

Engineering Services

USA 2019

Quadrant Report



A research report
comparing provider
strengths, challenges
and competitive
differentiators

Customized report courtesy of:



August 2018

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The research and analysis presented in this report includes research from the ISG Provider Lens™ program, ongoing ISG Research programs, interviews with ISG advisors, briefings with services providers and analysis of publicly available market information from multiple sources. The data collected for this report represents information that was current as of 30, June 2018. ISG recognizes that many mergers and acquisitions have taken place since that time but those changes are not reflected in this report.

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EXECUTIVE SUMMARY

Engineering Services is a traditional market that is seeing a lot of transition; major shifts are happening in this space. In recent years digitalization has changed the way engineering services are conducted and delivered, because engineering includes more and more digital elements. Because ISG Research is focusing in general on areas with a high share of digital elements, this is the first time this study is being conducted.

As this is a rather new area, there is no well-established structure of classification for this type of service. The segmentation used in this study is mainly oriented toward a combination of industries with similar functional aspects, e.g., the automotive industry combined with the functional aspects of manufacturing/plant engineering. Furthermore, this first edition starts with focusing on a number of selected segments that appear to be most affected by digitalization. Due to the rapid development of the markets, future editions of this study likely will consider other segments and make more additions to the existing ones. The industries being considered in this study are the following:

- Automotive
- Chemicals and Oil & Gas
- Life Sciences and Consumer Packaged Goods (CPG)

The study assesses the strength of the portfolios and market competitiveness of the providers acting in these segments.

The research targets those engineering services in which the related digital components (software, data capturing, process control, analytics, etc.) are a substantial part of the engineering object.

Service providers are trying to address every function in play and focus on the digital elements of engineering services — from concept development, physical product development and optimization of industrial design and operations, to software product and application software development.

Transforming from a traditional to an agile business environment is key. Technology changes, along with newer business models, have forced clients and service providers alike to pursue greater agility. M&As and partnerships along the value chain have been vital for providers to be able to offer end-to-end solutions to clients.

The production process development discipline is being rewritten with technological innovation, notably with more sensors and computing capability being infused into modern products.

Manufacturing and plant/process engineering services are becoming more connected and intelligent as shop floor processes are optimized with the pursuit of IoT and Industry 4.0 applications.

The engineering ecosystem is increasingly inclined toward software development and services. IoT software applications for connectivity, mobility, predictive maintenance, operational technology (OT), data analytics and digital supply chain are transforming software rules. IT-OT integration is becoming increasingly important for better business and technology synergies.

Technology investments in augmented and virtual reality (AR/VR), robotics, automation, additive manufacturing, 3D printing, software-defined networks (SDN), network function virtualization (NFV) and IoT have been on the rise and are transforming enterprises. This transformation is affecting both providers and clients and is helping them collaborate and achieve better business outcomes. Up-skilling the existing workforce and employing

specialists in emerging technology areas are helping drive new-age solutions. Industry-specific knowledge and skills have been important in addressing the problems in different verticals. With increases in R&D spending, investments in emerging technologies and academic associations, engineering service providers are keeping abreast of the industry changes and partnering with clients to address any transformation problems at every step.

Business and revenue models have kept pace with changes in the market landscape and digital transformations. Traditionally in the engineering services market, time and materials (T&M) and fixed-price/project-based models have been popular with both providers and clients. But now with client requirements and delivery models changing, managed services, risk-reward and outcome-based models are gaining popularity. Outcome-based models are becoming important as a result of IoT gaining popularity and more enterprises shifting to a connected ecosystem. Many such enterprises are eager to pay for a product or service and move responsibility for operations and maintenance to the provider. This model can be of mutual interest to the client and the provider and helps them gain confidence in each other. More providers are adopting this model, thereby gaining customer faith and improving relationships. Customers also are able to relate and understand changes in their processes and build on them for more transformational engagements.

Automotive

The automotive vertical has many software and technology-driven implementation developments. From product to process to marketing strategy to consumer connection, engineering service providers are reaching out to original equipment manufacturers (OEMs) and other automotive clients with different ways to optimize business and gain momentum in the market. Changes in revenue and business models are arising in the market, along with new demands and expectations from both manufacturers and the consumers.

Major challenges that providers are facing include revolution in the autonomous vehicle and the connected car ecosystem markets. Cars increasingly are part of a connected system, where each new car may be connecting via internet in the coming three to five years. Service providers are investing in autonomous cars and using the most advanced technological features to make them better-suited to user needs. Digital transformation is driving each business, and connected ecosystems are creating new business opportunities. Technologies like IoT are changing business models by making changes to products and production systems.

Other factors are also influencing the automotive value chain. As cars become more connected, digital security is threatened and more security features are being tested and used to protect data and vehicle systems. More stringent regulations are being imposed for CO2 emissions and pollution control. Optimizing manufacturing processes and achieving reduced time to market with better safety features are some current key focus areas for automotive players. All these changing technologies and business requirements make it important for every company in the market to have skilled workers and specialists who can adapt to the changes. To achieve desired business outcomes, companies are adopting strategies to develop the right competencies and address change. As a result, training the existing workforce and increasing R&D spending are now part of business plans.

Analytics, mobility and IoT are strong technology influences in this vertical. With more being connected in cars, there are opportunities to improve customer interaction, reduce insurance costs and increase safety. Companies are pursuing these opportunities by developing different mobile applications, connecting to the cloud, supporting more user-adaptive applications and integrating their devices with different third-party apps.

Chemical, Oil & Gas

The chemicals and oil & gas industries are transitioning, and their current need is to optimize efficiency and cut costs. Countering the challenges of maintaining old machines against introducing new-age technologies has been challenging. In this sector, transformation involves reducing waste, retrofitting to produce and measure outcomes better and reducing manufacturing and plant costs. Addressing environmental and safety hazards is becoming increasingly important because of strong regulations being implemented across the globe. Industrial IoT (IIoT) is the application of IoT capabilities in industrial, manufacturing and agricultural environments. Combining connectivity, sensing capabilities and advanced analytics enables manufacturers to evolve their legacy plant floor control systems and integrate enterprise-wide systems to increase value across their manufacturing operations. Analytics and visualization are helping businesses to prepare for the future and understand cost pressure and production utilization parameters. Change in oil prices and the shift in energy demand from traditional coal markets to natural gas are changing energy consumption patterns.

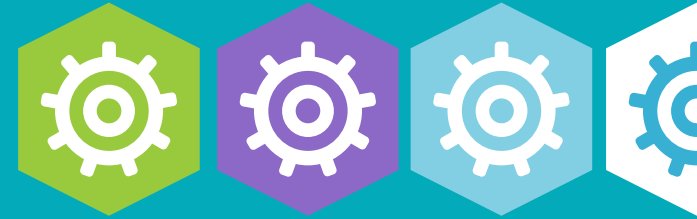
The competitive landscape has been changing, and the pressure to improve efficiency, reduce costs, change processes and adapt technology to improve value have been driving the market. There are more service offerings across the value chain, so selecting the right partner is key for clients. Understanding and addressing domain-specific challenges has been an important focus for service providers. Automation and digitalization have been driving business, especially for improving asset performance and planning plant maintenance and reliability.

CPG and Life Sciences

Today's connected customers are continuously asking for more, and the challenge for consumer goods companies is to meet those expectations and improve business efficiencies. CPG businesses are exposed to many changes and need to satisfy local regulations and local market demands. Some of the main issues CPG companies need to address at present include safety, digital supply chain transformation, cost-based business model creation, cost reduction and alignment with compliance requirements. Optimizing productivity and collaborating with suppliers and other parties in the value chain are important touchpoints for CPG businesses. Breaking silos and finding solutions that help companies address their needs and work more collaboratively are key. Businesses are putting strong focus on innovation and reducing cost through higher efficiencies, and service providers are trying to work in those areas.

Some of the major challenges imposed on today's life sciences segment include cost and reimbursement changes, regulatory and compliance changes, better-connected ecosystems for patients and caregivers, and other innovation across the segment. Organizations are moving toward digital initiatives to reshape their processes and workforce. Supply chain solutions need to align with other changes in the vertical. For example, security vulnerabilities need to be identified, and traceability systems can continue to improve to ensure product integrity and quality and to avoid data loss.

Domain-specific knowledge and expertise to address industry problems are important. Clients consider it essential to have an experienced provider. For pharmaceutical and medical product manufacturers, effecting change in manufacturing execution systems (MES), product lifecycle management (PLM) and other manufacturing systems requires providers with industry- and project-specific knowledge to improve processes with upgraded technology.



Introduction

Definitions & Scope

Digital Engineering Services & Solutions includes digital engineering methods and systems. Digital engineering optimizes product design, production planning, production systems, distribution and supply chain, in the areas of time, cost, quality and innovation. Since ISG Research is focusing in general on areas with a high concentration of digital elements, this study focuses on the digital elements of engineering services:

Simplified illustration

Engineering Services		
Automotive - Product Engineering	Chemicals and Oil & Gas - Manufacturing and Plant/ Process Engineering	Life Sciences & CPG - Manufacturing & Plant/Process Engineering
Automotive - Manufacturing and Plant/Process Engineering		
Automotive - Software/Digital and Platform Engineering	Chemicals and Oil & Gas - Software/Digital and Platform Engineering	Life Sciences & CPG - Software / Digital & Platform Engineering

Source: ISG 2018

Definition (cont.)

- **Product Engineering Services (PES):** As more industrial products transition from hardware-driven to a software-driven electronic device, the industry's competitive rules are being rewritten. More electronic sensors and computing capability are being incorporated into modern products. According to this study, ISG's product engineering services coverage focuses on physical product or product subsection development using capabilities that include embedded electronics, semiconductor and hardware engineering, embedded systems software, verification and validation (V&V), IoT-related services and overall product- and systems-level engineering, such as model-based system engineering (MBSE) requirements and more.
- **Manufacturing and Plant/Process Engineering Services:** Digital transformation is affecting manufacturing by making the shop-floor processes more intelligent. Manufacturers are focusing on enabling their production operations to respond agilely and flexibly to customer demands, supplier relationships and competitors as they transition to interconnected manufacturing. According to this study, ISG's manufacturing and plant/process engineering coverage focuses on planning, designing, modifying, optimizing and maintaining plant or manufacturing systems and equipment. It examines IIoT and Industry 4.0 applications, such as connected factory, digital asset management, predictive maintenance, 3D printing, robotics and other automation.

- **Software/Digital/Platform Engineering Services:** Most of the world's innovators are in the midst of a transformational journey, and engineering is increasingly shifting toward developing software and services. ISG's study of software, digital and platform engineering services includes software product development and all related application software development, independent of hardware. It includes IoT software applications, such as connectivity, mobility, predictive maintenance, operational technology (OT) data analytics (OT data refers to data pertaining to sensors, machines, location, etc.) and digital supply chain. It also covers work related to engineering platforms, such as IoT, PLM, MES and other industrial systems. Enterprise resource planning (ERP) platforms are out of scope.

Our research studies are intended to anticipate the investigation efforts and buying decisions of typical enterprise clients. When contemplating a significant strategy transformation, implementing agile practices or incorporating automation into their environment, enterprise clients will benefit from a study that examines an entire ecosystem for the service line being examined. Whether that service line is application development and maintenance (ADM), workplace services, contact center services or data center, IoT or engineering services, each of these focus areas is typically made up of consulting and advisory services and system integration, development and support. Therefore, ISG studies will comprise analyses of multiple quadrants, which cover the variety of services that an enterprise client requires.

Definition (cont.)

This study about engineering services includes seven quadrants that represent cross functional and vertical industry aspects of engineering services. The quadrants are: Automotive – Product Engineering; Automotive – Manufacturing and Plant/Process Engineering; Automotive – Software/Digital and Platform Engineering; Chemicals and Oil & Gas – Manufacturing and Plant/Process Engineering; Chemicals and Oil & Gas – Software/Digital and Platform Engineering; Life Sciences & CPG – Manufacturing and Plant/Process Engineering; and Life Sciences & CPG – Software/Digital and Platform Engineering.

The quadrants are defined below.

Automotive engineering services provide automotive industry companies with new ways to reinvent their roles. Many services focus on core activities and on helping clients create more efficient ecosystems with strategic partners. The automotive industry is facing a transformational shift. Innovation-related challenges are reshaping its traditional industry structures and relationships by threatening the existing distribution of profits and the boundaries between OEMs and Tier 1 or Tier 2 suppliers and those between automotive and tech companies.

ES in process industry is helping the next wave of leaders in process industry manufacturing to increase their engineering quality and performance while optimizing costs and meeting stringent compliance, safety and security standards. At the same time, it implements tailored Industry 4.0, IoT and analytics services and solutions to transform data into new revenue streams and boost performance, all the while trying to evolve cybersecurity and catch up on the openness of systems and traditional firewalls in manufacturing. ES providers are partnering with process industry manufacturers to achieve this. Specifically, in the chemicals and oil & gas business, manufacturing excellence is important to achieve cost competitiveness.

Security is more exposed today and is at higher risk than it has ever been in manufacturing and product development due to digital transformation and integration across the supply chain. Security is a major issue across all of ES today. Digital transformation is exposing significant gaps in traditional security, along with exposures that the industry is attempting to address as digital evolution continues to evolve.

Engineering service providers are partnering with process industry manufacturers to achieve this.

In the life sciences and CPG verticals, regulatory considerations are important at present, especially Good Manufacturing Practice (GMP) requirements for pharmaceutical makers.

Provider Classifications

The ISG Provider Lens™ quadrants were created using an evaluation matrix containing four segments, where the providers are positioned accordingly.

Leader

The “leaders” among the vendors/providers have a highly attractive product and service offering and a very strong market and competitive position; they fulfill all requirements for successful market cultivation. They can be regarded as opinion leaders, providing strategic impulses to the market. They also ensure innovative strength and stability.

Product Challenger

The “product challengers” offer a product and service portfolio that provides an above-average coverage of corporate requirements, but are not able to provide the same resources and strengths as the leaders regarding the individual market cultivation categories. Often, this is due to the respective vendor’s size or their weak footprint within the respective target segment.

Market Challenger

“Market challengers” are also very competitive, but there is still significant portfolio potential and they clearly lag behind the “leaders”. Often, the market challengers are established vendors that are somewhat slow to address new trends, due to their size and company structure, and have therefore still some potential to optimize their portfolio and increase their attractiveness.

Contender

“Contenders” are still lacking mature products and services or sufficient depth and breadth of their offering, while also showing some strengths and improvement potentials in their market cultivation efforts. These vendors are often generalists or niche players.

Provider Classifications (cont.)

Each ISG Provider Lens™ quadrant may include a service provider(s) who ISG believes has a strong potential to move into the leader's quadrant.

Rising Star

Rising Stars are mostly product challengers with high future potential. When receiving the “Rising Star” award, such companies have a promising portfolio, including the required roadmap and an adequate focus on key market trends and customer requirements. Also, the “Rising Star” has an excellent management and understanding of the local market. This award is only given to vendors or service providers that have made extreme progress towards their goals within the last 12 months and are on a good way to reach the leader quadrant within the next 12-24 months, due to their above-average impact and innovative strength.

Not In

This service provider or vendor was not included in this quadrant as ISG could not obtain enough information to position them. This omission does not imply that the service provider or vendor does not provide this service.

Engineering Services Cross-Quadrant Provider Listing 1 of 2

	Automotive – Product Engineering	Automotive – Manufacturing and Plant/Process Engineering	Automotive – Software/Digital and Platform Engineering	Chemicals and Oil & Gas – Manufacturing and Plant/Process Engineering	Chemicals and Oil & Gas – Software/Digital and Platform Engineering	Lifesciences & CPG – Manufacturing and Plant/Process Engineering	Lifesciences & CPG – Software/Digital and Platform Engineering
Altran	● Product Challenger	● Rising Star	● Rising Star	● Product Challenger	● Rising Star	● Product Challenger	● Product Challenger
Atos	● Contender	● Contender	● Product Challenger	● Product Challenger	● Product Challenger	● Product Challenger	● Product Challenger
Capgemini	● Rising Star	● Leader	● Leader	● Product Challenger	● Leader	● Leader	● Leader
Cognizant	● Product Challenger	● Contender	● Leader	● Not In	● Not In	● Leader	● Leader
EPAM	● Contender	● Contender	● Product Challenger	● Not In	● Product Challenger	● Not In	● Product Challenger
HCL	● Leader	● Market Challenger	● Leader	● Not In	● Product Challenger	● Not In	● Leader
Infosys	● Rising Star	● Leader	● Leader	● Leader	● Leader	● Leader	● Leader
Innominds	● Not In	● Not In	● Not In	● Contender	● Contender	● Contender	● Contender

Engineering Services Cross-Quadrant Provider Listing 2 of 2

	Automotive – Product Engineering	Automotive – Manufacturing and Plant/Process Engineering	Automotive – Software/Digital and Platform Engineering	Chemicals and Oil & Gas – Manufacturing and Plant/Process Engineering	Chemicals and Oil & Gas – Software/Digital and Platform Engineering	Lifesciences & CPG – Manufacturing and Plant/Process Engineering	Lifesciences & CPG – Software/Digital and Platform Engineering
KPIT	● Leader	● Contender	● Product Challenger	● Not In	● Not In	● Not In	● Not In
L&T TS	● Leader	● Leader	● Leader	● Leader	● Leader	● Leader	● Rising Star
Luxoft	● Product Challenger	● Contender	● Product Challenger	● Not In	● Not In	● Not In	● Not In
QuEST Global	● Product Challenger	● Rising Star	● Product Challenger	● Rising Star	● Product Challenger	● Product Challenger	● Product Challenger
TCS	● Leader	● Leader	● Leader	● Leader	● Leader	● Leader	● Leader
Tech Mahindra	● Leader	● Market Challenger	● Product Challenger	● Leader	● Product Challenger	● Not In	● Not In
Wipro	● Leader	● Leader	● Market Challenger	● Not In	● Not In	● Not In	● Not In



Engineering Services Quadrants



AUTOMOTIVE - PRODUCT ENGINEERING

Definition

Automotive engineering services provide automotive industry companies with new mechanisms and ways to reinvent their roles. Many services focus on core activities and creating more efficient ecosystems with strategic partners. The automotive industry is facing a transformational shift. Innovation-related challenges are reshaping its traditional industry structures and relationships by threatening the existing distribution of profits and the boundaries between OEMs and Tier 1 or Tier 2 suppliers and those between automotive and tech companies.

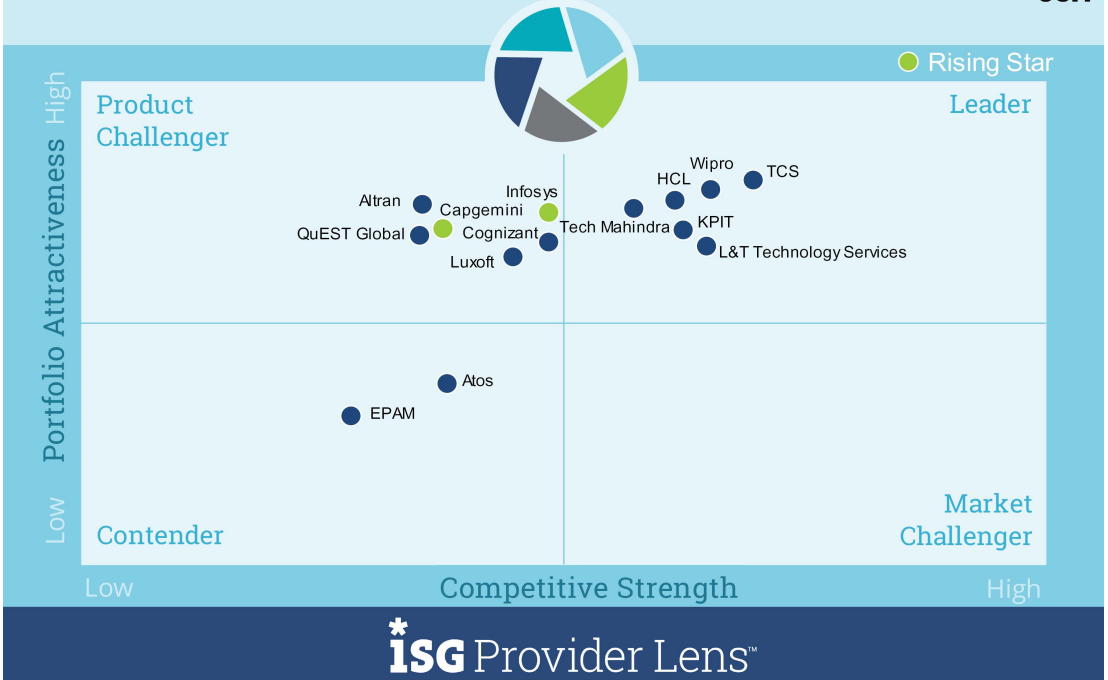
Product engineering services (PES) consists of the development of physical products or product subsections using capabilities that include embedded electronics, semiconductor engineering, hardware engineering, embedded systems software, V&V services and IoT-related services, as well as overall product- and systems-level engineering. Pure-play legacy mechanical engineering without digital elements is out of scope.

Engineering Services

Automotive - Product Engineering

2019

USA



Source: ISG Research 2018

AUTOMOTIVE - PRODUCT ENGINEERING

Observations

- With two decades of experience, TCS has competencies across domains. It has experience in engineering, manufacturing and IoT to serve customers in their transformational journey.
- Wipro is the world's first Automotive SPICE (a framework to measure the organization's maturity of the process and capabilities in the software and embedded systems) level 5 company and delivers business value to customers across the automotive value chain.
- With more than 20 years of experience in automotive engineering, HCL delivers value to clients globally and offers a breadth of services.
- Its product engineering focus and solutions to align to customer needs have made KPIT a partner of choice for delivering products and solutions across the automotive subsystems.
- Tech Mahindra uses innovation and its co-creation framework to deliver solutions to clients and create value.
- L&T Technology Services' multi-vertical, multi-domain expertise helps customers address problems and leverage knowledge from programs in other industries.
- Infosys and Capgemini were identified as the category's Rising Stars. Infosys offers a portfolio of services across the product engineering core, and its successful client implementations could put the company on the Leader grid shortly. Capgemini's product engineering offerings span consulting, design and development, V&V, safety and standards-based implementations, which make it popular with automotive clients.

L&T TECHNOLOGY SERVICES

Overview

L&T Technology Services' heritage of 80 years in engineering services is a key differentiator for domain understanding. The company's end-to-end service offerings across the value chain cover design, deployment, sourcing and supply chain and help the company to be a partner for clients around the globe.

Strengths

Concept design and feasibility study: L&T Technology Services helps clients through the program development lifecycle (PDLC), starting from system architecture and concept design to research, benchmarking and testing. This helps clients reduce cost and accelerate the time to market.

Testing, validation and certification: L&T Technology Services provides a set of various certification and test services that help perform a full check function for the product implementation. Testing services span software, hardware and framework testing to analysis, design and prototyping. L&T Technology Services guides and processes testing throughout the automotive product lifecycle.

In-house AUTOSAR framework: The company has developed AUTOSAR-compliant, platform-independent modules that are useful for project development and validation.

Caution

L&T Technology Services could look at strengthening its portfolio in future technologies like IoT, analytics and applications and build on its existing capabilities to help counter the growing demands in the market and cope with the changing ecosystem.



2019 ISG Provider Lens™ Leader

L&T Technology Services' work throughout the product lifecycle from test, validation and certification to design and implementation, makes it a complete automotive engineering service provider.

AUTOMOTIVE - MANUFACTURING & PLANT/PROCESS ENGINEERING

Definition

Manufacturing and plant/process engineering services cover planning, designing, modifying, optimizing and maintaining plants, manufacturing systems or equipment. Modern services focus on (IIoT) and Industry 4.0 use cases, such as connected factories, digital asset management, predictive maintenance, 3D printing, robotics, automation and other digital-related developments.

Engineering Services
Automotive - Manufacturing and Plant/
Process Engineering

2019
USA



Source: ISG Research 2018

AUTOMOTIVE - MANUFACTURING & PLANT/PROCESS ENGINEERING

Observations

- TCS's digital manufacturing solutions group provides clients focused consulting and solutions for efficient and optimized manufacturing operations.
- With strategic investments and manufacturing process expertise, Infosys helps clients improve shop floor productivity and implement solutions with technology innovation.
- Leveraging engineers across the value chain, L&T Technology Services provides digital manufacturing solutions to clients.
- Wipro's customers benefit from its in-house tools, technologies, platform, and intellectual property to improve operational efficiency and reduce idle time.
- Capgemini combines design and manufacturing expertise to pursue digital manufacturing across engineering, execution and automation.
- Altran, another Rising Star, has a strong portfolio. Its Advanced Manufacturing World Class Center helps clients improve their manufacturing performance. Altran could be an important player by expanding its successful presence from other global markets to cater to the U.S.
- With dedicated engineers addressing manufacturing and supply chain services, Quest Global delivers expert manufacturing services to clients. The Rising Star is a big potential winner in this market.

L&T TECHNOLOGY SERVICES

Overview

L&T Technology Services operates in multiple regions and verticals. Through its investments in key capabilities, assets and technologies, the company has been able to build confidence with clients across domains. State-of-the-art research, test labs and strong ecosystem partnerships have made L&T Technology Services a preferred choice for clients.

Strengths

Offerings across automotive PDLC: L&T Technology Services serves clients with manufacturing engineering capabilities (including virtual manufacturing like design, analysis and simulation), digital manufacturing (for asset tracking and equipment efficiency), lean manufacturing (value stream mapping), manufacturing automation, and services for audit, planning and more.

Efficiency Improvement and process re-engineering: The company provides product technology studies for breakthrough innovations, product database references, compliance and regulatory analysis, and more.

Value engineering and product sustenance: From sourcing strategies, costing and analytical evaluations to quality improvements and production support, L&T Technology Services helps optimize productivity and achieve operational excellence.

Caution

L&T Technology Services could look to expand in the areas of workforce safety, mobility and augmentation with AR/VR and mixed reality that further enhances augmented reality.



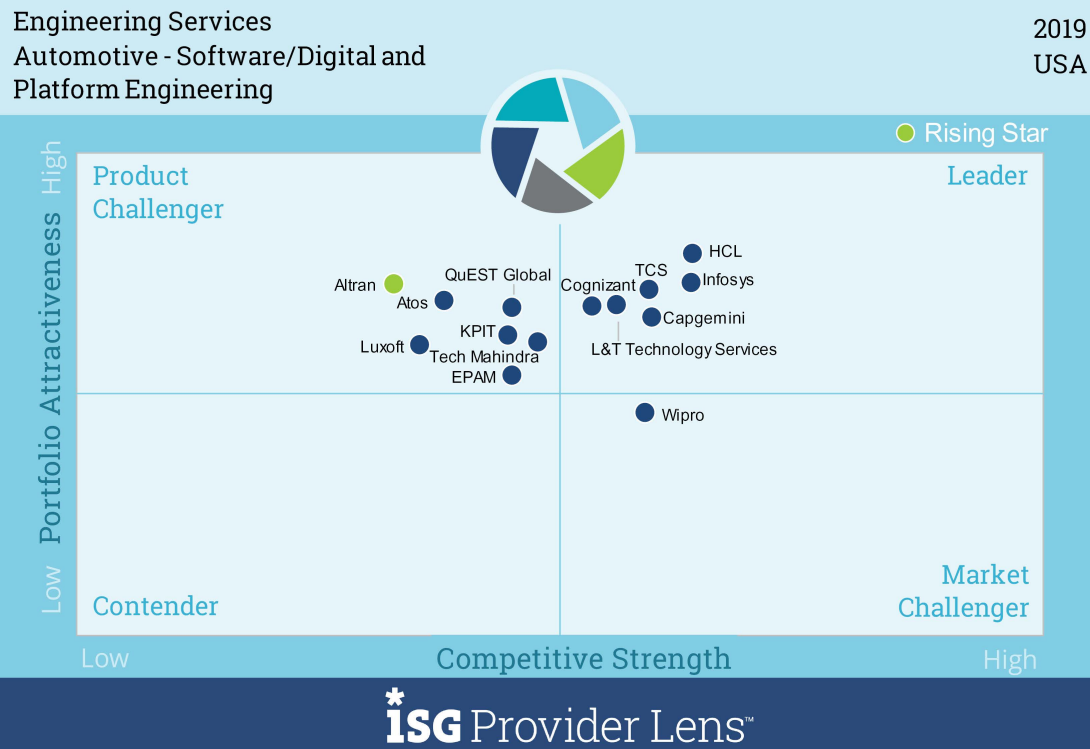
2019 ISG Provider Lens™ Leader

A matrix-based organization that leverages different engineering horizontal to serve clients across the segment makes L&T Technology Services a project winner with customers.

AUTOMOTIVE - SOFTWARE/DIGITAL & PLATFORM ENGINEERING

Definition

Software, digital and platform engineering services consist of software product development and all related application software development, independent of specific hardware. It also includes IoT software applications for connectivity, mobility, predictive maintenance, OT data analytics (OT data refers to data pertaining to sensors, machines, locations and more that describe operational technology within the plant floor), digital supply chain and related areas, and engineering platform-related software work, such as IoT, PLM, MES and other industrial systems. ERP platforms are out of scope.



Source: ISG Research 2018

AUTOMOTIVE - SOFTWARE/DIGITAL & PLATFORM ENGINEERING

Observations

- A strong data analytics practice, IoT solutions, end-to-end PLM services, investments in emerging technologies and key partnerships make HCL a partner of choice for customers.
- Infosys' comprehensive connected vehicle offerings help address customer requirements across the automotive value chain.
- TCS is working on advanced analytics, additive manufacturing, blockchain and other emerging technologies to improve process efficiency and optimization.
- L&T Technology Services continues to deliver process optimization services to clients with engineers certified in different systems.
- With offerings for vehicle infotainment, asset and solution frameworks, test automation and cybersecurity, Capgemini serves customers and drives innovation.
- Capabilities in analytics, strategy, innovative solution implementation and IoT for connected vehicles, plus continued investments in R&D, make Cognizant a key player in this space.
- Altran is the Rising Star. The company's IoT solutions, analytics and innovation roadmaps have helped clients throughout the automotive value chain with digital transformation. Altran is a leader in other global markets and is expanding to the U.S.

L&T TECHNOLOGY SERVICES

Overview

L&T Technology Services has more than 12,000 employees and a legacy of engineering services. Offering services and solutions across the automotive value chain makes L&T Technology Services a preferred partner in the automotive engineering space.

Strengths

Virtual and digital manufacturing: L&T Technology Services offers factory layout planning and design with the help of a 3D factory model. Process integration, simulation, programming, validation and cost analysis are all part of the virtual manufacturing program. L&T's digital manufacturing services execute analysis, strategizing, equipment efficiency monitoring and asset tracking.

Strategic sourcing and supply chain management: The company can help clients develop sourcing strategies to formalize data gathering, spend analysis and supplier consolidation. Some of the steps in its initial supply chain management process include cost analysis, supplier validation, and supplier selection and negotiation. To streamline and optimize the process, L&T performs prototyping and ensures quality is aligned with cost.

Smart services offering and IoT: L&T Technology Services enables a smart ecosystem with the Internet of Things through its offerings across the product lifecycle, from application visualization, big data, analytics, cloud and infrastructure to platform connectivity.

Caution

With smart ecosystems come the threat of vulnerabilities and thus, L&T Technology Services should look to develop more robust automotive cybersecurity processes and systems. It has started on the journey by developing its own cybersecurity framework, enhancements that would allow better control of smart, connected systems.



2019 ISG Provider Lens™ Leader

Engineering heritage, multi-domain and vertical expertise, core investments and a strong partner ecosystem are the major differentiators L&T Technology Services brings to the market and uses to help serve its clients.

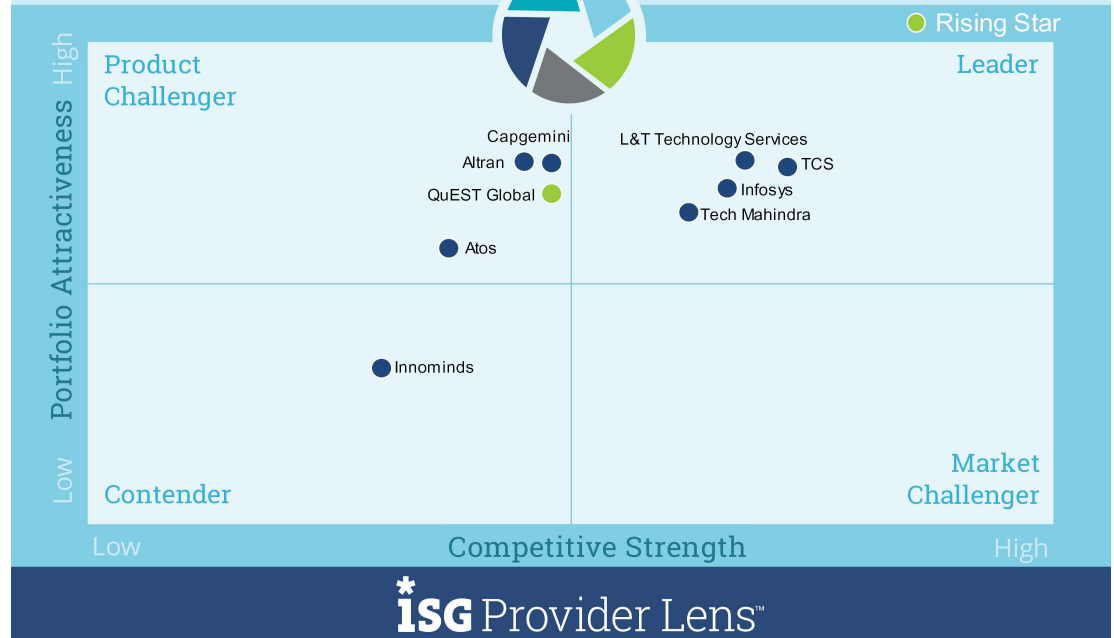
CHEMICALS & OIL & GAS - MANUFACTURING & PLANT / PROCESS ENGINEERING

Definition

Manufacturing and plant/process engineering services cover planning, designing, modifying, optimizing and maintaining plants, manufacturing systems or equipment. Modern services focus on IIoT and Industry 4.0 use cases such as connected factories, digital asset management, predictive maintenance, 3D printing, robotics, automation and other digital-related developments.

Engineering Services
Chemicals and Oil & Gas - Manufacturing and Plant/
Process Engineering

2019
USA

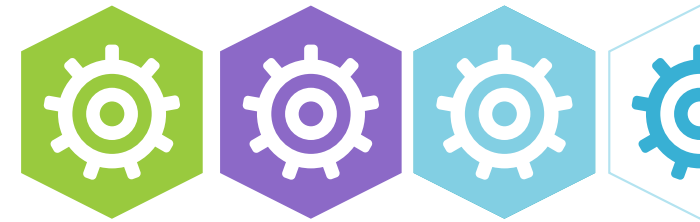


Source: ISG Research 2018

CHEMICALS & OIL & GAS - MANUFACTURING & PLANT / PROCESS ENGINEERING

Observations

- TCS has a focus on the oil & gas vertical and has been serving clients with cost effective and innovative solutions across the value chain.
- L&T Technology Services has enabled clients in the chemical and oil & gas industries to make productivity, quality and compliance improvements with technology applications.
- Infosys has been providing solutions for oil & gas clients for more than 15 years. Energy management, production optimization, predictive maintenance and other engineering data management solutions are offered to provide end-to-end engineering support to clients.
- With more than 15 years of experience in the oil & gas domain, Tech Mahindra's industry solutions are spread across processes and regions.
- Quest Global (the Rising Star) has been driving asset optimization, manufacturing and maintenance improvements for oil & gas clients and is a strong player in this industry.



L&T TECHNOLOGY SERVICES

Overview

With its more than 2,000 engineers working in the oil & gas and chemicals domain, L&T Technology Services helps clients mitigate risk and complexities in business. Its staff has experience in different functions to provide product development, manufacturing services and plant engineering capabilities.

Strengths

Project engineering CAPEX and OPEX: Regarding capital expenditures (CAPEX) and operating expenses (OPEX), L&T Technology Services has worked on greenfield and brownfield projects, plus plant support engagements. The company has been providing services for procurement support, project management and construction management to improve clients' productivity and operational efficiencies.

Control and automation engineering: The company has more than 150 engineers working on power, control, instrumentation and automation as part of engineering and automation projects in plants. Its automation lab provides pre-deployment testing and system integration. The staff uses experience from multiple projects to set methodologies and processes.

WAGES resource cost reduction initiative: L&T Technology Services' WAGES program (an acronym for water, air, gas, electricity and steam) helps providers with data inputs, audit, assessment, rectifying losses, identifying savings opportunities and project implementations. It is intended to reduce operational expenses and other costs in plants and processes.

Caution

L&T Technology Services has deep penetration in the oil & gas vertical and could further expand in the chemical industry. It could also benefit by offering flexible revenue models.



2019 ISG Provider Lens™ Leader

Product lifecycle expertise, domain expertise, IT-operations technology convergence and flexible customer relationships are differentiators for L&T Technology Services, which has a client base across different segments.

CHEMICALS & OIL & GAS - SOFTWARE/ DIGITAL & PLATFORM ENGINEERING

Definition

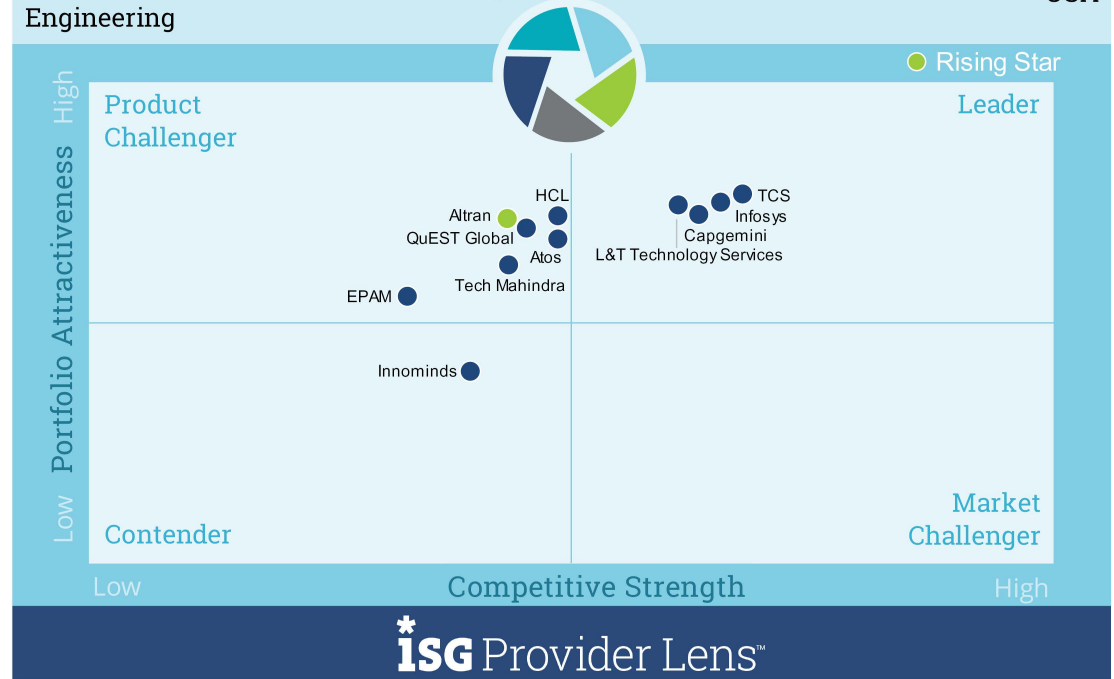
Software, digital and platform engineering services consist of software product development and all related application software development, independent of specific hardware. It also includes IoT software applications for connectivity, mobility, predictive maintenance, OT data analytics (OT data refers to data pertaining to sensors, machines, locations and more), digital supply chain and related areas, and engineering platform-related software work, such as IoT, PLM, MES and other industrial systems. ERP platforms are out of scope.

Engineering Services

Chemicals and Oil & Gas - Software/Digital and Platform
Engineering

2019

USA



Source: ISG Research 2018

CHEMICALS & OIL & GAS - SOFTWARE/ DIGITAL & PLATFORM ENGINEERING

Observations

- TCS leads this segment. It has more than 200 domain-specific consultants plus services for R&D, engineering services, digital oil field, health, safety and environment, plant automation, supply chain management, retail automation, business intelligence, performance management and integrated refinery performance management.
- With strong delivery across mechatronics, software solutions in the chemicals and oil & gas domain, Infosys also provides system-level solutions and enables process optimization.
- Extending services from data analytics, integration and managed services, Capgemini continues to drive innovation with its SAP-certified all-in-one solution for drilling, oilfield services and midstream operations.
- With services across the spectrum, from problem identification, feasibility studies, data gathering and input gathering to design and delivery, L&T Technology Services has been serving clients across the chemicals and oil & gas industries with optimization and digitalization projects.
- Altran, the Rising Star, has industrial engineering, plant and operation analytics, and product development and plant engineering services that are helping clients in this industry with process digitalization.

L&T TECHNOLOGY SERVICES

Overview

L&T Technology Services offers strong end-to-end capabilities for product development, manufacturing and plant engineering. A strong client base and numerous implementations have helped the company gain specific knowledge in the oil & gas and chemicals industries. This makes it a viable option for clients that want a partner that understands and addresses industry-specific needs.

Strengths

Quality, compliance and safety: L&T Technology Services has worked on safety and mobility projects to ensure worker safety at production sites. It has achieved a 40 percent reduction in field safety hazard filings by using design engineering and the IoT. The company is also helping clients with standardization and compliance with common work practices and guidelines.

Technology applications with AR/VR, IoT & AI: L&T Technology Services has implemented applications and solutions featuring AR/VR, AI and IoT technologies. It has used its own AI platform to improve client content management and document retrieval. L&T Technology services has also developed augmented reality and virtual reality mobile application models for both Android and iOS devices. IoT has been used for remote machine monitoring and to analyze corresponding data to improve monitoring and control.

Software apps and engineering: The company's growing software portfolio includes apps to help clients with process engineering, preventive analysis, asset tracking, remote monitoring, application development, reporting, data monitoring and data migration. By combining applications with data analytics and engineering services, L&T Technology Services can offer clients core process improvements and better business outcomes.

Caution

L&T Technology Services has deep penetration in the oil & gas vertical and could expand more in the chemicals industry. It could also use flexible revenue models to offer customized solutions to clients.



2019 ISG Provider Lens™ Leader

L&T Technology Services has been able to successfully serve customers of different industries and scale with its engineering offerings, industry knowledge and flexible client relationships.

LIFE SCIENCES & CPG - MANUFACTURING & PLANT/PROCESS ENGINEERING

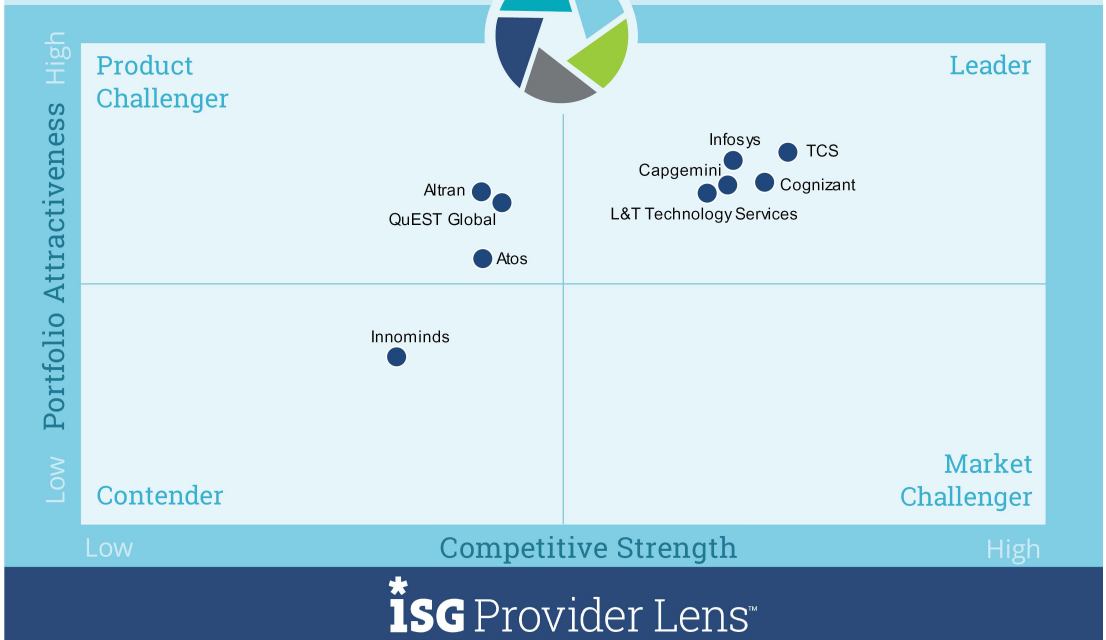
Definition

Manufacturing and plant/process engineering services cover planning, designing, modifying, optimizing and maintaining plants, manufacturing systems or equipment. Modern services focus on IIoT and Industry 4.0 use cases such as connected factories, digital asset management, predictive maintenance, 3D printing, robotics, automation and other digital-related developments.

Engineering Services

Life Sciences & CPG - Manufacturing and Plant/Process Engineering

2019
USA

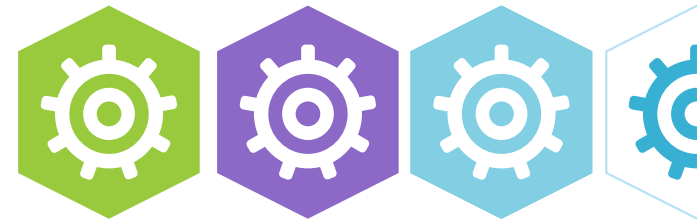


Source: ISG Research 2018

LIFE SCIENCES & CPG - MANUFACTURING & PLANT/PROCESS ENGINEERING

Observations

- TCS offers a host of solutions for CPG and life sciences customers across the globe. PLM platform solutions, energy management, digital manufacturing and advanced analytics are some of its offerings in these industries.
- With solutions for improving operational efficiencies, Cognizant has added value to both new and existing clients with APEX and ONEPlant solutions.
- Infosys is strong in consulting, which has helped it create and implement Industry 4.0 solutions for CPG clients and introduce IoT and mobility for many organizations.
- With more than 17 years of domain expertise, Capgemini works across the value chain for its CPG and life sciences clients. Technology-driven solutions for process optimization and efficiency have been its core.
- L&T Technology Services' consulting and capabilities for product development, manufacturing and plant engineering prepare CPG and life sciences customers for transformation journeys.



L&T TECHNOLOGY SERVICES



Overview

L&T Technology Services has been working with various CPG and life sciences clients to optimize operational efficiency and reduce maintenance costs. Whether focusing on improving productivity with simulations and flexible production or applying emerging technologies such as AI and machine-learning, L&T Technology Services has shown its ability to work with clients with different requirements.



Strengths

Manufacturing support and services: To enhance clients' manufacturing processes, L&T Technology Services has offerings for manufacturing engineering, sourcing support, quality and compliance management and cost analysis. Its advisers can provide solutions for different processes based on the industry and customer need.

Quality, compliance and safety: L&T Technology Services has been serving clients with process validation, quality improvement and other projects to enhance safety through surveillance and to improve plant maintenance.

Flexible usage and support: L&T Technology Services has developed frameworks for patient monitoring systems that give users some flexibility in reminder and parameter settings. The intent is to maintain quality patient care and improve ease of use.



Caution

It is essential to offer clients different contract terms. Examples include outcome based, managed services, risk-reward and IP based. Offering more contract options could help L&T Technology Services win new clients and expand its reach in the market.



2019 ISG Provider Lens™ Leader

With various products, frameworks, solutions and licensable IP that use technologies like IoT, artificial intelligence and analytics, L&T Technology Services meets specific needs in different industries.

LIFE SCIENCES & CPG - SOFTWARE / DIGITAL & PLATFORM ENGINEERING

Definition

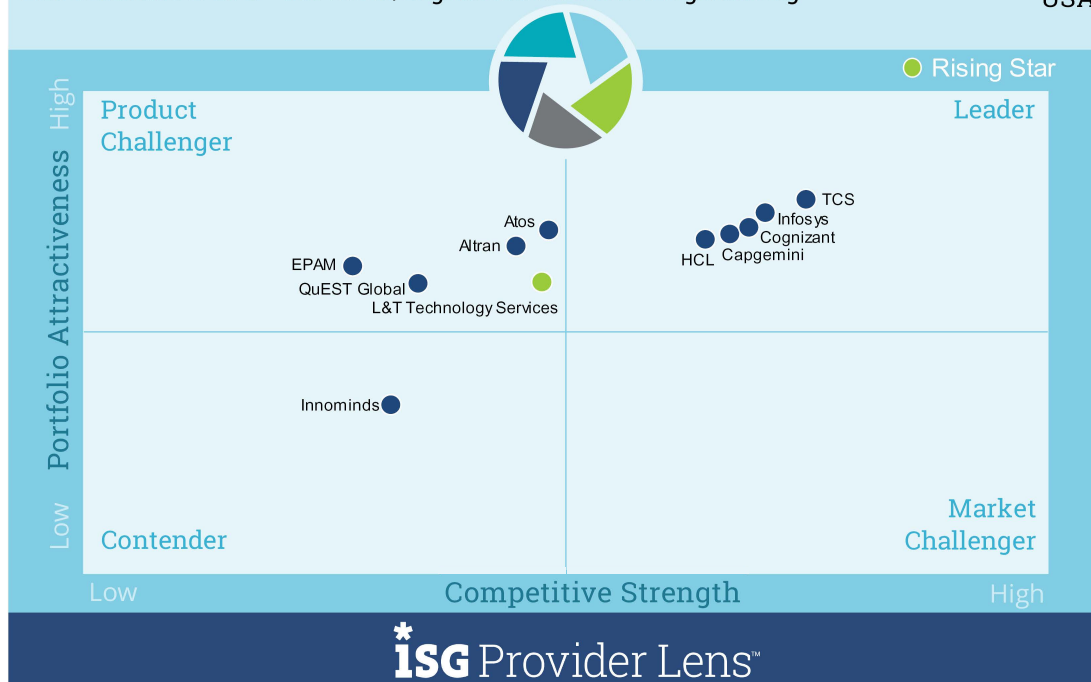
Software, digital and platform engineering services consist of software product development and all related application software development, independent of specific hardware. It also includes IoT software applications for connectivity, mobility, predictive maintenance, OT data analytics (OT data defined as data being generated from the plant floor and production processes associated with production machines, sensors, control systems, etc.), digital supply chain and related areas, and engineering platform-related software work, such as IoT, PLM, MES and other industrial systems. ERP platforms are out of scope.

Engineering Services

Life Sciences & CPG - Software/Digital and Platform Engineering

2019

USA



Source: ISG Research 2018

LIFE SCIENCES & CPG - SOFTWARE / DIGITAL & PLATFORM ENGINEERING

Observations

- TCS's engineering and industrial services have been delivering value to customer for more than 20 years. Consultants and engineers with vertical expertise have been providing solutions across industry segments and regions.
- Infosys has been providing end-to-end solutions in the medical devices domain. It has engineering offerings for design, development, verification and validation, compliance and more.
- Cognizant's IoT consulting services are adding value to clients in different industry verticals and enabling them to achieve business value.
- Capgemini's research and technology expertise helps clients in their transformational journeys, especially for solving vertical-specific problems and achieving optimized business returns.
- HCL's strong focus in pharmaceuticals and other medical sciences and its host of solutions make it a strong player.
- L&T Technology Services is the Rising Star. The company has expertise in many industries and processes that help it adapt and replicate best practices across verticals to the client's advantage.

RISING STAR: L&T TECHNOLOGY SERVICES

Overview

L&T Technology Services offers product conceptualization, design, development, testing, manufacturing support and maintenance services worldwide. From traditional engineering services to the modern emerging technology implementations, L&T Technology Services strikes a unique balance of services and offerings.

Strengths

Optimizing operational efficiency: L&T Technology Services has been working with clients on IoT implementations, solutions and applications to achieve better operational process efficiency. It is currently working on several use cases to improve life sciences manufacturing processes. From digital supply chain to optimizing real-time visibility and demand forecasting, L&T Technology Services brings expertise to improve core processes.

Product lifecycle and MES: The company has served several clients with PLM and MES systems consulting and implementations. L&T Technology Services applies process management using interconnected systems and maps the entire environment to improve productivity and minimize data loss.

Caution

Embracing the emerging technologies that have appeared in the arena of engineering services like blockchain could help L&T Technology Services expand its offerings.



2019 ISG Provider Lens™ Rising Star

The vertical-specific solutions and maintenance projects L&T Technology Services has in health care and medical devices have made it popular with clients of different scale and role in the value chain.

The image features a dark blue background with a light blue horizontal band at the top. On the left side, there are several circular icons resembling camera apertures, arranged in a diagonal line from the bottom left towards the center. These icons are in various shades of blue and white. The word "Methodology" is written in a white, serif font on the right side of the image.

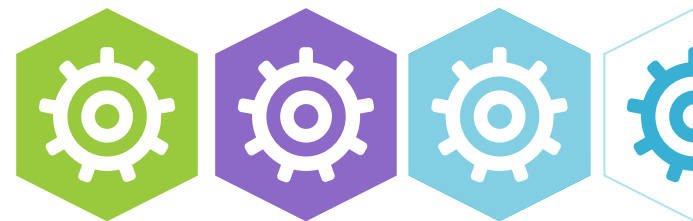
Methodology

METHODOLOGY

The ISG Provider Lens™ 2018 – Engineering Services research study analyses the relevant software vendors and service providers in the USA market, based on a multi-phased research and analysis process, and positions these providers based on the ISG Research methodology.

The study was divided into the following steps:

1. Definition of Engineering Services market
2. Use of questionnaire-based surveys of service providers/vendor across all trend topics
3. Interactive discussions with service providers/vendors on capabilities & use cases
4. Leverage ISG's internal databases & advisor knowledge & experience (wherever applicable)
5. Detailed analysis & evaluation of services & service documentation based on the facts & figures received from providers & other sources.
6. Use of the following key evaluation criteria:
 - Strategy & vision
 - Innovation
 - Brand awareness and presence in the market
 - Sales and partner landscape
 - Breadth and depth of portfolio of services offered
 - Technology advancements



Authors and Editors



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Manali De Bhaumik is an analyst specializing in research on Digital and connected ecosystems. She is responsible for handling custom research assignments as well as analyst reports pertaining to her focus area. Manali would be focusing on IoT and engineering services with focus on different technology and verticals. Manali's core competencies are in the areas of market analysis and intelligence, competitive intelligence, secondary research, quantitative analysis and report writing.



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Director

Mike leads ISG's engineering service practice in the Americas and has over twenty years of leadership experience. He offers ISG clients considerable expertise in engineering services, IoT and manufacturing and has a diverse background working in virtually all discrete and process manufacturing segments with a wide range of clients from leading technology companies to heavy equipment manufacturers, railways, aerospace and industrial products. He has crafted solutions and managed the relationship and overall delivery of consulting and outsourcing services for each of his clients.

Authors and Editors



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Director

Jim Routzong is an expert in engineering services sourcing, application development and maintenance (ADM) outsourcing, IT infrastructure outsourcing (ITO), restructuring/ renegotiations, and business process outsourcing (BPO). Jim led the engineering services global market analysis and business case development that justified ISG's market entry with the Engineering Solutions Service Line. Jim was instrumental with the start-up and establishment of its Engineering Solutions Service Line with the design and establishment of multiple solutions and services including successful client service delivery, IP development, engineering services conferences, and white papers. Jim is ISG's Engineering Solutions Service Line Knowledge Manager. He has led or participated in numerous ISG engagements over the past decade and a half across many diversified clients and global industries from vehicle to high-tech and heavy equipment manufacturing, aerospace and defense, retail, energy, financial services and insurance, biotechnology, and media and entertainment. Jim is ITIL Foundation v3 certified.



Jan Erik Aase, Editor

Director

Jan Erik Aase is a director and principal analyst for ISG. He has more than 35 years of collective experience as an enterprise client, a services provider, an ISG advisor and analyst. Jan Erik has overall accountability for the ISG Provider Lens™ reports, including both the buyer-centric archetype reports and the worldwide quadrant reports focused on provider strengths and portfolio attractiveness. He sets the research agenda and ensures the quality and consistency of the Provider Lens™ team.

ISG Provider Lens™ | Quadrant Report

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