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HFS Top 10 Internet of Things (IoT) Service Providers 2019 – Excerpt for Infosys

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TOP 10

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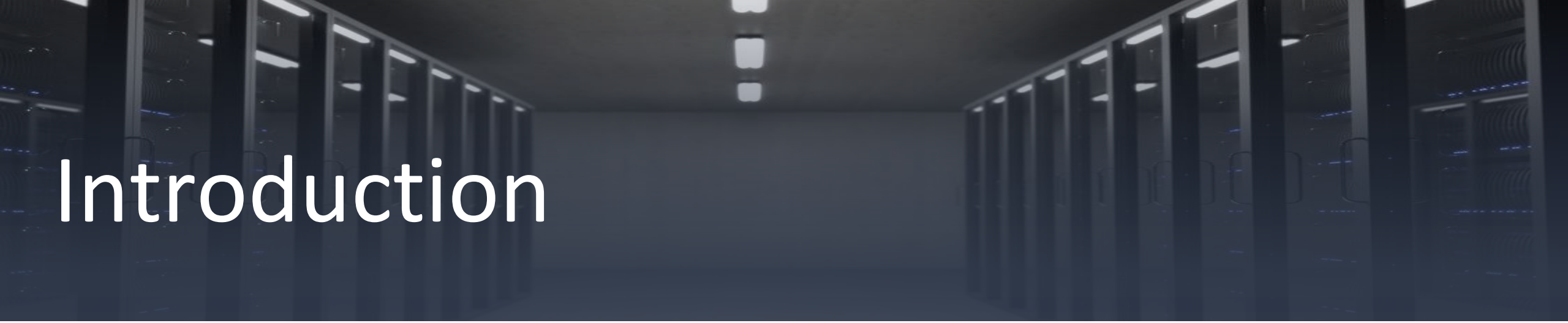
"IoT—as a bridge between machine and human intelligence—has emerged as the most critical lever for digital transformation across industries. It provides not only connectivity among various entities but also a constant flow of real-time data, which is the foundation of advanced analytics and critical 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

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

TOP 10

* Altran and Mindtree have been evaluated independent of their acquisition by Capgemini and L&T Group respectively

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Research methodology

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:

33.3%

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.

33.3%

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.

33.3%

Voice of the customer

- **Direct feedback from enterprise clients**—Via reference checks, surveys, and case studies critiquing provider performance and capabilities.

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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

Internet of things (IoT) value chain			
Strategic consulting	**Productization**	**Deployment**	**Operations**
• Governance, security, data protection strategies • IoT technology roadmap • Planning, prioritization, and business case development	• 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	• Data network and system integration, end-to-end process integration • Run-time and backend infrastructure, security, cloud hosting, and network management	• 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 ruled 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 providers results

HFS Top five IoT service providers by individual assessment criteria

TOP 10

HFS ranking	Ability to execute				Innovation capability					Voice of the customer
	Geographic spread and scale	Relationship management	Industry presence	Depth of value chain	Vision	Ecosystem and investments	Tools and technology	Pricing	Weaving with emerging technologies	
#1	IBM	accenture	accenture	accenture	accenture	accenture	IBM	accenture	accenture	accenture
#2	accenture	IBM	IBM	IBM	IBM	IBM	accenture	IBM	IBM	TATA CONSULTANCY SERVICES
#3	TATA CONSULTANCY SERVICES	Atos	TATA CONSULTANCY SERVICES	Atos	LTI Let's Solve	TATA CONSULTANCY SERVICES	Infosys Navigate your next	TATA CONSULTANCY SERVICES	Atos	IBM
#4	HCL	TATA CONSULTANCY SERVICES	Infosys Navigate your next	EY Building a better working world	Infosys Navigate your next	Atos	LTI Let's Solve	Atos	Infosys Navigate your next	EY Building a better working world
#5	Atos	Cognizant	Atos	Cognizant	TATA CONSULTANCY SERVICES	wipro	EY Building a better working world	Infosys Navigate your next	LTI Let's Solve	HCL

Source: HFS Research 2019

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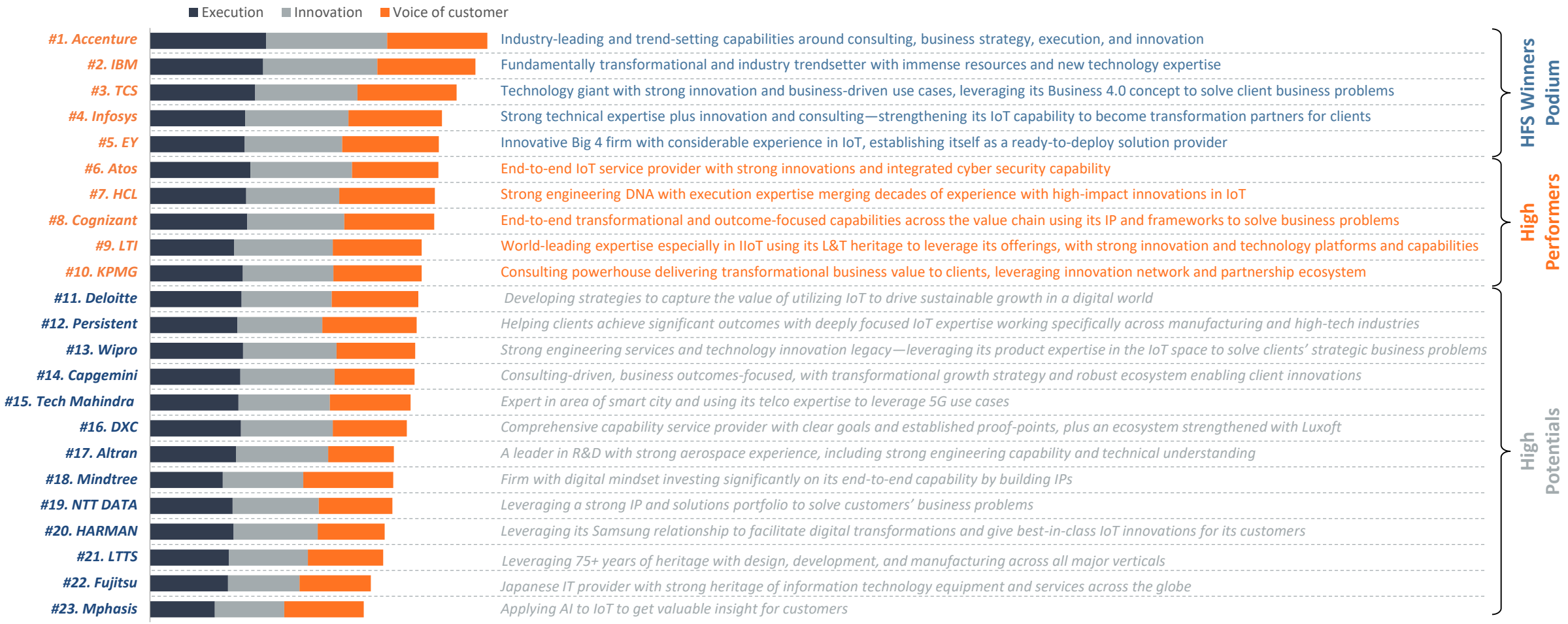
HFS Top 10 IoT service providers, 2019

TOP 10



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

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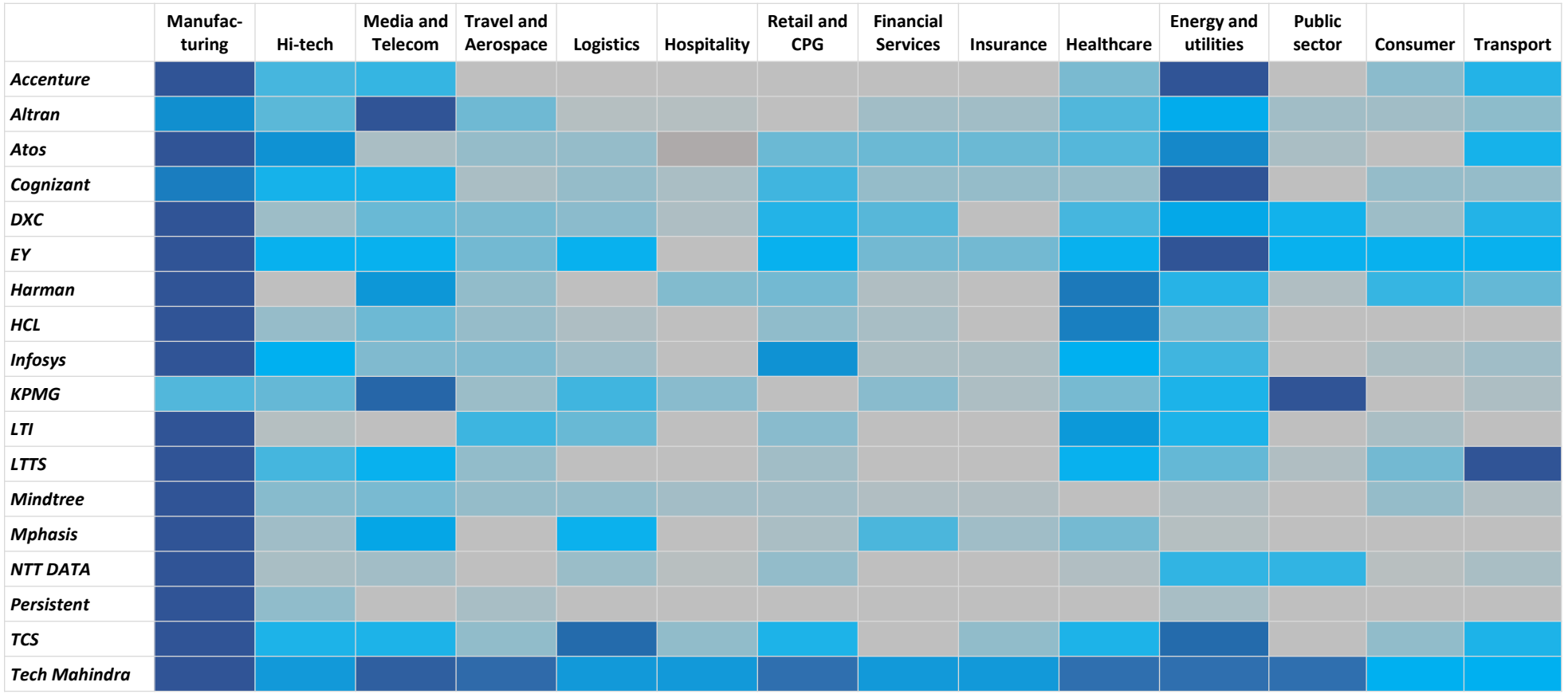
Heatmap for IoT engagements across industries



- 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

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	Smart city	Connected industry	Smart automotive	Smart energy and utilities	Smart retail	Smart health	Smart supply chain	Smart agriculture
Accenture								
Altran								
Atos								
Cognizant								
DXC								
EY								
Harman								
HCL								
Infosys								
KPMG								
LTI								
Mindtree								
Mphasis								
NTT DATA								
Persistent								
TCS								
Tech Mahindra								

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.

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IoT service provider profiles

Strong technical expertise plus innovation and consulting—strengthening its IoT capability to become a transformation partner for clients

Dimension	Rank
HFS Top 10 position	**#4**
Ability to execute	
Geographic spread and scale	#10
Relationship management	#8
Industry-specific offerings and expertise	#4
Depth of value chain	#10
Innovation capability	
Vision	#4
Investments and ecosystem	#6
Tools and technology	#3
Pricing	#5
Weaving with emerging technologies	#4
Voice of the customer	**#7**

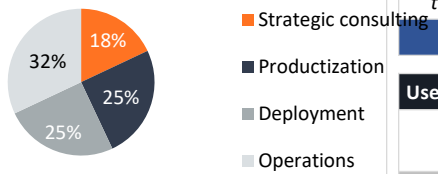
Strengths

- **Domain expertise**: Infosys has the in-house capability on hardware implementation, sensorization, connectivity, platforms, systems, analytics, managed services, and visualization that covers the entire stack of any IoT solution. It has strong capability with analyzing data from physical assets, including predictive maintenance, remaining useful life, forecasting of failure, anomaly detection, transformative manufacturing, digital twin simulation, waste reduction, and sustainability solutions.
- **Differentiated engagement models:** Infosys has adopted differentiated commercial models within IoT services. They use *outcome-based models, turnkey projects, for* In new product development*, use IP based model,* Infosys has developed software platforms and software accelerators that meet various project requirements of IoT.
- **Investing in innovative and disruptive usages of emerging technologies:** Infosys has a dedicated team in its Advanced Engineering Group (AEG) with over 50+ PhD and industry veterans focusing on emerging technologies. Through investments and innovation Infosys helps in augmenting technology differentiation to business value realization. Infosys has invested in 5G innovation labs by partnering with various OEMs and operators.

Development opportunities

- **Scaling-up advisory**: There are big opportunities in the market to scale up advisory services, since IoT is a relatively new territory for the clients and their need for guidance and roadmap is ever-increasing.

Client engagement



Industry heatmap

Use case heatmap

Relevant acquisitions and partnerships

Recent acquisitions:

- **Fluido:** Cloud consulting (September 2018)
- **Brilliant Basics:** Design thinking (September 2017)
- **Skytree**: Big data and analytics (April 2017)

Partnerships:

- **Intelligent devices:** Cisco, Intel, PTC, ILS, AMD, HPE, Dell and EMC, Rockwell Automation, Siemens
- **Connectivity:** Murata, Digi, AT&T, ILS, Vodafone
- **IoT platforms**: PTC-ThingWorx, IBM Watson IoT, Azure-IoT, AWS-IoT, Bosch, Siemens-Mindsphere, Rockwell, Dassault Systems
- **Enterprise integration:** SAP, Oracle, Software AG, Microsoft, Huawei, IBM, Hitachi, Dassault
- **Analytics and business intelligence:** IBM, Tableau, SAP, PTC-Coldlight, SAS, Azure, Foghorn, Microstrategy
- **University partners**: Purdue, Aachen, MIT

Key clients

Number of IoT clients: 160

Geographic spread:

- North America: 60%
- Europe: 23%
- Asia Pacific: 15%
- Latin America: 2%

Key clients:

- ABB
- Pratt & Whitney
- Toyota
- Stanley Black & Decker
- JCI
- Rio Tinto
- Sanofi
- Merck
- Intel
- Pepsi

Global operations and resources

IoT headcount: 2,000

Delivery locations:

21 delivery location across India (Bangalore, Mysore, Pune, Chandigarh, Chennai, Trivandrum, Hyderabad), US (Richardson, Indianapolis, Hartford, Arizona), UK (London), Europe (Frankfurt, Berlin, Paris, Baden), ANZ (Melbourne, Sydney), APAC (Beijing, Shanghai, Singapore)

IoT in-house platform and tools

In-house IoT platforms:

- Infosys NIA, Infosys Industrial Gateway Platform, Infosys SENSE platform

IP solutions:

- Infosys KRTI4.0, Infosys Gateway Framework, Infosys IoT Mediation Layer, Infosys Asset Maintenance Solution, Infosys Serviceability Workflow Platform, Infosys Entertainment Experience Platform (IEEP), Smart Building

About the authors

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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.

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Tanmoy Mondal is a 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.

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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 Altimetrik 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.

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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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