HFS Top 10 Internet of Things (IoT) Service Providers 2019

Excerpt for EY

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“IoT—as a bridge between machine and human intelligence—has emerged as the most critical lever for digital transformation across industries. It provides not only connectivity among various entities but also a constant flow of real-time data, which is the foundation of advanced analytics and critical business insights. As an amalgamation of smart things and digital technologies like edge computing, sensors, networking and 5G, platforms, and analytics, IoT must be evaluated and leveraged by enterprises and service providers through the lens of exponential business value.

— Tapati Bandopadhyay, Research Vice President
## What you’ll read

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Introduction, methodology, and definitions
Introduction

- HFS defines IoT services as any service provider engagement aimed at enabling a physical asset to generate or communicate data to a centralized platform with the goal of driving insight into ways the recipient enterprise might raise operational efficiency or increase revenue through the creation of new products or services.

- *HFS Top 10 Internet of Things (IoT) Service Providers 2019* report examines the role service providers play in the evolving IoT landscape. We assessed and rated the IoT service capabilities of 23 service providers across a defined series of innovation, execution, and voice of the customer criteria. The report highlights the overall ratings for all 23 participants and the top five leaders for each subcategory.

- This report also includes detailed profiles of each service provider, outlining overall and subcategory rankings, provider facts, and detailed strength and development opportunities.

- The report specifically focuses on IoT specific capabilities across industries in four areas strategic consulting, productization, deployment, and operations, as defined in our *IoT value chain*. IoT services, however, do not include the standalone activities (such as data and analytics services, PLM, network and system integration, etc.) of each of the value chain nodes.
Service providers covered in this report

* Altran and Mindtree have been evaluated independent of their acquisition by Capgemini and L&T Group respectively
The HFS Top 10 Internet of Things (IoT) Service Providers 2019 report assessed and scored service provider participants across execution, innovation, and voice of the customer criteria. The inputs to this process were detailed RFIs we conducted with 23 service providers, data from more than 1000 customer references and surveys, briefings with leaders of IoT practices within service providers, and publicly available information sources. Specific assessment criteria and weighting include:

### Ability to execute
- **Geographic spread and scale**—Includes IoT revenue and growth (YoY), global delivery footprint, and delivery spread.
- **Relationship management**—Single face to the customer, formal relationship and governance structure, and client portfolio and centricity.
- **Depth and breadth of industry-specific offerings and expertise**—Including capabilities and revenue across the IoT value chain, depth of industry knowledge, and level of sector experience.
- **Depth of expertise across value chain**—Includes solutions coverage and maturity, integration among digital, business consulting, and IoT practices.

### Innovation capability
- **Vision**—Including an integrated digital and IoT vision and credibility of strategy, strong understanding of industry trends, and refinement of capabilities to address industry-specific challenges.
- **Ecosystem and investments**—Partnerships, thought leadership, acquisitions, R&D investments, and talent management.
- **Tools and technology**—In-house tools, patents, lab infrastructure, process integration, and R&D outcomes.
- **Pricing**—Co-development with clients, and creative commercial models
- **Weaving with emerging technologies**—Deployment of intelligent automation, IT-OT convergence, 5G, and other emerging technologies.

### Voice of the customer
- **Direct feedback from enterprise clients**—Via reference checks, surveys, and case studies critiquing provider performance and capabilities.
The IoT value chain defined

- HFS defines IoT Services as provision of strategic consulting, productization, deployment, and operations services to either save or make money for a client by employing connected sensors attached to “things” (tangible business assets) to determine their current state or how their state has changed with time. The data generated through IoT is fed to IT infrastructure, the cloud, or to an IoT gateway, where it is processed, displayed, and the “things” controlled.

- HFS refers to strategic consulting, productization, deployment, and operation as the four elements of the IoT services value chain.
  - **Strategic consulting**—Focus on landscape assessment, strategic planning, technology roadmap, data governance and security, business case development
  - **Productization**—Includes change management, network engineering, implementation, and security, custom application development, and regulatory compliance
  - **Deployment**—Includes end-to-end process integration, system integration, cloud management, and security
  - **Operations**—Includes governance, risk, and compliance services, data management, and device management
## IoT value chain

### Strategic consulting
- Governance, security, data protection strategies
- IoT technology roadmap
- Planning, prioritization, and business case development

### Productization
- PLM version control, change management, network protocol, 5G, new data format, new regulatory requirements
- Product engineering, software engineering, embedded technology, device security, custom app development, prototyping, and network engineering

### Deployment
- Data network and system integration, end-to-end process integration
- Run-time and backend infrastructure, security, cloud hosting, and network management

### Operations
- IoT platform and application support, product tech support, device management, and sensor management
- Data and analytics services including business analytics, operation analytics
- GRC (governance, risk, and compliance) services; real-time monitoring and reporting services, compliance audit system, information, process, security—data, device, system, network, and control
Executive summary
Executive summary (1 of 2)

- **Comprehensive study of 23 service providers serving the IoT landscape:** The *HFS Top 10 Internet of Things (IoT) Service Providers 2019* report is a study in which we rate 23 service providers across elements of service execution, innovation, and voice of the customer.

- **Cybersecurity remains a concern for IoT applications:** Enterprises are concerned about the cybersecurity of IoT applications; for example, there can be security breaches in device levels, connectivity layers, and application systems. As an IoT application scales up, the number of end points increases that are the potential threat for security. Service providers need to analyze both the technology and the business landscape to deploy the appropriate cybersecurity measures.

- **The Top 10 leaders in IoT services are** Accenture, IBM, TCS, Infosys, EY, Atos, HCL, Cognizant, LTI, and KPMG. These firms exhibited a strong mix of service execution excellence, applied innovation and vision, and verified customer satisfaction to rise to the top of our IoT study.

- **Service providers need to work more closely with the clients to identify most relevant business use cases and deliver tangible outcomes:** Enterprises often follow a herd mentality by implementing the IoT use cases deployed by the close competitors or use cases prevalent in the market. We have observed that several IoT engagements are trapped in PoC stages due to unclear project scoping, organizational complexity, and integration challenges. Service providers need to collaborate closely with enterprises to identify the feasible use cases based on their business landscapes.

- **IoT customers are satisfied with their providers’ relationship management capabilities and flexibility:** Reference clients interviewed for this study rated relationship management and flexibility as the areas in which they are most satisfied with their service providers. As the IoT engagements often face several roadblocks in terms of scope, technical feasibility, and business objective attainment, frequent interaction with clients and flexibility to work are necessary for successful execution.
Executive summary (2 of 2)

- **IoT customers see a significant development opportunity in their providers’ integration capabilities across IoT, digital, and intelligent automation storylines:** Clients have mentioned that service providers need to gain more capability and pro-activeness to deploy intelligent automation applications for data management, process automation and others. In some cases, we have observed that service providers are confined to rule-based automation primarily RPA. They need to focus more on artificial intelligence methods for data analysis, device management, and network management to fulfill the clients’ expectations.

- **Measurable business outcome is the key for IoT implementations:** Enterprises are primarily focusing on customer experience, bottom-line efficiency, and top-line improvement through IoT deployments. We have observed several initiatives (design thinking, co-innovation with clients, etc.) from service providers to engage the clients. Enterprises are focusing more on bottom-line efficiency and customer experience than top-line improvement. Most of the engagements are related to cost efficiency, faster go-to-market launch, and better customer management rather than a new business model.

- **Supply of technology is least of the problems as a plethora of tools are available in the IoT market:** The IoT market is flooded with tools and platforms, such as those for business insights and predictive analytics related to smart products, smart supply chain, smart services, and smart workforce. Enterprises need to analyze the fitment of the tools (based on intelligent methods used, past accuracy, etc.) based on their business objective (industry applications, use cases, integration and interoperability, etc.)

- **The outcome-based pricing model is becoming popular:** Though the IoT pricing landscape is dominated by traditional pricing models such as T&M and fixed price, we have observed several examples of outcome and transaction-based pricing models. The difficulty of benchmarking makes it difficult for non-linear-based pricing models.
The HFS Top 10 IoT service provider results
## HFS Top five IoT service providers by individual assessment criteria

<table>
<thead>
<tr>
<th>HFS ranking</th>
<th>Ability to execute</th>
<th>Innovation capability</th>
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<tbody>
<tr>
<td></td>
<td>Geographic spread and scale</td>
<td>Relationship management</td>
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<tr>
<td>#1</td>
<td>IBM</td>
<td>accenture</td>
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<td>#2</td>
<td>accenture</td>
<td>IBM</td>
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<td>TATA Consultancy Services</td>
<td>Atos</td>
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<td>#4</td>
<td>HCL</td>
<td>Infosys</td>
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<td>#5</td>
<td>Atos</td>
<td>Cognizant</td>
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</tbody>
</table>

Source: HFS Research 2019
HFS Top 10 IoT service providers, 2019

#1. Accenture
- Industry-leading and trend-setting capabilities around consulting, business strategy, execution, and innovation
- Technology giant with strong innovation and business-driven use cases, leveraging its Business 4.0 concept to solve client business problems
- Focused on execution and innovation

#2. IBM
- Fundamentally transformational and industry trendsetter with immense resources and new technology expertise
- Strong technical expertise plus innovation and consulting—strengthening its IoT capability to become transformation partners for clients
- End-to-end IoT service provider with strong innovations and integrated cyber security capability

#3. TCS
- Innovative Big 4 firm with considerable experience in IoT, establishing itself as a ready-to-deploy solution provider
- Innovative engineering DNA with execution expertise merging decades of experience with high-impact innovations in IoT
- End-to-end transformational and outcome-focused capabilities across the value chain using its IP and frameworks to solve business problems

#4. Infosys
- Consulting powerhouse delivering transformational business value to clients, leveraging innovation network and partnership ecosystem
- World-leading expertise especially in IoT using its L&T heritage to leverage its offerings, with strong innovation and technology platforms and capabilities

#5. EY
- Consulting powerhouse delivering transformational business value to clients, leveraging innovation network and partnership ecosystem
- End-to-end transformational and outcome-focused capabilities across the value chain using its IP and frameworks to solve business problems

#6. Atos
- Expert in area of smart city and using its telco expertise to leverage 5G use cases
- Consulting-driven, business outcomes-focused, with transformational growth strategy and robust ecosystem enabling client innovations

#7. HCL
- A leader in R&D with strong aerospace experience, including strong engineering capability and technical understanding
- Firm with digital mindset investing significantly on its end-to-end capability by building IPs

#8. Cognizant
- Comprehensive capability service provider with clear goals and established proof-points, plus an ecosystem strengthened with Luxoft
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers

#9. LTI
- Developing strategies to capture the value of utilizing IoT to drive sustainable growth in a digital world
- Consulting-driven and business outcomes-drive, with transformational growth strategy and robust ecosystem enabling client innovations

#10. KPMG
- A leader in R&D with strong aerospace experience, including strong engineering capability and technical understanding
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers

#11. Deloitte
- Leveraging its L&T heritage to leverage its offerings, with strong innovation and technology platforms and capabilities
- Applying AI to IoT to get valuable insights for customers

#12. Persistent
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe

#13. Wipro
- Leveraging its L&T heritage to leverage its offerings, with strong innovation and technology platforms and capabilities
- Developing strategies to capture the value of utilizing IoT to drive sustainable growth in a digital world

#14. Capgemini
- Leveraging its L&T heritage to leverage its offerings, with strong innovation and technology platforms and capabilities
- Developing strategies to capture the value of utilizing IoT to drive sustainable growth in a digital world

#15. Tech Mahindra
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#16. DXC
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#17. Altran
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#18. Mindtree
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#19. NTT DATA
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#20. HARMAN
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#21. LTTS
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#22. Fujitsu
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

#23. Mphasis
- Leveraging its Samsung relationship to facilitate digital transformations and give best-in-class IoT innovations for its customers
- Japanese IT provider with strong heritage of information technology equipment and services across the globe
- Applying AI to IoT to get valuable insights for customers

Note: Altran and Mindtree have been evaluated independent of their acquisition by Capgemini and L&T Group respectively.
IBM, Wipro, Deloitte and Fujitsu have been evaluated as per our own research.
We asked the service providers to provide a count of their projects in each industry.

Since IoT is a critical lever of Industry 4.0 and the application of Industry 4.0 is increasing in manufacturing sectors, most of the engagements are concentrated in the manufacturing sector. The energy and utility sectors include smart grid and smart meter applications.

We believe that in the future, consumer IoT will gain traction due to wearables, smart homes, and similar items. This will in turn increase IoT adoption in some industries such as insurance (premium based on health condition monitoring) and healthcare (remote health monitoring).
### Heatmap for IoT engagements across use cases

<table>
<thead>
<tr>
<th>Service Provider</th>
<th>Smart city</th>
<th>Connected industry</th>
<th>Smart automotive</th>
<th>Smart energy and utilities</th>
<th>Smart retail</th>
<th>Smart health</th>
<th>Smart supply chain</th>
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<td>Accenture</td>
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**Not a focus**

**Emerging**

**Mature**

- We asked the service providers to provide a count of their projects across IoT-specific use cases.
- Most of the use cases focus on B2B scenarios.
- Smart city initiatives are picking up across the globe, but service providers need a bouquet of solutions (traffic management, waste management, etc.) to demonstrate their strength in this area.
- Connected industry is the most mature use case. Most of these engagements are related to maintenance and quality.
- Smart agriculture has the fewest engagements due to a lack of business opportunity. As the farming sector is mostly unorganized, enterprises face a lot of difficulties attaining the necessary scale for IoT implementation.
IoT service provider profile
Innovative Big 4 firm with considerable experience in IoT, establishing itself as a ready-to-deploy solution provider

### Strengths

- **Global IoT Network of Excellence**: EY’s proprietary organizational model for driving innovation, industrialization, and sector infusion of IoT solutions and assets of 2,700 IoT professionals supported by 36 EY wavespace centers used for IoT ideation and solution design.
- **Deep sector and domain expertise**: EY has deep sector and domain expertise to structure business-oriented IoT adoption, supported by technology partners including alliance partners and their platforms, such as Microsoft Azure, IBM Bluemix, SAP Leonardo, and PTC ThingWorx for joint go-to-market activities.
- **Strong ecosystem**: EY co-innovates and delivers projects together with other market players, including alliance partners.
- **Proprietary technologies**: It has a list of different sector-specific IoT solutions for quick implementation and solving client business problems sooner. These solutions and assets are deployment-ready for clients.

### Development opportunities

- **Scaling up client engagements**: EY illustrates a strong consulting-led delivery approach. Hence there is a huge opportunity to scale up the depth and breadth of existing engagements’ scope.
- **Restriction to serve audit clients**: All top four audit firms have restrictions on working with audit clients, which if they are able to serve by partnering with a niche firm, can help to gain untapped potential.

## Industry Heatmap

<table>
<thead>
<tr>
<th>Industry Type</th>
<th>Number of Clients</th>
<th>Market Share</th>
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<tbody>
<tr>
<td>Smart city</td>
<td>25%</td>
<td>10%</td>
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<tr>
<td>Connected industry</td>
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<td>Smart energy and utilities</td>
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<td>Smart retail</td>
<td>5%</td>
<td>6%</td>
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<td>Smart health</td>
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<td>Smart supply chain</td>
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### Use Case Heatmap

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### Relevant acquisitions and partnerships

**Recent acquisitions:**
- EY Sky: Digital consulting, implementation, managed services, and software development company (November 2018)
- EY Sonoma Partners: Digital, data, and analytics practice (March 2018)

**Partnerships:**
- Global strategic alliances: Microsoft, IBM, SAP
- Connectivity: Cisco, Nokia
- Data: Hortonworks; ThingWorx IoT platform—PTC; cybersecurity—Los Alamos; ops excellence—P&G

### Key clients

- **Number of IoT clients**: 250
- **Geographic spread**:
  - North America: 30%
  - Europe: 30%
  - Middle East, Africa: 10%
  - Asia Pacific: 25%
  - Latin America: 5%
- **Key clients**:
  - American multinational financial services corporation
  - American multinational O & G company
  - European multinational pharmaceutical corporation
  - European multinational telecommunications company
  - Australian rail operator

### IoT headcount

- 2,700 (HFS estimate)

### IoT in-house platform and tools

- The EY Client Technology platform (CTP): A client-facing technology platform, designed to support project-based work and multiyear managed services engagements.
- Condition Based Maintenance App (manufacturing)
- IoT Strategy for Digital Grid (P&U)
- Power generation forecasting for wind farms (P&U)
- IoT SOC Architecture (all)
- IoT Calibration-as-a-Service (manufacturing and O&G)
- Intelligent Process Optimization (O&G)
- IoT Process Safety (O&G)
- IoT Soft Sensors Studio (O&G)
- IoT Monetization (all)
- IoT Connected Living
- Intelligent Automation (IoT integration)
About the authors
Tapati Bandopadhyay is Vice President, Research at HFS. She has over 20 years of experience in technology strategy, consulting, and advisory on artificial intelligence, analytics, automation, DevOps, and services management. She is based in the HFS India office in Bangalore.

Prior to HFS, Tapati set up the AI and automation practice at Wipro and contributed to the growth and success of the firm’s HOLMES initiative. She began her analyst career with Gartner, where she handled ITScore, ITSM, and AI and automation across all regions for seven years. She received Gartner business awards and was recognized among top-rated analysts globally. She is a Ph.D. in AI, a gold medallist in engineering, and a DFID scholar at Strathclyde.

Tanmoy Mondal is Senior Research Analyst at HFS Research, identifying global trends in engineering services from both industry & technology perspectives, tracking global outsourcing deals & investments including partnership agreements & R&D announcements in the sector and supporting the domain leads in secondary research, data analysis, PoVs and research writing.

Tanmoy has over 5 years of research, pre-sales and market intelligence experience in TCS, HCL and Tracxn. At his TCS and HCL role, he worked on preparing RFP responses including solution construct and commercial proposition. He was responsible for analyzing the business scenario for ERP implementation for different industry verticals and participated in several Enterprise Transformation projects across domains to optimize the IT landscape, increasing IT integration among client business verticals, improving productivity and reducing business incidents. At Tracxn, he was part of the emerging technology team that helped finding companies (start-ups) specializing in upcoming technologies (virtual and augmented reality, drone etc.) for acquisition and portfolio investments for PE and VC firms.

Tanmoy holds a Master’s in Business Administration from IIFT (Indian Institute of Foreign Trade), and Bachelor of Engineering from Jadavpur University, Kolkata.
Mayank Madhur is a Senior Research Analyst at HFS Research, supporting different practice leads in area of Industry Research, IoT and Blockchain by working on secondary research, data analysis, PoVs and research writing.

Mayank has over 4 years of research, pre-sales and software development experience. Prior to HFS he was part of business strategy and pre sales in Altimetrk supporting vertical heads, sales and marketing team. Before it in his HCL Tech role, he worked in the delivery team of a large medical device client for R&D project.

He holds blockchain certification by IIT & IBM on "Blockchain Architecture Design and Use Cases". His other certification include certification on Google analytics, Scrum, Six Sigma etc. to name a few. Mayank holds Master’s in Business Administration from Birla Institute of Technology and Science College, Pilani (BITS, Pilani University) and a Bachelor of Engineering in Electrical and Electronics from Jawaharlal Nehru National College of Engineering (Visvesvaraya Technological University), Karnataka.

Josh Matthews is an Research Analyst at HFS Research, based in Cambridge following a Master’s programme covering Engineering Management at Cambridge University’s Institute for Manufacturing (IfM). His research tackled operational and environmental improvements in industry, and the implementation and management of sustainable initiatives. On behalf of the university, Josh worked on consulting projects with Unilever, as well as SMEs in the tech and marketing spaces.

Josh had previously graduated from Loughborough University with a first-class master’s in Chemical Engineering; over the course of this degree he spent a year at Total in the oil refining industry, and a semester at UC Santa Barbara, publishing work which is currently being commercialized on low-CO2 hydrogen production.
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