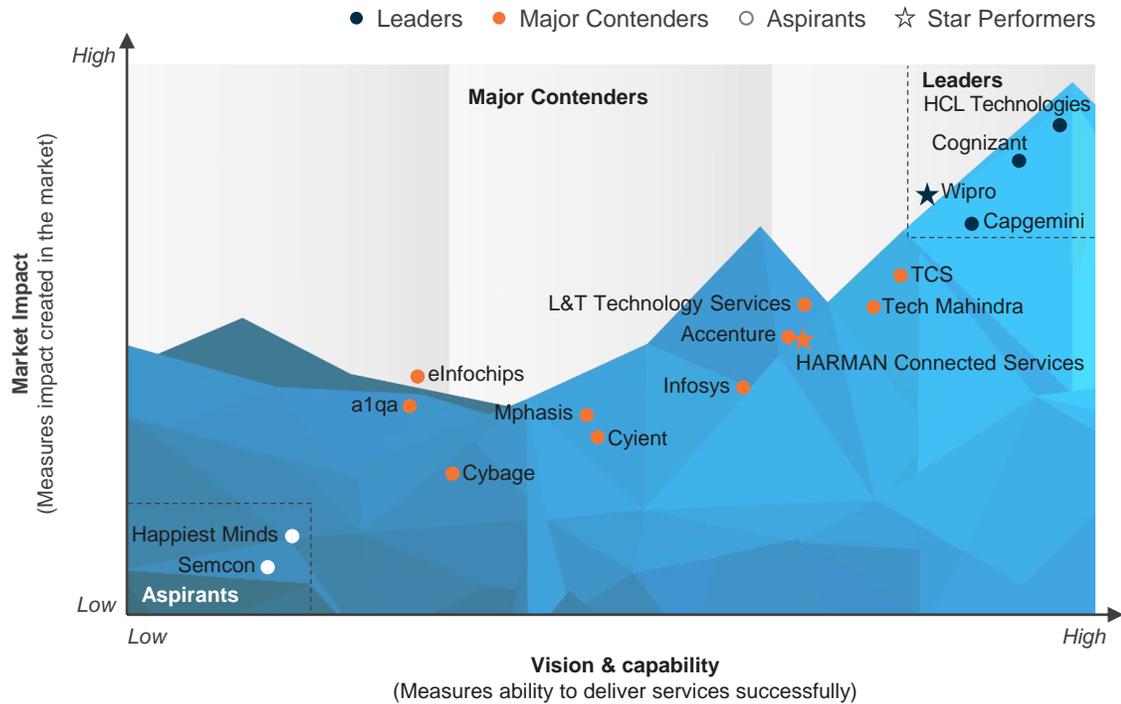
- The focus of V&V activities is shifting from merely providing quality at low cost to enhancing business brand value by ensuring seamless end-user experience and minimizing product recalls and rollbacks
- The importance of V&V in the product design phase is rising, as enterprises leverage technologies such as Artificial Intelligence (AI), Machine Learning (ML), and analytics to adopt an early defect detection approach and reduce time-to-market
- Emerging technology themes such as AI, ML, robotics, AR/VR and digital twins are witnessing significant traction and altering the V&V landscape across service functions and industries
- Product complexity is increasing with the proliferation of software in products across industries - enterprises face a number of challenges such as resource competency, technical expertise, and rising costs, while testing these new-age products for defects and ensuring that they comply with the highest global standards; they are therefore, actively partnering with service providers to assist them in V&V of these products
- Service providers are investing in infrastructure facilities, talent upskilling initiatives, and developing proprietary frameworks and strong partnership networks to cater to complex enterprise V&V requirements and accelerate time-to-market

PEAK Matrix for V&V engineering services

- Analysis of the service provider landscape for V&V engineering services, leveraging Everest Group's PEAK Matrix, highlights the following categories of service providers:
 - **Leaders:** Capgemini, Cognizant, HCL Technologies, and Wipro
 - **Major Contenders:** a1qa, Accenture, Cybage, Cyient, eInfochips, HARMAN Connected Services, Infosys, L&T Technology Services, Mphasis, TCS, and Tech Mahindra
 - **Aspirants:** Happiest Minds and Semcon
- Service providers in the Leaders segment have been at the forefront of the V&V landscape in terms of leveraging emerging technologies to develop tools, frameworks, and solutions to accelerate V&V processes
- Service providers in the Major Contenders segment have a strong focus toward making V&V more efficient, but lag behind the Leaders in terms of having a holistic portfolio of solutions and offerings (presence across service lines and industries)
- Aspirants have carved out a niche for themselves, either by having a geographic- or an industry-focused approach towards V&V, and have a strong presence in their chosen focus areas among small and mid-sized engineering enterprises

This study provides a deep dive into key aspects of the V&V engineering services market; below are some charts to illustrate the depth of the report

Assessment of V&V Engineering Service Providers 2020



Note 1 PEAK Matrix® specific to V&V engineering services across the four service lines: mechanical, embedded, network, and software; and does not include V&V services rendered for applications and system integration activities

Note 2 Assessment for Accenture, Cyient, Happiest Minds, Infosys, L&T Technology Services, Semcon, and TCS excludes service provider inputs for this particular study and is based on Everest Group's estimates that leverage Everest Group's proprietary Transaction Intelligence (TI) database, ongoing coverage of these service providers, service provider public disclosures, and interaction with buyers

Source: Everest Group (2020)

Capability assessment

illustrative example

Measure of capability: ● High ○ Low

Service provider	Market impact				Vision & capability				
	Market adoption	Portfolio mix	Value delivered	Overall	Vision and strategy	Scope of services offered	Innovation and investments	Delivery footprint	Overall
Service provider 1	●	○	●	●	○	○	●	○	○
Service provider 2	○	○	○	○	○	○	○	○	○
Service provider 3	○	●	●	●	●	○	○	○	○
Service provider 4	○	○	○	○	●	○	○	○	○
Service provider 5	○	○	○	○	○	○	○	○	○
Service provider 6	○	○	○	○	○	○	○	○	○
Service provider 7	○	○	○	○	○	○	●	○	○
Service provider 8	○	○	○	○	○	○	○	○	○
Service provider 9	○	○	○	○	○	○	○	○	○

Everest Group's remarks on service providers

Illustrative example

Measure of capability: ● High ○ Low

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

- Service provider has a strong focus on training and upskilling its V&V engineers, and several CoEs focusing on IoT testing
- Clients perceive that service provider's V&V engineers have strong technical expertise and domain knowledge

Areas of improvement

- Service provider can increase focus on emerging technologies such as AI/ML, analytics, and simulated V&V techniques
- Clients expect the service provider to manage attrition better, and have effective knowledge transfer programs to minimize the impact on engagement

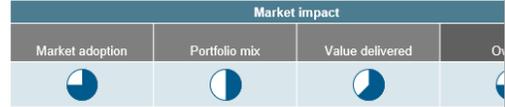
The report features profiles of 17 leading V&V engineering service providers; below is an illustrative service provider profile

Service provider | Snapshot (page 1 of 3)

Overview

Vision & strategy: Service provider's vision is to transform the testing function of enterprises through the use of data, analytics, AI, evolving operating models, and approaches such as Agile and DevOps to

Summary of PEAK Matrix assessment



Strengths

- Leverages its strong consulting-led offerings in the V&V engineering space to drive enterprise-wide digital transformation
- Made several investments in developing proprietary automated AI- and analytics-level testing solutions

V&V engineering services revenue



Revenue by geography



Revenue by value chain element



1 Everest Group estimates



Service provider | Snapshot (page 2 of 3)

Case studies and solutions

Case study 1 Application quality improvement and intelligent testing for a communications leader

Business challenge	The client wanted to improve the quality of its application and use making advances in testing activities
Solution and impact	The service provider consolidated the testing suppliers of the customer and established an intelligent test factory using an output-based model. It also helped the client undergo a rapid transformation of months, and provided extensive automation services supported by tools for test operations. These services created savings worth £1.5 million for the client

Proprietary solutions (representative list)

Solution	Details
Solution 1	An automation platform that enables a number of use cases associated with testing such as test planning, test execution, and test reporting
Solution 2	A framework for managing security threats, compliance, and risk
Solution 3	A platform for real-time performance monitoring and optimization
Solution 4	An AI framework for selection of the right data, models, and algorithms
Solution 5	An automated, AI- and analytics-driven software testing solution

Source: Everest Group (2020)



Service provider | Snapshot (page 3 of 3)

Investments and partnerships

Key alliances and partnerships (representative list)

Partner name	Details
Partner 1	Partnership that helps service provider combine its performance engineering test capabilities with Application Performance Management (APM) capabilities to provide real-time insights and the ability to identify the root cause of performance issues for clients
Partner 2	Strategic partnership that helps service provider integrate cognitive testing capabilities in its platforms and test solutions
Partner 3	Partnership to enhance delivery management capabilities, helping enterprises to effectively manage operations and scale software infrastructure assets
Partner 4	Collaboration to provide cloud-based performance testing solution to enterprises using dedicated performance test controllers and load generators in the cloud
Partner 5	Partnership to enhance service provider's capabilities of providing enterprises with an integrated and automated testing solution

Recent verification and validation engineering investments (representative list)

Investment name	Details
Investment 1	Investments in developing an interactive talent platform, which provides a personalized, on-demand learning solution to train its workforce on new technologies and ways of working, with an aim to equip employees with the skills needed to address current and future client needs
Acquisition 1	Strategic investments to enhance its testing capabilities in the areas of cybersecurity, digital services, software development, engineering services, and agile transformation services for business

Source: Everest Group (2020)



Research calendar – Engineering Services

Published
 Planned
 Current release

Flagship Engineering Services reports Release date

Verification and Validation (V&V) Engineering Services PEAK Matrix® Assessment 2020: Enhancing Brand Assurance Through Intelligent and Integrated Quality Engineering	February 2020
Driving Innovation from Engineering Services GICs – Pinnacle Model® Analysis	Q1 2020
Industry 4.0 Services PEAK Matrix® Assessment 2020	Q2 2020
Semiconductor Engineering Services PEAK Matrix® Assessment 2020	Q3 2020
PLM Services PEAK Matrix® Assessment 2020	Q3 2020
Software Product Engineering Services PEAK Matrix® Assessment 2020	Q4 2020

Thematic Engineering Services reports

Engineering Services 2020	Q1 2020
Engineering for the 5G World	Q1 2020
Engineering Services – Top 50 (2020 Edition)	Q2 2020
Eastern Europe Engineering Services GIC Landscape	Q2 2020
Trends in the Top 200 Engineering Research & Development (ER&D) Enterprises	Q3 2020
Digital Twins and their Adoption Across Industries	Q4 2020

Note: For a list of all of our published ES reports, please refer to our [website page](#)

Additional Engineering Services research references

The following documents are recommended for additional insight into the topic covered in this report. The recommended documents either provide additional details or complementary content that may be of interest

- 1. Verification and Validation (V&V) Engineering Services PEAK Matrix® Assessment 2018: Building Differentiated Product Experience Through Intelligent Quality Engineering** ([EGR-2018-40-R-2741](#)); 2018. With products becoming increasingly intelligent and interconnected, global product organizations are compelled to reimagine their traditional quality assurance practices. Increasing digitization and proliferation of new business models are giving way to intelligent quality engineering and digital Verification and Validation (V&V) methodologies, enabling enterprises to deliver superior product quality and differentiated customer experiences. In this research, we present fact-based trends impacting the V&V engineering services market, along with the assessment and detailed profiles of 14 service providers featured on the V&V engineering services PEAK Matrix®
- 2. Software Product Engineering Services PEAK Matrix® Assessment 2019: Engineering for the Digital World** ([EGR-2019-40-R-3305](#)); 2019. Software is playing an increasingly important role in helping enterprises bring about innovation across products and services and deliver a superior user experience. As enterprises embrace this software-led innovation, they are also looking to drive modularity, scalability, and mass customization in their software products in order to meet the evolving end-user expectations. In this research, we present fact-based trends impacting the software product engineering services market, along with the assessment and detailed profiles of 25 service providers featured on the software product engineering services PEAK Matrix®
- 3. Automotive Engineering Services PEAK Matrix® Assessment 2019: Convergence of Mobility and Digital** ([EGR-2019-40-R-3350](#)); 2019. The automotive industry is undergoing rapid evolution, ushered in by innovative and disruptive technologies. Next-generation technological themes have redefined the entire automotive landscape and both the existing giants and new entrants are focusing on enhancing their capabilities and developing pertinent expertise. In this research, we present fact-based trends impacting the automotive engineering services market, along with the assessment and detailed profiles of 22 service providers featured on the automotive engineering services PEAK Matrix®

For more information on this and other research published by Everest Group, please contact us:

Akshat Vaid, Vice President: akshat.vaid@everestgrp.com
Mayank Maria, Practice Director: mayank.maria@everestgrp.com
Nishant Udupa, Senior Analyst: nishant.udupa@everestgrp.com

Website: www.everestgrp.com | Phone: +1-214-451-3000 | Email: info@everestgrp.com



About Everest Group

Everest Group is a consulting and research firm focused on strategic IT, business services, and sourcing. We are trusted advisors to senior executives of leading enterprises, providers, and investors. Our firm helps clients improve operational and financial performance through a hands-on process that supports them in making well-informed decisions that deliver high-impact results and achieve sustained value. Our insight and guidance empower clients to improve organizational efficiency, effectiveness, agility, and responsiveness. What sets Everest Group apart is the integration of deep sourcing knowledge, problem-solving skills and original research. Details and in-depth content are available at www.everestgrp.com.

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

New York

info@everestgrp.com
+1-646-805-4000

Toronto

canada@everestgrp.com
+1-416-388-6765

Stay connected

Website



www.everestgrp.com

Social Media



@EverestGroup



@Everest Group

Blog



www.everestgrp.com/blog/

This document is for informational purposes only, and it is being provided "as is" and "as available" without any warranty of any kind, including any warranties of completeness, adequacy, or fitness for a particular purpose. Everest Group is not a legal or investment adviser; the contents of this document should not be construed as legal, tax, or investment advice. This document should not be used as a substitute for consultation with professional advisors, and Everest Group disclaims liability for any actions or decisions not to act that are taken as a result of any material in this publication.