

NEAT EVALUATION FOR INFOSYS:

Quality Engineering

Market Segment: Overall

Introduction

This is a custom report for Infosys presenting the findings of the NelsonHall NEAT vendor evaluation for *Quality Engineering* in the *Overall* market segment. It contains the NEAT graph of vendor performance, a summary vendor analysis of Infosys for quality engineering services, and the latest market analysis summary.

This NelsonHall Vendor Evaluation & Assessment Tool (NEAT) analyzes the performance of vendors offering quality engineering services (formerly referred to as software testing services). The NEAT tool allows strategic sourcing managers to assess the capability of vendors across a range of criteria and business situations and identify the best performing vendors overall, and with specific capability in application security testing, RPA-based test automation, AI-based analytics & automation, UX testing, cloud migration testing, and ERP & COTS testing.

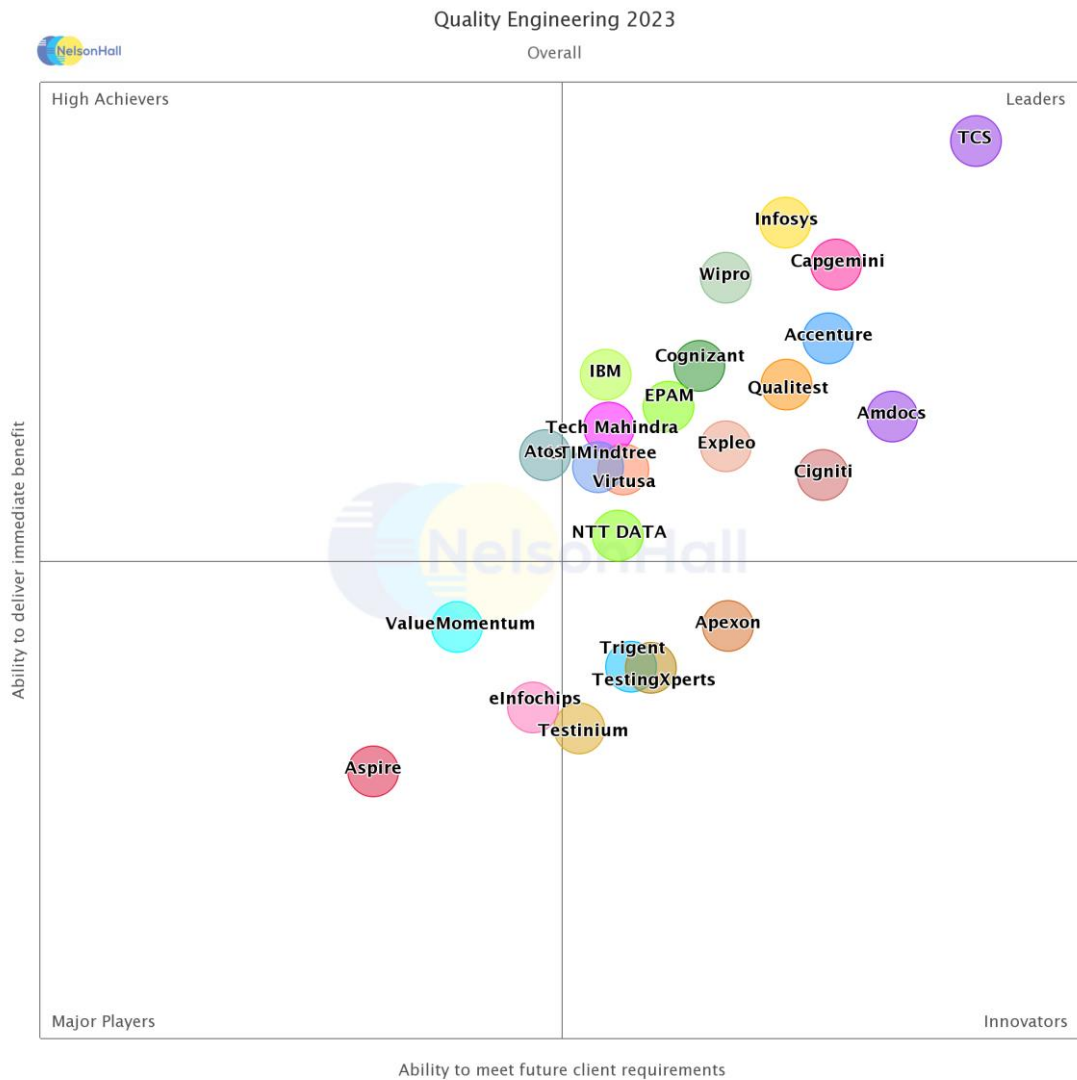
Evaluating vendors on both their ‘ability to deliver immediate benefit’ and their ‘ability to meet client future requirements’, vendors are identified in one of four categories: Leaders, High Achievers, Innovators, and Major Players.

Vendors evaluated for this NEAT are: Accenture, Amdocs, Apexon, Aspire Systems, Atos, Capgemini, Cigniti, Cognizant, eInfochips, EPAM Systems, Expleo, IBM, Infosys, LTIMindtree, NTT DATA, Qualitest, TCS, Tech Mahindra, TestingXperts, Testinium, Trigent, ValueMomentum, Virtusa, and Wipro.

Further explanation of the NEAT methodology is included at the end of the report.



NEAT Evaluation: Quality Engineering (Overall)



NelsonHall has identified Infosys as a Leader in the *Overall* market segment, as shown in the NEAT graph. This market segment reflects Infosys’ overall ability to meet future client requirements as well as delivering immediate benefits to its quality engineering clients.

Leaders are vendors that exhibit both a high ability relative to their peers to deliver immediate benefit and a high capability relative to their peers to meet future client requirements.

Buy-side organizations can access the *Quality Engineering* NEAT tool (*Overall*) [here](#).



Vendor Analysis Summary for Infosys

Overview

Infosys primarily provides software testing services through its Infosys Validation Solutions (IVS) unit, founded in 2001. IVS is a horizontal service line with ownership of P&L, strategy, delivery, pre-sales, centers of expertise, portfolio management, and IP.

IVS is an extensive practice within Infosys and had 30k career testers at the end of FY22 (the year ending March 31, 2022). IVS' headcount does not include an additional 2k career testers working in other Infosys units.

IVS has ~550 clients. Major clients include tier-one organizations Aimia, ArcelorMittal, Arizona Public Service, Dow Jones, E.ON, Honda, Kraft Heinz, National Australia Bank (NAB), Telenet, Prime Therapeutics, and VodafoneZiggo. IVS has a track record in gaining substantial standalone testing contracts, with TCVs of up to ~\$100m and a regular flow of deals in the \$10m–\$50m range. IVS targets Infosys' ten verticals: BFS, insurance, healthcare, retail, communications, utilities, manufacturing, life sciences, energy, and high-tech. As part of this targeting strategy, IVS continues to invest in vertical-specific offerings.

Alongside its verticalization effort, IVS is scaling up several capabilities, such as continuous testing, SAP, and connected device testing, to meet rising client demand.

It continues its specialization investment through upskilling and expanding to emerging digital technologies. The practice has set up several CoEs to incubate emerging technologies such as AI, metaverse, blockchain, and low code/no code. It also invests in cloud transformation, UX, and application security testing. IVS is currently incubating those CoEs before scaling them up.

Also, the practice has kept its SAP, Salesforce, Oracle, Veeva (Vault product), Workday, Microsoft Dynamics, Pegasystems, AI, and cloud migration testing capabilities horizontal and moved other QA specialized capabilities to its vertical delivery structure. With this move, IVS wants to disseminate specialized QE capabilities and bring them close to clients as part of projects.

The practice invests 2% of its revenues in innovation (i.e., specialized offerings).

IVS has aligned its partner structure around three categories:

- Growth, e.g., Tricentis, Worksoft, and Applause
- Transformation, e.g., OpenText, UiPath, and Perfecto Mobile
- Co-create, e.g., Broadcom/CA and Katalon with joint offerings/IPs.

IVS has articulated its vision for QE, which it calls Quality Continuum.

Financials

IVS had revenues of \$1,780m in FY22, up 14 y/y. 60% of IVS' revenues came from digital offerings. NelsonHall estimates that IVS' revenues in FY23 will be ~\$2bn.



Strengths

- *Continuous testing*: the offering is comprehensive, with Infosys systematically aggregating its new IP and accelerators to its Infosys continuous testing IP. The company has added AI-based analytics use cases to promote better-informed testing
- *AI-based analytics*: Infosys was one of the early vendors in this space and has a comprehensive offering. The company has brought more depth to its existing use cases. Infosys has not, however, added new use cases
- *AI-based automation*: Infosys has made its service portfolio comprehensive
- *Application migration to the cloud testing*: the company has expertise and has backed it up with IP—Infosys Cloud Infrastructure Validation—which is available on Microsoft Azure and AWS. The company is one of the few vendors with IP for validating infrastructure as code configuration files
- *RPA*: Infosys has backed its expertise with its BOT Café, a repository of 60 UiPath test bots
- *ERP and COTS testing*: the offering is comprehensive and stands out thanks to its various specialized services and IPs; for instance, IPTAP, configuration testing, and process mining.

Challenges

- *UX testing*: Infosys has pockets of strength here. It has continued its investment in accessibility testing to bring further automation, and it is also investing in bringing automation to AR/VR. It also completed its customer touchpoint journey by identifying relevant testing offerings

IVS has not invested as much in overall usability and UX testing offerings. However, it has invested in accessibility test automation and has several IPs, such as its Customer Experience Index assessment and its sentiment analysis tool, Customer Sentiment Analytics. Also, with several competitors now having established crowdtesting subsidiaries, Infosys may want to ask if crowdtesting would be relevant for automating usability and content testing when automation is (often) not an option. The company argues it has a crowdtesting partnership with Applause that covers both functional and UX testing

- *Application security testing*: the offering is primarily expertise-based. However, Infosys has several IPs, including an ML engine, to identify false positives resulting from vulnerability scanning.

Strategic Direction

IVS' strategy is twofold and includes portfolio verticalization and specialization. An example of this combined strategy is IVS reorganizing its delivery and moving several specialized profiles from the CoEs to the vertical units. With this move, IVS wants the delivery teams directly involved with clients to act quickly. Examples of capabilities now within the verticals include API, performance, and connected device testing. IVS has kept several offerings horizontal, such as AI, to scale them up. SAP and cloud testing capabilities are also horizontal offerings.

IVS continues to expand its portfolio to emerging digital technologies, e.g., AI, cloud (including containers and multi-cloud), UX (driven by metaverse), application security, API, low-code/no-code, and data.



IVS is increasingly working with other Infosys units within the Infosys Innovation Network, such as Functionize (AI) and GenRocket (TDM). It also focuses on other partners, for instance:

- Infosys/Panaya and Worksoft for continuous automation (Worksoft) and Panaya (release management and impact analysis) for SAP and Salesforce applications
- Broadcom, around BlazeMeter, ARD, SAP TDM, service virtualization, and Rally
- OpenText: ALM integration with Infosys' test planning solution and integration with UFT
- Tricentis: integration with Neoload
- Perfecto Mobile for mobile testing and customer analytics.

Outlook

In the past two years, Infosys has further strengthened its testing portfolio, investing further in automation to complement its expertise.

An example of this approach is Infosys investing in AI-based automation for automatically generating and maintaining test scripts. We think this offering has the potential to disrupt the QE industry, and we welcome Infosys' investment there. We expect the company to maintain its innovation in AI-based automation and fine-tune the underlying AI models.

Beyond AI-based automation, Infosys continues to industrialize its portfolio with several outstanding offerings, such as ERP/COTS testing and RPA. One area for investment remains UX testing, we think; Infosys' offering remains tool-fragmented, with expertise shared with WONGDOODY.

Quality Engineering Market Summary

Overview

The quality engineering (QE) market, also called software testing or quality assurance, is going through an extended growth cycle focused on continuous testing (i.e., testing under agile methodologies, using DevOps tools, and deploying automation). This cycle has been going for five years and still has significant growth potential: spending continues to grow in mid- to high-single digits.

QE vendors continue to invest in their continuous testing platforms, driving automation beyond functional testing to support services such as test environment and test data management, and non-functional testing.

AI is playing an increasing role, initially using analytics to conduct more selective and informed testing, driving productivity up. We think QE is on the verge of disruption with the pending introduction of AI-based automation to generate test scripts automatically. AI-based automation, combined with BDD and once-promising technologies such as model-based testing, will automate the 'requirements>test cases>scripts' cycle and shorten functional testing significantly.

Finally, quality engineering is becoming increasingly technical across existing and new areas (such as API testing and chaos engineering). This increasing technicality is driving major workforce reskilling investment in the context of talent shortages.

Buy-Side Dynamics

The three major client segments for QE services are:

- 'Agile Mainstream': organizations that are transitioning to hybrid agile (with digital projects adopting agile and non-digital remaining on waterfall methodologies). They are currently implementing DevOps tools (i.e., continuous testing) to increase their level of automation
- 'Advanced Automation': organizations that are engaged in an agile and continuous testing transformation like Agile Mainstreams. However, they look at emerging automation opportunities (e.g., AI-based automated test script creation, RPA tools) to reach new levels of automation, initially in functional testing
- 'Digital Matures': organizations that have several digital programs and look to automate digital technologies (e.g., Salesforce, application cloud migration).

'Agile Mainstream' clients select their QE vendors based on their past performance in similar projects, including internally and externally (with other clients); vendors must also demonstrate their ability to:

- Deploy continuous testing technologies to drive automation to serve agile projects
- Expand automation outside of functional execution and experiment with new functionality such as test support services (e.g., test data and environment management) and AI use cases
- Reskill manual testers towards technical services.



'Advanced Automation Organizations' select their QE vendors based on their ability to demonstrate:

- Their investment in AI use cases, initially around AI-based analytics and expanding to automation
- Best practices and sharing a clear view of the art of the possible
- Change management capabilities to drive tester buy-in.

For 'Digital Matures', vendors must demonstrate the following:

- They either specialize in testing digital technology (e.g., Salesforce, applications migrated to the cloud) or have both build and test capabilities. If the digital technology comes from an ISV, vendors must demonstrate they have formalized their partnership with the technology vendor. They also need to articulate their status level and what that level means
- Their QA capabilities can effectively play the role of a quality gate and must be independent of the implementation/development team
- They bring automation capabilities rather than manual functional expertise.

Market Size & Growth

The global software testing services market size in 2023 is ~\$42bn.

NelsonHall expects a deceleration in 2023 (+6%), led by mediocre GDP growth projections. This deceleration comes after solid growth in 2022 (+8%) driven by the digital and cloud catch-up that followed the 2020 pandemic.

Spending will reach \$52bn in 2027, representing a +6% CAGR in the period 2022-2027.

Outlook

Functional testing represents most software testing services spending (82%). Its spending has specific dynamics resulting from the secular decline in manual testing, the rise of automation, the fast growth of digital testing, and the steadier acceptance of COTS testing.

Specialized testing activities cover non-functional, test support services, cognitive, and other activities (including UX testing). Organizations are turning to more specialized and technical testing activities as they expand their usage of automation (to test support services), consider the benefits of AI applied to QA, and emphasize non-functional. Overall specialized testing has a 10% CAGR, twice as fast as testing services overall.



NEAT Methodology for Quality Engineering

NelsonHall's (vendor) Evaluation & Assessment Tool (NEAT) is a method by which strategic sourcing managers can evaluate outsourcing vendors and is part of NelsonHall's *Speed-to-Source* initiative. The NEAT tool sits at the front-end of the vendor screening process and consists of a two-axis model: assessing vendors against their 'ability to deliver immediate benefit' to buy-side organizations and their 'ability to meet future client requirements'. The latter axis is a pragmatic assessment of the vendor's ability to take clients on an innovation journey over the lifetime of their next contract.

The 'ability to deliver immediate benefit' assessment is based on the criteria shown in Exhibit 1, typically reflecting the current maturity of the vendor's offerings, delivery capability, benefits achievement on behalf of clients, and customer presence.

The 'ability to meet future client requirements' assessment is based on the criteria shown in Exhibit 2, and provides a measure of the extent to which the supplier is well-positioned to support the customer journey over the life of a contract. This includes criteria such as the level of partnership established with clients, the mechanisms in place to drive innovation, the level of investment in the service, and the financial stability of the vendor.

The vendors covered in NelsonHall NEAT projects are typically the leaders in their fields. However, within this context, the categorization of vendors within NelsonHall NEAT projects is as follows:

- **Leaders:** vendors that exhibit both a high ability relative to their peers to deliver immediate benefit and a high capability relative to their peers to meet client future requirements
- **High Achievers:** vendors that exhibit a high ability relative to their peers to deliver immediate benefit but have scope to enhance their ability to meet client future requirements
- **Innovators:** vendors that exhibit a high capability relative to their peers to meet client future requirements but have scope to enhance their ability to deliver immediate benefit
- **Major Players:** other significant vendors for this service type.

The scoring of the vendors is based on a combination of analyst assessment, principally around measurements of the ability to deliver immediate benefit; and feedback from interviewing of vendor clients, principally in support of measurements of levels of partnership and ability to meet future client requirements.

Note that, to ensure maximum value to buy-side users (typically strategic sourcing managers), vendor participation in NelsonHall NEAT evaluations is free of charge and all key vendors are invited to participate at the outset of the project.



Exhibit 1

'Ability to deliver immediate benefit': Assessment criteria

Assessment Category	Assessment Criteria
Offerings	<ul style="list-style-type: none"> Continuous testing Application migration to the cloud QA AI-based analytics AI-based automation RPA-based automation UX research and testing: Usability UX research and testing: Accessibility UX testing: other Application security testing Enterprise application testing
Delivery	<ul style="list-style-type: none"> Indian delivery capability U.S. onshore capability EMEA onshore capability Offshore leverage
Presence	<ul style="list-style-type: none"> Customer presence globally Customer presence in N. America Customer presence in EMEA Customer presence in APAC Customer presence In LatAm
Benefits Achieved	<ul style="list-style-type: none"> Level of cost savings achieved Increased application quality/reduced production downtime Increased speed-to-market for digital initiatives Increased end-user/business satisfaction/UX Other benefits achieved Pricing approach



Exhibit 2

‘Ability to meet client future requirements’: Assessment criteria

Assessment Category	Assessment Criteria
Levels of Investment	<ul style="list-style-type: none"> Continuous testing Application migration to the cloud QA AI-based analytics AI-based automation RPA-based automation Usability testing Accessibility testing UX testing: Other Application security testing Enterprise application testing
Ability to Innovate	<ul style="list-style-type: none"> Mechanisms in place to deliver client automation innovation Extent to which client perceives that automation innovation has been delivered Suitability of vendor to meet future continuous testing needs of clients Suitability of vendor to meet future cognitive testing needs of clients Suitability of vendor to meet future UX testing needs of clients Perception of suitability to meet future needs for other technologies
Other	<ul style="list-style-type: none"> Market momentum Financial security

For more information on other NelsonHall NEAT evaluations, please contact the NelsonHall relationship manager listed below.



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Sales Inquiries

NelsonHall will be pleased to discuss how we can bring benefit to your organization. You can contact us via the following relationship manager:
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