IDC MarketScape

IDC MarketScape: Worldwide Business and Industrial IoT Engineering and Managed Services 2020 Vendor Assessment

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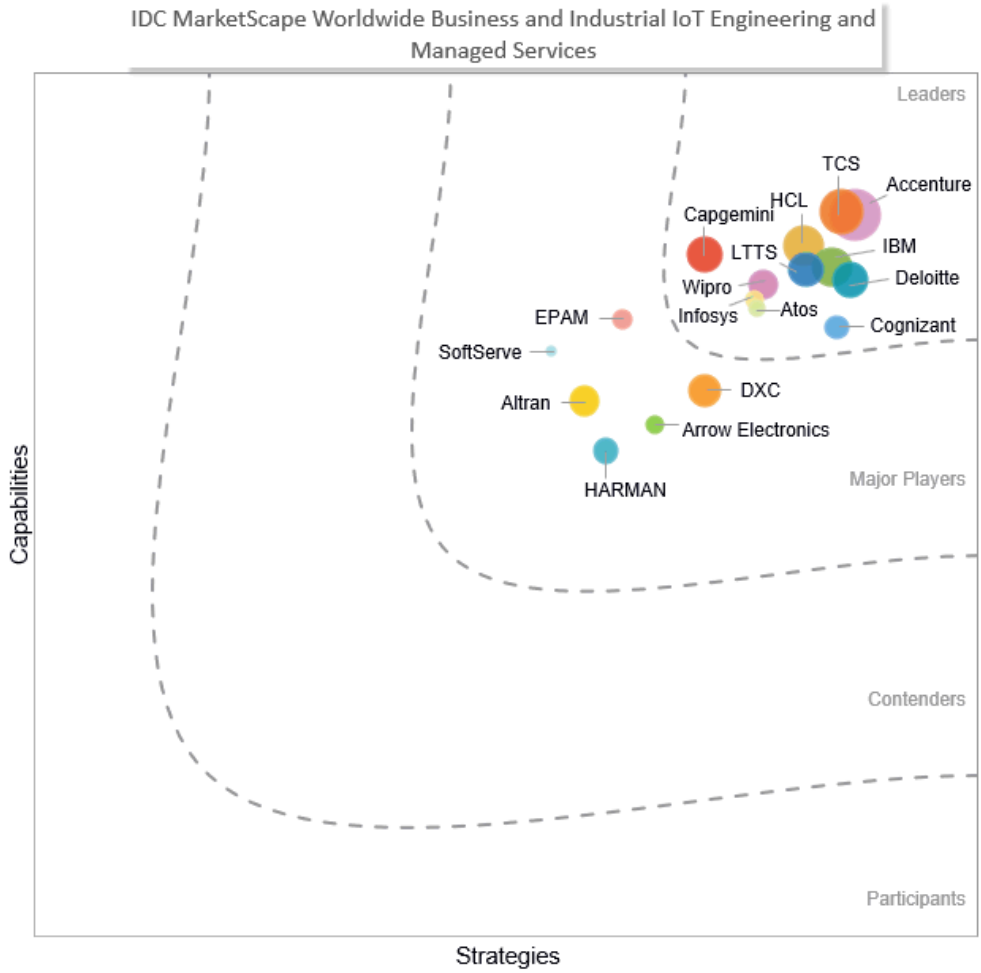
IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Business and Industrial IoT Engineering and Managed Services Vendor Assessment



Source: IDC, 2020

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Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IDC OPINION

This IDC study represents a vendor assessment of the 2020 worldwide business and industrial Internet of Things (IoT) engineering and managed services market through the IDC MarketScape model. This research is a quantitative and qualitative assessment of the characteristics that explain the success of a vendor in the marketplace and help anticipate its ascendancy. This IDC MarketScape covers a variety of vendors participating in the worldwide business and industrial Internet of Things engineering and managed services market. This evaluation is based on a comprehensive framework and a set of parameters expected to be most conducive to success in providing IoT engineering and managed services in both the short term and the long term. A significant component of this evaluation is the inclusion of the perception of IoT engineering and managed services buyers of both the key characteristics and the capabilities of these providers. Key findings include:

- Across all 42 strategies and capabilities assessed, the top 3 attributes highest for IoT engineering and managed services on average include:
  - Strategy to "address customer business priorities and building new competencies"
  - Strategy to offer new generation tools and methodologies
  - Current "breadth of services" provided
- Based on the survey feedback from 44 of the evaluated vendors' customers, the top 2 characteristics related to business priorities that were important to them included:
  - Improving financial performance for their overall business
  - Innovating and building capability for tomorrow's business utilizing new technologies such as artificial intelligence (AI)/machine learning (ML), AR/VR, video, IoT, cloud, and mobility, among others
- The top 2 service provider characteristics to ensure a successful IoT engineering and managed services engagement included:
  - The breadth and depth of intellectual property (IP)/tools and knowledge to recommend and integrate existing legacy and/or new IoT infrastructure
  - The breadth, depth, and scale of relevant IoT talent to provide trustworthy IoT engineering and managed services

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This research includes analysis of 17 key business and industrial IoT engineering and managed services providers. IDC has designed the assessment to evaluate the characteristics of each firm — rather than just its size or the breadth of its services. The inclusion criteria dictate that the vendor should be reporting $20 million in revenue and 100 resources for these services. In addition, it is conceivable, and in fact the case, that specialty firms can compete with multidisciplinary firms on an equal footing. As such, this evaluation should not be considered as a "final judgment" on the services providers to be considered for an IoT services project. The enterprises should take into consideration their own objectives and requirements to determine which firms should be considered as potential candidates for an engagement. IDC in parallel also provided the participants in this study with an option to be evaluated for the IoT consulting and systems integration services evaluation.

ADVICE FOR TECHNOLOGY BUYERS

Many IoT engineering and managed services providers have invested and built capability to provide value to their customers. Some transformation benefits that clients are experiencing are:

- Detailed operational performance insights
- Real-time asset monitoring, ensuring high uptime and reliability
- Superior customer experience by connecting everything and providing relevant services
- Better understanding of customer needs and expectations

They have built domain-specific assessment and value discovery frameworks that enable the build out of a strategic IoT road map based on their maturity. In addition, they have also invested in building off-the-shelf IoT solutions for every industry. Once this IP is integrated, clients begin to realize the benefits in shorter time frames.

In addition, engineering and managed IoT services providers have also partnered with various IoT technology providers to leverage their IP or collaborate and cocreate new IP. Other technology services that are provided in conjunction with IoT include edge, analytics, AR/VR, intelligent operations/robotics, AI/ML, and cybersecurity.

IDC recommends that buyers of these services focus on the following when issuing an RFI/RFP and evaluating vendors for engineering and managed IoT services:

- Clearly identify your end goals in the context of your current IoT infrastructure.
- Ensure that the provider you short-list has experience related to engineering and managed IoT services for your industry.
- Do evaluate vendor ecosystems (partnerships with technology firms and other stakeholders) and discuss relevant completed projects or ongoing relationships.
- Do not shy away from asking your provider if you need help with return on investment (ROI) or other tools that help understand the benefits of these implementations. This will help you secure new or extend existing budgets.
- Do not look at IoT in isolation or with one additional services component (e.g., edge services). Instead explore the art of the possible based on your end-state aspiration and consult with your provider to build a road map with various IoT-relevant technology services such as 5G, security, analytics, AI/ML, AR/VR, and autonomous systems. This should be followed up with the actual implementation and execution of these services.
- Identify areas of your operation where security can never be comprised and ensure your IoT service provider has the experience and competency to deploy and manage secure operations and infrastructure.
- Wherever applicable, explore any recommendations and services the provider brings to the table regarding your current or aspirational state for combined IT and OT infrastructure, security, alerts, and managed services.
- Do ask the provider to explain how its recommended strategy or implementation fits with your overall business and what your customers expect from you and about the ROI from the investment.
- Explore different pricing models and arrive at a decision that is a win-win for both the provider and you. Pricing models include by unit metric consumption and outcome based.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While IDC evaluated every vendor against each of the criteria outlined in the Appendix, the description provides a summary of each vendor's strengths and challenges. Vendors are presented in alphabetical order.

Accenture

Accenture is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Industry X.0 is Accenture's approach to leveraging digital technologies such as IoT, analytics, AI, robotics, 3D printing, and digital twin to reinvent clients' businesses. It provides an end-to-end framework and a cross-functional set of capabilities and resources to operationalize digital innovation across clients' business at every stage of product and service development. Accenture also offers over 40 accelerators and solutions that include areas such as engineering, manufacturing, system deployments, production and operations from digital plant and digital worker, AI/ML-driven use cases to drive production improvements that require connectivity, and new smart products and services that embed technology to drive data-driven insights for products that are manufactured in an IoT-enabled operations world.

Strengths

Buyers lauded Accenture's current innovation capabilities; the breadth, depth, and scale of the company's IoT talent; and the company's ability to provide support at customers' operational locations and quickly solve delivery and commercial issues. According to IDC, other key strengths are Accenture's ability to address customer business priorities and build new competencies for IoT engineering and managed services. In addition, Accenture executes well on its strategy to assist clients with ROI and other tools to get additional/new budgets.

Challenges

Accenture should offer additional pricing mechanisms to ensure increase in client adoption for IoT engineering and managed services and also fine-tune its messaging as it relates to engineering services buyers.

Altran

Altran is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Altran works alongside its clients, from initial concept through industrialization, to enable them to create the products and services of tomorrow. Altran has a dedicated center for IoT solutions, which gathers expertise on the entire technology value chain to support customers in reaping all the benefits from the combined IoT and big data revolution. It develops, integrates, and operates end-to-end IoT solutions, including connectivity, platforms, and applications. Altran focuses on the entire IoT value chain and provides its customers with both off-the-shelf solutions for accelerated time to market and customized solutions that meet its client's specific project needs. The company leverages the experience gained in many IoT projects deployed across industries with both Fortune 500 companies and start-ups to advise, engineer, and operate various IoT projects. For over 35 years, the company

has provided expertise in automotive, aeronautics, space, defense and naval, rail, infra and transport, energy, industrial and consumer, life sciences, communications, semiconductor and electronics, software and internet, finance, and public sector. The company's Aricent acquisition extends this scope to include semiconductors, digital experience, and design innovation to the existing portfolio of services.

Strengths

IDC noted Altran's strategies to address customers' business priorities, which will be key to the company's future success. Other strengths of Altran are its efforts to assist clients with securing budgets for IoT engineering and managed services and its current offering breadth for these services.

Challenges

Altran should focus on improving its messaging and communication of its ability/experience to offer IoT engineering and managed services, its growth strategy, and its partnership ecosystem.

Arrow Electronics

Arrow Electronics is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Arrow Electronics helps its customers design, build, and scale out their products and solutions through access to technology and a broad range of services. Arrow Engineering Services brings 2,000 engineers over 12 design centers around the world with IoT services that range from IoT engineering design to prototyping, manufacturing, supply chain, cloud and data connectivity, device management, and life-cycle managed services.

Beyond IoT, Arrow Engineering Services helps customers innovate in the areas of AI/ML, security, sensors, wireless (LAN and WAN), cloud, and power (low power and high power). With relationships and early access to technology across partners including Analog Devices, Qualcomm, NXP, NVIDIA, Intel, Microchip, Silicon Labs, Texas Instruments, STMicroelectronics, Cree, Microsoft, AWS, and IBM, Arrow has developed reference platforms and industry-specific solutions to accelerate consumer and enterprise IoT and next-generation solution development and transformation.

Strengths

Buyers of Arrow Electronics commended the company for its ability to offer flexible pricing models and for the value it delivered for the contract cost. According to IDC, key strengths of Arrow Electronics include its customer retention strategy and its offering breadth for IoT engineering and managed services.

Challenges

Arrow should focus on improving its revenue/employee strategy and fine-tuning its onsite support to customers. In addition, the company should focus on messaging to improve client perception of the services it provides.

Atos

Atos is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Atos' approach to IoT is outcome focused with a goal to deliver tangible business value. With Codex IoT, Atos has built a set of IoT solutions and services capabilities to achieve this while supporting clients with their digital transformation initiatives. The Atos IoT services portfolio includes applications, blueprints business services, and vertical use cases, including connected coolers, connected vessels, connected vehicles, industrial IoT, and smart grid, as well as development, hosting, and integration services on partner platforms. Atos also has a digital twin offering, which includes a preconfigured platform and consulting services. Atos further strengthens its offerings through a partner ecosystem, most notably with Siemens. This partnership, supported by a €330 million investment fund, is geared to bring value to clients by integrating new technologies including blockchain, cognitive learning, artificial intelligence, and machine learning. For example, Atos offers pre-integrated IoT solutions, which combine complementing IoT assets from Atos and Siemens to accelerate and simplify the application of IoT to business processes and, ultimately, business outcomes.

In technology innovation, Atos provides both hardware and services, particularly at the edge where it already has several use cases in energy and utilities (E&U), transport, and retail using Codex Smart Edge and the BullSequana Edge Server. The cybersecurity offering includes the IoT security suite (Horus and IDnomic), identity life-cycle management, embedded security, and platform security as well as integration between industrial IoT security and IT security services. Atos is a global IoT services provider with a relatively larger presence in Europe and offerings across verticals that include manufacturing, retail, transport and logistics, health and life sciences, energy and utilities, telecom, media and technology, public sector and defense, manufacturing, and financial services.

Strengths

Buyers extolled Atos for its current innovation capability for IoT engineering and managed services and for the breadth, depth, and scale of its talent for these services. According to IDC, additional key strengths of Atos are its strategy to assist clients with ROI and other tools to secure additional/new budgets, its customer retention strategy, and its IP.

Challenges

Atos should focus on improving onsite support for buyers of IoT engineering and managed services and improve messaging related to the transformation it can provide to its customers. In addition, it should review sales enablement for these services.

Capgemini

Capgemini is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

With a global footprint and expertise in consulting, technology services, and digital transformation, Capgemini aspires to be at the forefront of innovation to address the entire breadth of clients' opportunities in cloud, digital, and platforms. Capgemini's Digital Engineering and Manufacturing Services brings together domain expertise to focus on the convergence of physical and digital worlds.

Capgemini considers its IoT expertise as an important pillar of its intelligent industry vision. Capgemini is focusing on new data-centric and collaborative ways of designing, engineering, manufacturing, and supporting products, assets, and services – leveraging end-to-end IoT technologies to create more value. Capgemini's business and industrial IoT solutions seek to build smart products, assets, and services as well as focus on smart operations that include smart assets management, smart factories, smart supply chain, and service management.

Capgemini offers a portfolio of IoT services that include consulting, technology advisory, IoT systems development (sensors, hardware, connectivity and communication, cloud, IoT platform, application, and analytics), program management, application development and integration, software product and platform engineering, system validation, security and device management, managed services for analytics, infrastructure, and technical and engineering support. It focuses on domains that include aerospace, automotive, energy, healthcare, transportation, and industrial products. Capgemini has built solution accelerators for industry use cases and partners with various technology providers across each layer of the IoT solutions stack. The company has also built a network of IoT centers of excellence (COEs) for global – local – solution development. These are complemented by Capgemini's Applied Innovation Exchanges (AIEs) with access to expertise from start-ups and academia.

Strengths

Buyers lauded Capgemini for its innovation capability. Buyers also noted the company's business and technology benefits that were provided to customers and its messaging and communication related to the services consumed/offered. According to IDC, key strengths of Capgemini are its efforts to assist clients with ROI/tools to secure additional budgets and for the life cycle of benefits that Capgemini provided to its customers.

Challenges

Capgemini should explore offering additional pricing options and focus on its growth strategy. As the demand-supply gap for talent increases, Capgemini should also focus on its strategy on retaining and hiring new talent.

Cognizant

Cognizant is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Cognizant is a professional services company that works toward transforming its clients' business, operating, and technology models for the digital era. It helps companies build digital businesses and innovate products that create new value – by using sensing, insights, software, and experience to deliver on what customers demand in the digital age. According to Cognizant, as disruptive technologies like IoT, analytics, cloud, and AI fuel transformation in products, enterprises, factories, and supply chains – and become more pervasive in everyday life – clients across industries are partnering with the company to accelerate their capability and design/build toward their vision. The company's focus is on connecting the digital and physical worlds to make smart, efficient, and safe products, operations, and enterprises by leveraging data, analytics, and AI, which also drive intelligent decisions and help anticipate where markets and customers are going next. Cognizant uses these insights, combining design and software to deliver the experiences that consumers expect of their brands.

Cognizant considers its engineering and R&D services capabilities and legacy heritage in IT systems to augment its IoT capabilities and offerings to help clients' implement data-driven, production-scale solutions for connected products, connected factories, connected buildings, and connected vehicles.

Strengths

Buyers acclaimed Cognizant's ability to provide onsite support and solve business and commercial issues quickly. Buyers also noted Cognizant's breadth, depth, and scale of relevant IoT services talent

as of importance. According to IDC, key strengths of Cognizant also include its sales strategy, customer retention strategy, and tools and methodologies.

Challenges

Cognizant should focus on providing additional pricing mechanisms to its customers and on market messaging. As the demand-supply gap for talent increases, Cognizant should also focus on its strategy for retaining and hiring new talent.

Deloitte

Deloitte is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Deloitte offers a portfolio of capabilities and services that span the IoT life cycle. Its services are focused on business value, embedding value creation and measurement into every aspect of work by directly connecting IoT initiatives to business results and measurable KPIs. Deloitte's dedicated global IoT practice includes IoT engineers, data scientists, cybersecurity analysts, and strategy/process/functional consultants. Deloitte practitioners service clients through traditional, studio, and managed service models.

Deloitte offers end-to-end IoT services — from strategy and ideation to the delivery of managed services. Its teams include strategy, operations, technology, functional domain, and industry-specific skill sets, which enable a broad set of business solutions. Deloitte offers IoT services in a traditional or accelerated delivery model.

Deloitte serves clients in a wide number of industries, including manufacturing, energy, life sciences, and consumer. Deloitte views IoT as a top technology issue and is investing heavily in this area to drive growth in the coming years. It partners with technology vendors to continually invest in and enhance solutions to address clients' needs.

Strengths

Buyers of these services commended Deloitte for its current innovation capability, for the quality of its talent, and for the value buyers received compared with contract cost. According to IDC, key strengths of Deloitte are its strategy to enable clients to secure additional budgets, its existing partnership strategy, and its efforts to refine or build new competency.

Challenges

Deloitte should focus on improving its messaging/communication regarding these services. In addition, the company should enhance its strategy to build or partner for offering additional competencies in this services segment.

DXC

DXC is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

DXC offers a full stack of ITO services to its customers. To DXC, IoT is a powerful solution technique for helping its clients achieve new and transformational business value. According to DXC, the IoT industry ecosystem is diverse, highly technical, and dynamic. Consequently, there are many ways to build an IoT capability — and many ways to do it suboptimally. DXC endeavors to develop the best

solution within the context of a client's individual needs, such as cost versus extensible utility, short-term versus long-term return on investment, and supportability. DXC's technology and industry services, combined with decades-long experience, enable the company to design, implement, and maintain IoT solutions; IoT is employed as a component in its holistic vision of digital transformation. DXC's IoT vision is to integrate solutions for clients and accompany them on each stage of their transformation journey, from business consulting and experimentation and POCs to deployment and integration and the long-term running and maintenance of the solution.

Strengths

Buyers lauded DXC for its breadth, depth, and scale of relevant IoT services talent and for the value that was delivered against the contract cost. According to IDC, key strengths of DXC are its innovation, R&D strategy, and internal sales enablement.

Challenges

DXC should focus on improving customer perception related to its innovation capability and messaging related to its IoT services capability. In addition, the company should explore offering additional pricing options to its IoT services customers.

EPAM

EPAM is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

EPAM is a global product development, digital platform engineering, and digital and product design services provider. EPAM's global team of over 35,000 experts work alongside customers to consider all aspects of an IoT solution and ensure successful business value delivery. With expertise in both software engineering and integrated physical and digital design, EPAM's end-to-end IoT expertise ranges from identifying business cases and designing smart, connected devices and sensors to engineering complex data platforms and optimizing enterprise device management platforms.

EPAM works with global clients across a variety of industries to deliver IoT solutions, including medical devices in healthcare and life sciences; automotive, industrial, and manufacturing solutions; and consumer technology products in the entertainment and retail markets. EPAM has labs and innovation centers where its team designs, builds, and tests IoT products and solutions before going to market.

Strengths

Buyers praised EPAM for the breadth, depth, and scale of relevant IoT services talent, innovation, and the business and technology benefits they received from their partnership. According to IDC, key strengths of EPAM include its customer retention strategy, growth strategy, and IP.

Challenges

EPAM should focus on providing additional tools such as cost benefit/ROI analysis to clients so that they can secure new budgets and strengthen existing and build new partnerships in the industrial IoT space. In addition, the company should focus on its marketing/messaging strategy to promote these services.

HARMAN

HARMAN is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

HARMAN's IoT services portfolio spans systems integration, sensor, gateway, cloud solutions, connectivity, user experience, and analytics. The company integrates its own and industry components, ensuring a single point of accountability, and delivers a complete end-to-end service for a range of verticals. HARMAN also helps customers with IoT solutions that leverage best practices and aspire to exceed expectations. From tracking the flow of people and traffic density to monitoring fluctuations in office temperature, crop moisture levels, traffic, or patients' vital signs, HARMAN manages many data points. For the industrial IoT services category, HARMAN specializes in building aware, autonomous systems that integrate with legacy industrial protocols and deliver actionable, real-time data and insights. HARMAN's clients can use real-time analytics for production planning, inventory management, and gathering instant feedback from users and the market.

Strengths

According to IDC, key strengths of HARMAN include its offering breadth for engineering and managed IoT services, its branding/marketing, and its efforts to refine existing or building new competencies.

Challenges

HARMAN should focus on improving its partnership strategy for sales and assisting clients in securing budgets to expand the scope for existing engagements or new opportunities.

HCL Technologies

HCL Technologies is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

HCL's IoT WoRKS offers end-to-end IoT services and capitalizes on the company's engineering services capabilities to offer a solutions portfolio and a partnership ecosystem to its customers. HCL considers its flexibility on engagement models and investments in talent and innovation as key to improving client confidence in its services and enabling alignment with clients' expectations. HCL has built a solutions portfolio of over 30 IoT solutions and has increased its focus on six verticals (manufacturing, life sciences and healthcare, energy/utilities, travel/transportation/logistics, retail, and financial services). HCL has created an IoT ecosystem through its partnerships (PTC, AWS, Microsoft, IBM, Intel, GE, etc.) to accelerate IoT adoption by delivering greater business insights and creating new revenue models.

HCL's COLLABs (collocated labs) in Noida and Bangalore (India); Redmond, Washington (United States); and London (United Kingdom) offer a collaborative space for the company's clients to cocreate customizable IoT-led solutions, jointly with its partners, technology experts, SMEs, and finance advisors. HCL's "Smart Integrated Operations" platform provides managed services support to IoT deployments at scale, and the company's "Innovation by Design" approach helps its clients identify suitable IoT use cases and deploy and realize the benefits of IoT implementations quickly.

Strengths

Buyers noted that the key strengths of HCL are its ability to resolve delivery or commercial issues quickly, its ability to support with tools to secure additional budgets, and its innovation. According to

IDC, key strengths of HCL are its ability to build new competencies keeping in mind customer business priorities and their pricing strategy.

Challenges

HCL should focus on its marketing/messaging related to this business and its hiring and retention strategy as the demand-supply gap for digital talent increases.

IBM

IBM is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

IBM provides a range of engineering and managed IoT services to extend its capabilities into the core business operations of its clients, primarily in the industrial and manufacturing industries. These services span the IT and OT domains, including device engineering, procurement and logistics, industrial network design and operation, and product life-cycle management (PLM) as well as a systems integration capability that allows them to deliver bespoke solutions consisting of multiple underlying products and services offerings from both IBM business units and partners.

IBM Services has developed a portfolio of partners in the areas of shop floor integration, industrial automation, PLM, and OT security, which enhance its offerings in this area and complement its own strengths in IoT, cloud, and analytics.

These solutions can be delivered using integrated pricing models that mirror a client's own growth curve or business case (i.e., a single price per asset or factory per month), making them easier to consume and scale.

Strengths

Buyers lauded IBM well for the quality of its talent and its innovation capability. According to IDC, key strengths of IBM are its ability to build new competencies keeping in mind customer business priorities, its pricing strategy, its R&D, and its plans to evolve new generation tools and methodologies.

Challenges

IBM should focus on improving its client messaging as it relates to its capabilities and ecosystem partnerships for IoT engineering and managed services.

Infosys

Infosys is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Infosys focuses on assisting enterprises to develop connected processes, connected products, and connected infrastructure. Infosys partners with clients to enhance their competitive advantage, customer experience, operational efficiencies, quality with increased revenue upside, and reduced cost of operations. IoT is an integral part of Infosys Digital Offerings and has been incubated under its engineering services business. With over 2,000 IoT services employees, Infosys has over 100 active clients across 20 countries, spread over 15 industry domains such as manufacturing, aerospace, pharma, oil and gas, consumer products, and mining.

Infosys IoT solutions are broadly classified under Industrial IoT, Consumer IoT, and Smart Spaces.

Industrial IoT helps Infosys' clients transform their production and operations in manufacturing through IT-OT integration. "Digital Thread" driving manufacturing helps product life cycle digitally from "as designed," "as manufactured," and "as operated" to "as serviced." Consumer IoT helps its clients innovate through connected products and experiences in the digital ecosystem for enhanced consumer experience, hyperpersonalization, safety, and security. Finally, Smart Spaces assists Infosys' customers transform physical workplaces into enhanced workspaces for employees by implementing digital technologies to achieve optimized space utilization, reduced energy consumption, and reduced carbon footprint.

Infosys delivers these services through its consulting and advisory, implementation, and managed services. Its strategy is to be an "ecosystem integrator" by leveraging its partner ecosystem, academia, and industry forums. Infosys' GTM strategy is to leverage ready to deploy over 12 end-to-end domain-specific solutions such as Smart Factory, Smart Pharma, Digital Mines, Connected Cars, Smart Buildings, and KRITI (Infosys' IP solution to manage plants from design to end of life) along with over 20 IoT solutions addressing white spaces.

Strengths

Buyers lauded Infosys for its innovation capability and ability to provide onsite support and solve delivery/commercial issues quickly and delivery competency for IoT engineering and managed services. According to IDC, key strengths of Infosys are its ability to build new competencies keeping in mind customer business priorities and its innovation and R&D strategy.

Challenges

Infosys should focus on refining its growth strategy and improving marketing/messaging related to IoT engineering and managed services. As the demand-supply gap for digital talent increases, Infosys should focus on hiring and retaining its talent for these services.

L&T Technology Services

L&T Technology Services (LTTS) is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

LTTS is a listed subsidiary of Larsen & Toubro Ltd. focused on engineering and R&D (ER&D) services. It enjoys the benefit of inheriting an engineering experience of over 75 years, and it is equipped with capabilities in both engineering and manufacturing functions across all major industries. Its customer base includes firms across industrial products, medical devices, transportation, telecom, hi-tech, and process industries.

LTTS' and its customers work together across an array of advanced technologies including, but not limited to, IoT, edge, 5G, artificial intelligence, collaborative robots, digital factories, and autonomous vehicles. Leveraging its engineering design expertise, innovative solutions portfolio, smart manufacturing, and digital capabilities, the company works closely with its customers to improve their product and solution development and accelerate their digital road maps. LTTS also offers a wide range of in-house solutions, which have been built to reflect LTTS' domain knowledge and industrywide experience. They are iBEMS – intelligent building experience management system, UBIQWeise – the cloud IoT platform, WAGES – complete plant utility management solution, and AiKno – the "engineering" AI solution, among others.

Strengths

Buyers lauded LTTS for the quality of its talent, the accrued business and technology benefits due to the partnership, and the depth and breadth of its engineering IoT services offering. According to IDC, key strengths of LTTS include its marketing initiatives to promote IoT engineering and managed services, the customer priorities that LTTS addressed, its growth focus, and its innovation strategy.

Challenges

LTTS should improve on its support at onsite client locations to solve delivery or commercial issues quickly and focus on providing additional ROI and other tools to clients so that they can secure additional budgets for current or new engagements.

SoftServe

SoftServe is positioned in the Major Players category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

SoftServe is a digital services company that reveals, transforms, accelerates, and optimizes the way enterprises and software companies do business. With expertise across healthcare, retail, energy, financial services, software, and more, the company implements end-to-end solutions to deliver the innovation, quality, and speed that its clients' users expect. SoftServe delivers open innovation — from generating innovative ideas to developing and implementing transformational products and services. According to SoftServe, its work and client experience is built on a foundation of empathetic, human-focused experience design that ensures continuity from concept to release. It focuses on enabling enterprises and software companies to (re)identify differentiation, accelerate solution development, and vigorously compete in today's digital economy irrespective of where they are in their journey.

SoftServe believes its people are its greatest assets. The company's mix of technical experts and strategic thinkers allows it to form collaborative relationships with its clients. It fully digests and comprehends its customers' needs and then creates the experiences they expect. According to SoftServe, it thrives in the ever-changing environment by creating end-to-end solutions to solve a breadth of business problems, systems challenges, and user requirements.

Strengths

Buyers commended SoftServe for its onsite support to resolve delivery and commercial issues quickly, its innovation capability, and for the value they received for the contract cost. According to IDC, key strengths of SoftServe include its ability to retain customers, offering breadth for IoT engineering services, and current pricing models.

Challenges

SoftServe should focus on growing this business and explore additional customer business/technology benefits that it can support. It should also explore additional technology partnerships to expand scope.

TCS

TCS is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

TCS is a part of the Tata Group, one of India's multinational business groups. TCS' IoT business supports customers across North America, Europe/United Kingdom, and APAC, serving customers in

industries such as manufacturing, energy, utilities, retail, consumer packaged goods, transport, travel and logistics, life sciences and healthcare, telecom, hi-tech, banking, and insurance.

TCS' IoT engineering and managed services is driven by its solution units and centre of excellence teams. TCS has dedicated solution segments for Industry 4.0, connected industrial products, connected consumer products, Smart Cities, and managed services. The centers of excellence focus on edge, industrial robotics, automation, connected AR/VR, industrial analytics, blockchain, and cybersecurity. The objective of these units within IoT engineering and managed services is to create industry-specific solutions and use cases based on TCS IP or through technology partnerships.

TCS delivers its IoT engineering and managed services to customers through its location-independent agile delivery model, which gives TCS the ability to accelerate IoT engagements without any delay or expectation mismatch. TCS has more than 20 innovation labs, and TCS Pace Port provides customers hands-on experience on technology, software, applications, and emerging areas including 5G, blockchain, connectivity, quantum physics, and process engineering. In addition, TCS engages customers in design thinking workshops to cocreate solutions together.

For accommodating different customers from different industries, TCS offers different pricing and delivery models that include outcome based, transactional, risk reward, license based, and per device sold/onboarded. IoT platform partners include AWS, IBM, Microsoft Azure, Siemens MindSphere, Google, Cisco, GE, and SAP. Top communications, devices, and sensors partners are Intel, Bosch, Freescale, Arm, BT, Dell, Panasonic, Cisco, Juniper, Tata Communications, Qualcomm, Vodafone, and NXP.

Strengths

Buyers lauded TCS for the benefits they received from engaging in a partnership with the company, for its delivery competency, and its partnerships. According to IDC, key strengths of TCS include its strategy to enable clients to secure additional budgets, its growth strategy, and the breadth and depth of its services offering.

Challenges

TCS should focus on improving its marketing and messaging with customers, employee hiring and retention, and additional pricing mechanisms.

Wipro

Wipro is positioned in the Leaders category in the 2020 worldwide IDC MarketScape for business and industrial IoT engineering and managed services.

Wipro's vision for Internet of Things is to transform enterprise business, services, and process while enhancing the customer experience. Wipro's IoT engineering services and solutions span across all the major industry segments (i.e., energy and utilities, manufacturing, healthcare, pharma, consumer, retail, smart infra, transportation, and BFSI), supported by professionals and consultants with customer deployment experience across engineering consulting, implementation, systems integration, and global support.

Wipro's IoT-led digital transformation approach is focused on bringing together end-to-end capabilities and solutions for the customers, helping them in all aspects of IT/OT integration through product engineering, connectivity, cloud platform engineering, applications build, advanced data analytics and

artificial intelligence, enterprise systems integration, and remote command center operations. Wipro has built a partnership ecosystem with market leaders in the IoT space across edge, network, cloud, and enterprise tiers that enables Wipro to deliver solutions in line with evolving customer needs and technological advancements. Wipro has also developed a portfolio of industry reference solutions and accelerators for IoT/IIoT use cases leveraging key partners like Microsoft, AWS, and IBM to accelerate IoT adoption among customers by demonstrating quick return on investment.

According to Wipro, it differentiates itself with its EngineeringNXT initiative, by providing a unique proposition combining over 35 years of engineering DNA with depth and breadth of technologies, mature processes, and innovation to offer IT/OT solutions and services through a diverse ecosystem to deliver value to customers at every stage of digital transformation.

Strengths

Buyers praised Wipro for the quality of its talent, the ability to support customers onsite with delivery or commercial issues, and the benefits that were realized due to the partnership. According to IDC, key strengths of Wipro include its ability to build new competencies keeping in mind customer business priorities. In addition, IDC also noted Wipro's offering breadth for IoT engineering and managed services as a definite strength.

Challenges

Wipro should focus on improving client perception regarding the innovation it provides and improving overall marketing and messaging related to IoT engineering and managed services.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user

interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

The Internet of Things (IoT) is a network of sensors (or devices) that constantly monitor the state of the machine, systems, or infrastructure they connect with. These devices monitor and collect data related to various attributes of the machine and enable businesses to get better insight into their manufacturing operations, personal health, or the environment they live/operate in. This IDC MarketScape focuses on IoT services provided in a B2B or B2B2C context only.

IoT categories include the following:

- **Connected and intelligent assets.** Sensors and controllers (includes power and communications hardware/links)
- **IoT gateway (can be communications hardware or software program).** Connects controllers with the cloud infrastructure and sensors
- **Cloud infrastructure.** To store raw and analyzed data
- **Application software.** To transfer/transmit raw data to on-premises or off-premises infrastructure
- **Analytics software.** For business intelligence
- **Secure edge infrastructure**. To process large data volumes on the manufacturing shop floor before sending to the cloud

Examples of IoT engineering services offerings include:

- Setup and/or test sensors for performance, security, and connectivity
- UI/UX design and development
- Develop new applications and APIs
- Create new platforms
- Implement device and infrastructure security
- Embedded software
- Edge infrastructure
- Compute power design

Examples of IoT managed services include:

- Providing Big Data/analytics services (including DWH, data mining, and predictive/prescriptive/cognitive analytics)
- Real-time dashboards
- Cloud hosting for IoT data
- Managing and monitoring sensors, applications, and communications infrastructure (remotely)
- Ongoing infrastructure and network security monitoring (internal as well as external)
- Incident management and compliance management

- Diagnostic and support services
- Upgrading firmware
- Building and operating network operating centers (NOCs)

Examples of IoT services provided by product engineering and operational technology service providers include:

- Connect already existing IoT or other devices such as SCADA systems to the engineering network and/or the enterprise IT network.
- Analyze the data generated and provide business or technology guidance to their customer.
- Enable onboarding of these sensors/devices.
- Monitor and manage sensors/devices on an ongoing basis.

Some use cases are:

- Predictive maintenance based on data from condition monitoring of machines
- Smart meters that measure utility consumption and provide analysis or alerts
- Asset tracking (e.g., fleet [trucks] tracking and routing)
- Creating digital twins to understand how the product or system is performing or how it will be impacted by its environment

Strategies and Capabilities Criteria

This section includes an introduction of market-specific weighting definitions and weighting values. IDC believes IoT engineering and managed services vendors must exhibit the characteristics shown in Tables 1 and 2 to be completely successful when crafting a future IoT services strategy and leveraging existing capabilities to their best advantage. The factors were weighted because IDC believes that some factors are more important than others in maximizing market opportunity and realizing market success. The current capabilities and future strategy scores were arrived at based on written response to the RFI from providers in context of the definitions mentioned previously. This was followed up by subsequent presentations and discussions regarding the providers' capability and strategy for these services and online and phone meeting that obtained feedback from client references for all the attributes provided in the tables.

TABLE 1

Key Strategy Measures for Success: Worldwide Business and Industrial IoT Engineering and Managed Services

Strategies Criteria	Definition	Weight (%)
Functionality or offering strategy	Excellence is marked by the provider's ability to impact its customer's financial and operational performance.	9.0
Delivery	Excellence is marked by plans to support business and IIoT engineering and managed services by building (on own or in partnership with other entities) and utilizing more efficient tools and methodologies.	11.0
Cost management strategy	Superior service calls for ways by which the vendor can help clients justify expenditures including ROI models and get additional budgets and by providing a clear strategy for clients to lower their costs.	12.0
Portfolio strategy	A strong portfolio strategy dictates that well-thought-out plans are in place to ensure development of offerings across the entire life cycle of business and IIoT engineering and managed services.	3.0
Pricing strategy	Excellence is demonstrated by plans to provide innovative and new pricing mechanisms to increase adoption.	4.0
Sales/distribution strategy	Excellence is demonstrated by plans to improve sales efforts.	8.0
Marketing strategy	Successful firms have an eye toward a well-articulated plan for how they will market their capabilities in the future.	8.0
Customer engagement strategy	Superior firms have a well-articulated plan to lower client churn and increase delivery consistency in the future.	12.0
Growth strategy	Firms have strategic plans for both organic and inorganic growth and ones that align well with the overall IT trends in the next one to three years.	13.0

TABLE 1

Key Strategy Measures for Success: Worldwide Business and Industrial IoT Engineering and Managed Services

Strategies Criteria	Definition	Weight (%)
Innovation/R&D pace and productivity	Firms have strategic plans for attaining or retaining functional superiority over competition by improving innovation in business and IIoT engineering and managed services delivery methodologies and tools.	4.0
Financial/funding model	Firms have a viable funding strategy for the next one to three years. Firms have solid plans for growing revenue per employee and a strong corporate-level support for the business and IIoT engineering and managed services practice.	9.0
Employee strategy	Excellence is marked by the breadth of skills the vendor has in its business and IIoT engineering and managed services practice. Firms have solid plans for hiring and retaining top-performing employees.	7.0
Total		100.0

Source: IDC, 2020

TABLE 2

Key Criteria Measures for Success: Worldwide Business and Industrial IoT Engineering and Managed Services

Capabilities Criteria	Definition	Weight (%)
Functionality or offering delivered	Analyst evaluation of a firm's current business and IIoT engineering and managed services offerings is considered. Offering capability is a combination of functional (domain) knowledge, industry insights, and technical capabilities along the entire stack of business and IIoT engineering and managed services. It also includes the breadth and depth of vertical-specific solutions as well as the ability to achieve desired business outcomes for the clients.	16.0
Delivery model appropriateness and execution	Analyst evaluation of the firm's level of delivery automation is considered. The delivery model must include appropriate integration with the client team and the ability to meet client-developed project timelines, ability to apply proven methodologies/tools, and ability to handle changes in project scope.	14.0
Cost competitiveness	Analyst evaluation of the firm's resources used to deliver business and IIoT engineering and managed services is considered. Cost competitiveness can best be measured by the ability to deliver an appropriate and sustainable return on investment for the client.	9.0

TABLE 2

Key Criteria Measures for Success: Worldwide Business and Industrial IoT Engineering and Managed Services

Capabilities Criteria	Definition	Weight (%)
Portfolio of benefits delivered	Analyst evaluation of the firm's capabilities to deliver additional benefits besides the life cycle of services is considered (how extensive are the firm's capabilities to provide services that reduce dependency on labor [automation], improve operations, increase uptime of operations, and have a direct bearing on reducing costs of doing business [just in time inventory, improvement in quality, etc.]).	5.0
Pricing model options and alignment	Analyst evaluation of the types of pricing models offered to clients is considered. The extent of flexible arrangements, such as the client choosing to be billed as the budget allows, is measured.	4.0
Sales/distribution structure/capabilities	Analyst evaluation of the size of the firm's sales professionals dedicated to selling business and IIoT engineering and managed services is considered. Firms must operate by balancing both local and global requirements and work with channel partners. Firms should be able to work with partners (hardware/software product partners and other business/IT services providers) and optimize the ratio of onshore-offshore efforts on a project.	7.0
Marketing capability	Analyst evaluation of the various marketing channels used related to business and IIoT engineering and managed services is considered. A firm should be able to communicate the value of its services/solution and delivery methodologies/tools that are currently being consumed by the clients as well as those that are not being currently consumed.	7.0
Customer services delivery	Analyst evaluation of the firm's ability to retain customers is considered. A firm's ability to provide service to a client is contingent on the firm's ability to deploy local resources where appropriate to resolve problems/issues.	9.0

TABLE 2

Key Criteria Measures for Success: Worldwide Business and Industrial IoT Engineering and Managed Services

Capabilities Criteria	Definition	Weight (%)
Growth strategy execution	Analyst evaluation of revenue growth rates for business and IIoT engineering and managed services is considered. Essential to a services firm's growth is the firm's ability to develop "referenceable clients." Clients that strongly believe the firm will represent their best interests are most often referred.	9.0
Innovation/R&D pace and productivity	A firm's ability to be innovative can be showcased in the way the firm transfers this innovation to its clients via innovative service delivery and the quality and depth of thought leadership it generates.	9.0
Employee management	Success is measured, in part, by the head count associated with the practice. Success is also measured by how well an implementation services vendor manages its staff turnover during a project's lifetime and the quality of resources for the projects based on client perception.	11.0
Total		100.0

Source: IDC, 2020

LEARN MORE

Related Research

- *IDC FutureScape: Worldwide IT/OT Convergence 2020 Predictions* (IDC #US45597519, October 2019)
- *IDC FutureScape: Worldwide Services 2020 Predictions* (IDC #US44800319, October 2019)
- *Market Analysis Perspective: Worldwide Product Engineering and Operational Technology Services, 2019* (IDC #US45551918, September 2019)
- *Worldwide Product Engineering and Operation Technology Services Forecast, 2019-2023* (IDC #US43276418, July 2019)
- *IDC's Worldwide Product Engineering and Operational Technology Services Taxonomy, 2018* (IDC #US43275418, October 2018)

Synopsis

This IDC study represents a vendor assessment of the 2020 worldwide business and industrial IoT engineering and managed services market through the IDC MarketScape model. This research is a quantitative and qualitative assessment of the characteristics that explain a vendor's success in the marketplace and help anticipate its ascendancy. This IDC MarketScape covers 17 vendors, and the evaluation is based on a comprehensive framework and set of parameters expected to be most

conducive to success in providing engineering and managed IoT services during both the short term and the long term.

"Achieving the desired technology or business outcomes as per contract terms and providing the appropriate domain-specific services by leveraging the right IoT engineering talent, IP, and technology vendor partnerships will be key to a successful customer partnerships," said Mukesh Dialani, program director, Product Engineering and Operational Technology Services research. "Buyers are also looking for IoT engineering and managed services partners that can leverage new digital technologies and provide services to create an always-aware organization resulting in improved operations and financial performance."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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