HfS Blueprint Report

Internet of Things Services

Excerpt for EY

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Introduction and Key Definitions

Introduction to the HfS Blueprint Report: IoT Services

- Digitalization is the next industrial revolution and the **Internet of Things** (the **IoT**) is its core technology. It's that fundamental.
- The IoT Services HfS Blueprint Report reviews the value chain of services from providers that are addressing this potentially huge and transformative technology.
- The IoT services value chain consists of four elements: **strategic consulting, productization, deployment,** and **operations services**.
- This Blueprint Report includes profiles and assessments of 27 providers of IoT Services. Unlike other quadrants and matrices, the Blueprint identifies relevant differentials between service providers across a number of facets in two main categories: innovation and execution.
- The HfS Blueprint Grid recognizes providers in the following categories:
  - **High Potentials**—up-and-coming service providers that scored higher on innovation criteria than on execution criteria, as they build their practices.
  - **Execution Powerhouses**—established, high-execution service providers that have built effective delivery operations but need to innovate their capabilities and offerings further.
  - **High Performers**—service providers with strong combined innovation and execution performance.
  - **Winner's Circle**—service providers with the highest overall performance.

HfS Definition of Internet of Things (IoT) Services

HfS defines the IoT as:

1. Data streams to and from connected physical devices.
2. Delivery of data from and to centralized repositories by these physical devices, for additional interactions.

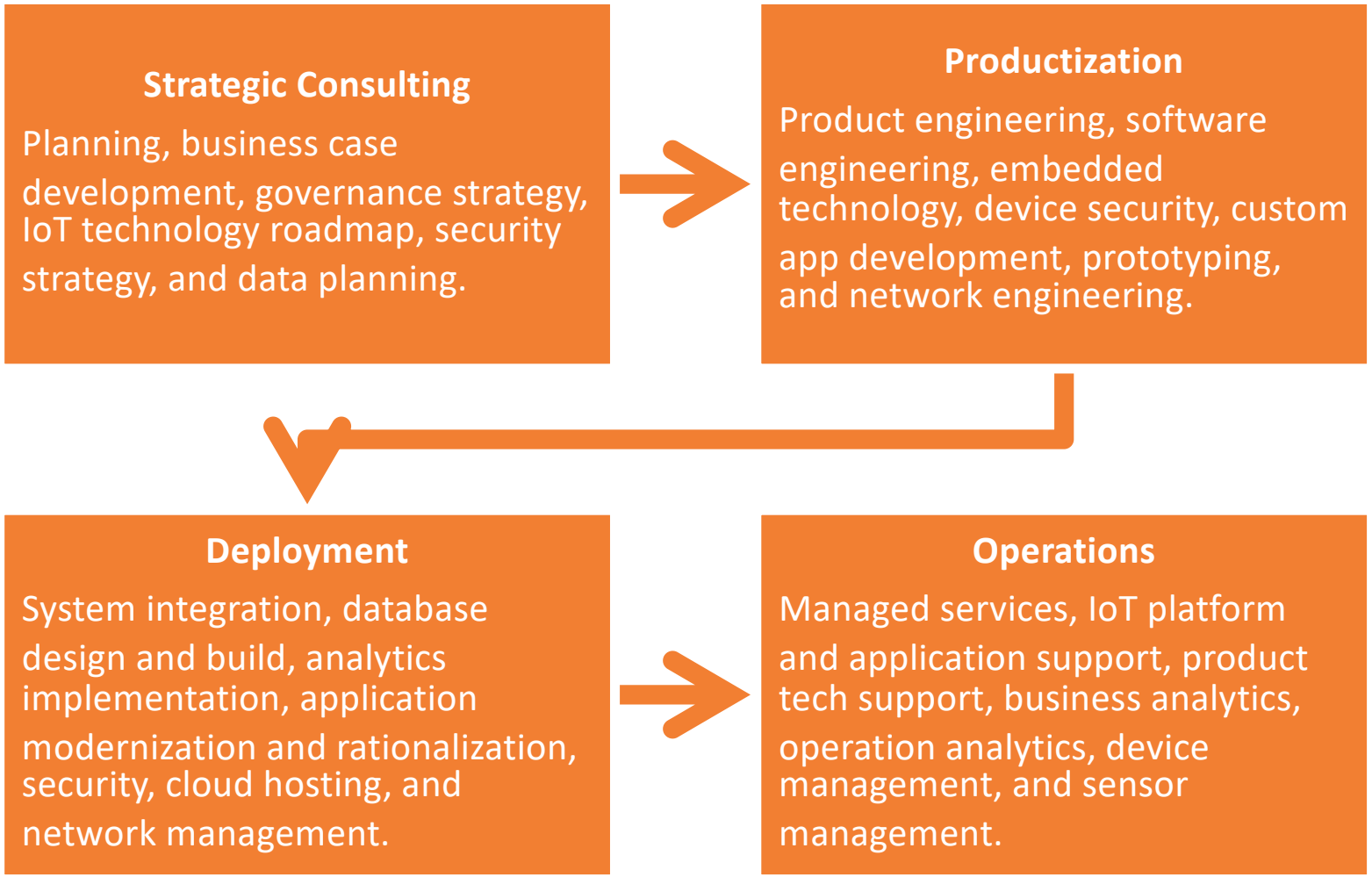
The devices delivering the data may or may not create the data themselves, and may or may not process the information before delivering it. The devices can be intelligent or dumb—ranging from an item tagged with an RFID chip that is coded with a unique identifier to a large sophisticated heavy industrial machine with sensors that monitor and control all aspects of operation, output, and health.

Further, communication of data may be done via various combinations of wired and wireless networks. These networks can be either open or private, and while this communication is often carried out via IP protocol, that is not a requirement. As a result, the IoT includes a broad set of activities, some of which have been used for decades in industrial control.

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 is fed to IT infrastructure, the cloud, or to an IoT Gateway, where it is processed, displayed, and the "things" controlled.

We refer to **strategic consulting**, **productization**, **deployment**, and **operation** as the four elements of the IoT Services Value Chain.

The four elements of the IoT Services value chain



Executive Summary

IoT Services: Executive Summary

- The IoT professional services market was worth $10 billion in 2017 and is expected to grow by 30% in 2018.
- The value proposition of IoT services is two-dimensional: saving money by maximizing productivity and reducing cost and waste and making money by improving demand forecasting, enhancing customer experience, and enabling faster time to market.
- The IoT services market is still nascent in terms of technology fragmentation (over 30 platforms) and services provision, despite rapid advancements across standards, platforms, techniques, infrastructure, devices, architecture, and security. A diverse ecosystem is evolving to provide the "customer solution."
- The top three reasons IoT projects don't take off are: resistance to change in an organization, cost-legacy systems incompatible with new requirements, and a lack of understanding of the RoI.
- Clients told us that the top three areas that they'd like to see their service providers improve are: providing better communication through a project, increasing their domain expertise, and sorting out a service provider's cumbersome internal processes to avoid slowing the project down.
- Manufacturing is the largest industry vertical in terms of IoT adoption with 22% of engagements, followed by energy and utilities with 15%, healthcare with 10%, and media and telecom with 10%.
- The top three IoT projects that service providers worked on last year were: service platforms, security and compliance applications, and smart wearables.
- The US was the biggest regional market last year, representing 41% of engagements.
- Three distinct strategies that service providers adopt are: offering a full service approach, developing a focus on one or more industry verticals (e.g., manufacturing or energy and utilities), and either targeting consumer B2C or to avoiding it (most do the latter).

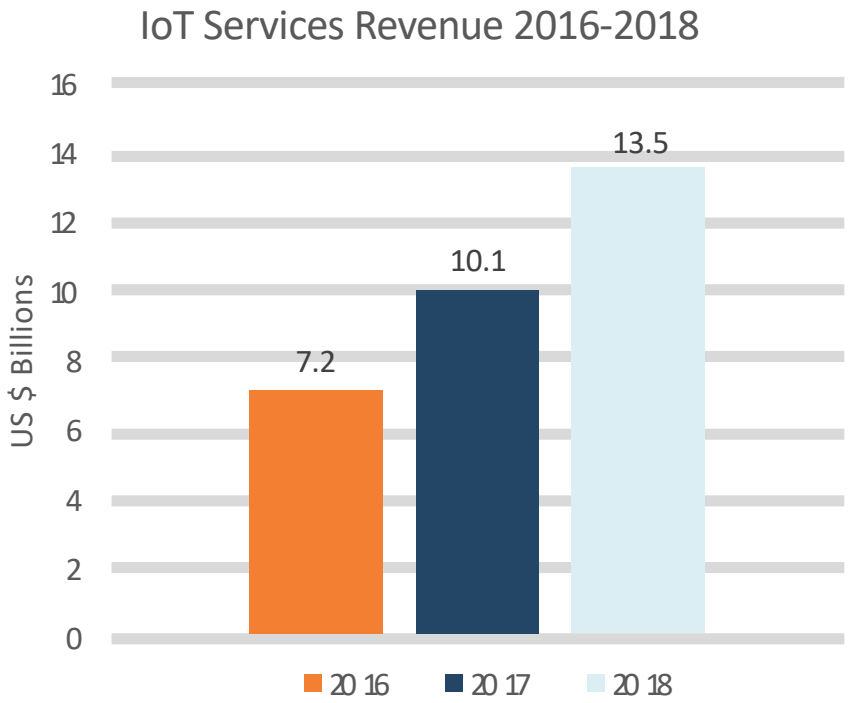
IoT Services: Executive Summary (2)

- There are considerable M&A and partnering activities among the IoT service providers in order to build ecosystems and increase domain expertise.
- Outcome-based pricing represents 10% of pricing models employed for IoT projects. Customers look for their services partner to share risk by having a stake.
- There is a shortage of software engineers, causing delays in projects.
- There is a considerable focus on security, regulation, and privacy with engagements.
- The service providers report that the demand for voice-based interfaces is high, due to the increased popularity of Amazon's Echo and similar personal digital assistants.
- The service providers are developing standardized solutions for all sorts of applications including factories, hospitals, smart cities, smart homes, and cars.
- We assessed 27 major IoT services providers across execution and innovation. IBM, Accenture, Infosys, TCS, EY, HCL, Tech Mahindra, Atos, KPMG, Wipro, HARMAN and LTTS emerged in the Winner's Circle.

Key Market Dynamics

IoT Services Is a US $10 Billion Market Growing 30% Annually

- The IoT professional services market was worth $10 billion in 2017.
- It grew 30% over 2016 and is expected to do the same again this year.
- Its more than 100,000 engineers and services personnel completed around 10,000 projects for 8,000 clients.
- Fifteen of the top players covered in this report did over 200 projects in 2017, and five did over 1,000. Experience is increasing rapidly.
- The market for IoT services is robust and growing strongly. The number of service vendors is increasing. We estimate that there are over 2,500 firms offering some level of IoT enablement services to anyone that wants them; the 27 covered here are the biggest.



Methodology

Market sizing and growth rates base on surveys completed by the largest 27 service provider firms and data extracted from annual report analysis.

Enterprises Use IoT to Save Money or to Make Money

- **Enterprises save money by:**
  - Maximizing productivity through maintaining production up-time;
  - Reducing cost;
  - Reducing waste.
- **Enterprises make money by:**
  - Understanding sales patterns better and improving demand forecasting;
  - Enhancing customer experience, thus improving retention;
  - Achieving faster time to market.

By gathering data on a "thing" (such as a car, a piece of factory machinery, or even a person), you can deduce its current state-of-being, trends about it, and its environment. By analysing the data, you can deduce whether or not its doing what you want it to and if it's in a place you want it to be. Factories have been doing this for decades, but now it has become so cheap to connect things wirelessly that a whole new world of possibilities has opened up.

The IoT Services space is still nascent despite tremendous technological advancements

- **The technology is very fragmented, and so is service provision.** A service provider must partner with platform providers, device suppliers, telecoms firms, cloud services vendors, and vendors of new technologies and techniques (such as AI, analytics, AR/VR, and robotics), to provide the "customer solution". Thus, service providers talk of IoT ecosystems and partnerships.

  Partners may also compete for other aspects of a provider's services. So, the market is nascent and very fragmented. Considering that IoT's potential as part of the digitalized society is seen as virtually limitless, providers believe that they *must* succeed in this sector. Deployment and management of IT may be "bread and butter" for service providers, but digitalization is the future!

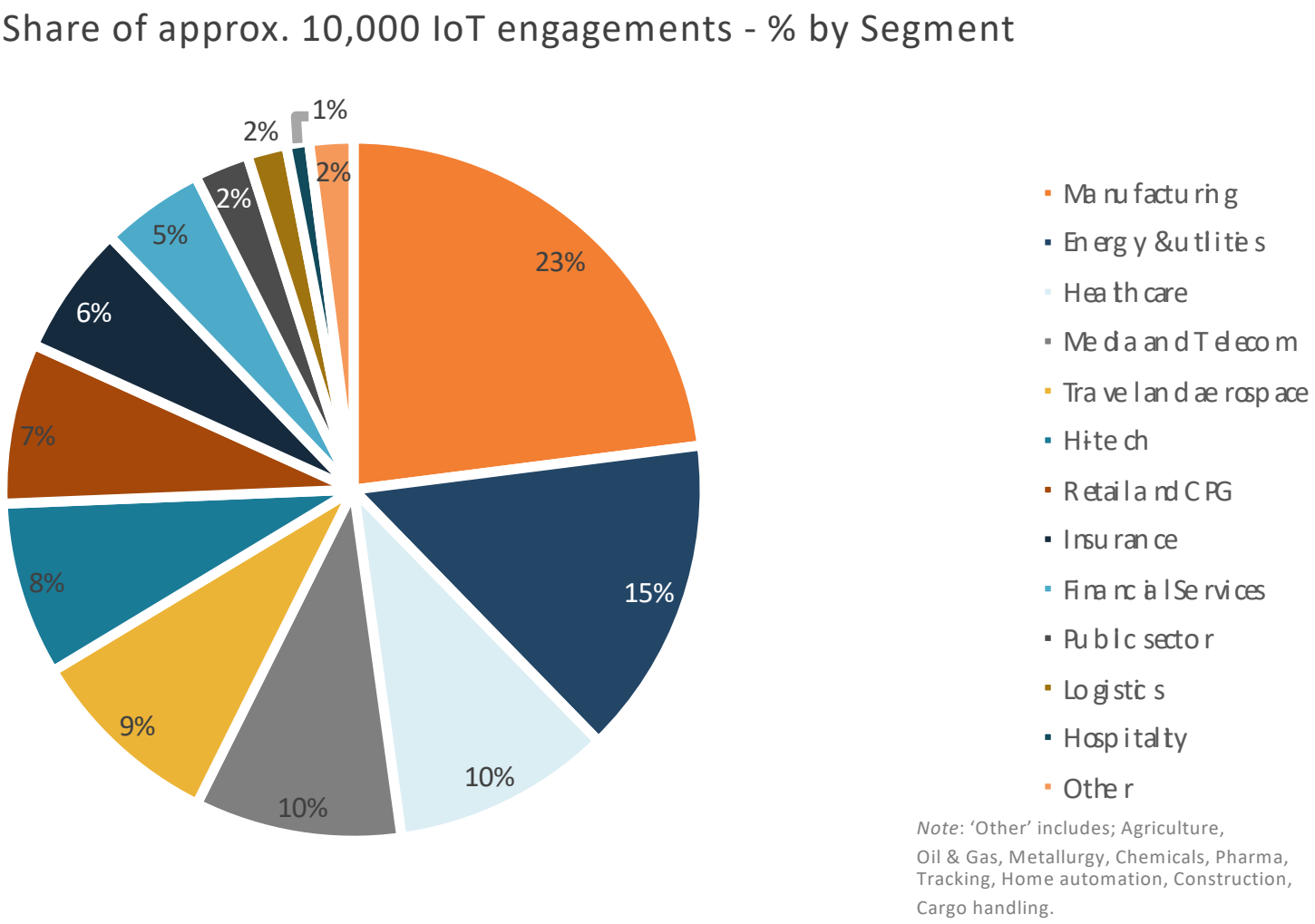
- **Platforms standards have not yet emerged.** The Internet of Things has experienced tremendous advances in the past 18 months in every aspect: standards, platforms, techniques, infrastructure, devices, architecture, security, ecosystems and partnership networks, communications standards, acquisitions, practical project experience, diversity of application, and integration with "new" technologies.

  But, we are light-years away from the world of PCs and IT in standardization. For example, IoT platforms are analogous with personal computer operating systems; Windows and mac OS dominate the world of personal computers. By comparison, the service providers indicated that they had used over 30 different IoT platforms last year.

The IoT Services space is still nascent despite tremendous technological advancements (2)

- **Clients continue to face a number of adoption challenges.**
  Here are the main reasons why IoT projects don't proceed beyond the Proof of Concept (PoC) stage:
  - People and their reluctance to change—cultural inertia
  - Multiple stakeholders with no clear decision-making authority
  - Infrastructure—some legacy systems are incompatible with new requirements, and the cost involved in re-equipping is high
  - Lack of understanding of the ROI
  - Ecosystem complexity caused by the large number of parties involved
  - "IoT is still in its infancy"—perceived risk from lack of standards
  - Lack of sufficiently skilled people to implement and run new processes
  - Concerns over security
  - Deployment challenges when large numbers of "things" are involved
  - Complexity of making sense from the huge amount of data generated.

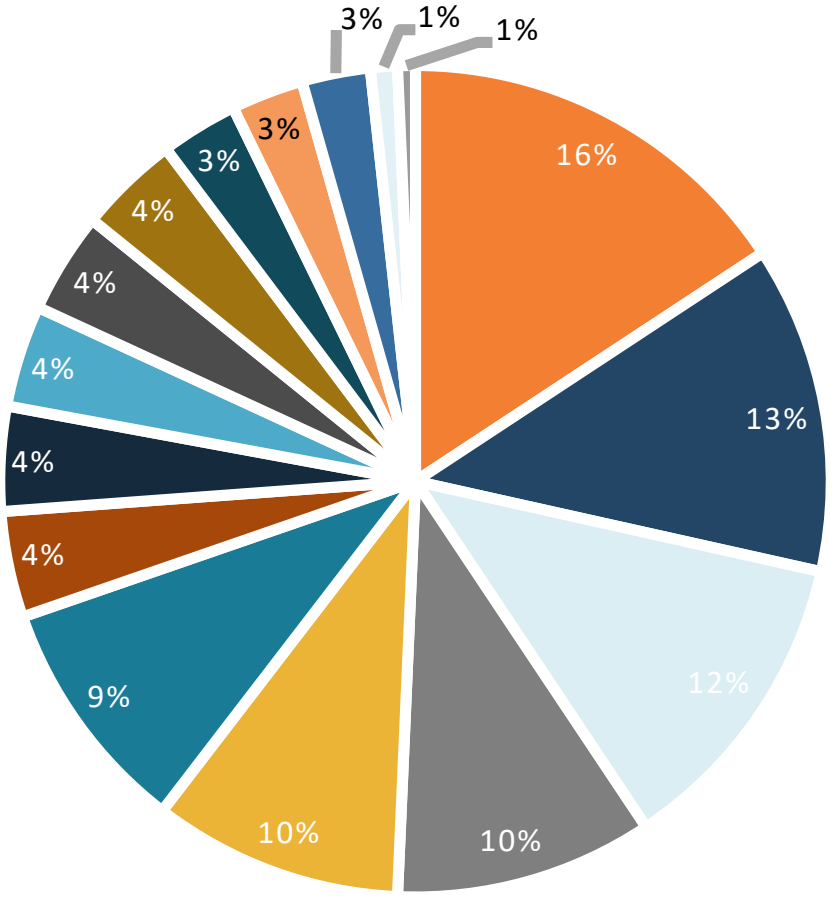
Manufacturing, Energy & Utilities, Healthcare and Telecomms are the largest adopters of IoT services, accounting for ~60% of the market



Note: 'Other' includes; Agriculture, Oil & Gas, Metallurgy, Chemicals, Pharma, Tracking, Home automation, Construction, Cargo handling.

Developing service platforms, security and compliance, smart wearables, asset connectivity and monitoring, and smart factories are the top use-cases of IoT

Share of approx. 10,000 IoT Engagements - % by type of IoT use case

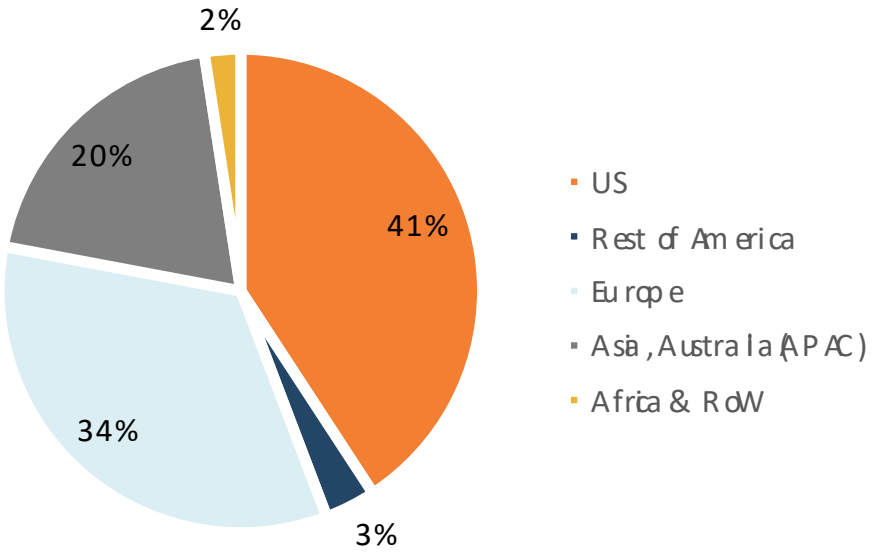


- Service platform
- Security and compliance
- Smart wearable
- Asset connectivity and monitoring
- Smart factory
- Asset enablement and optimization
- Smart city
- Smart car
- Supply chain
- Smart grid
- Smart retail
- Smart home
- Health monitoring
- Others
- Marketing
- HR

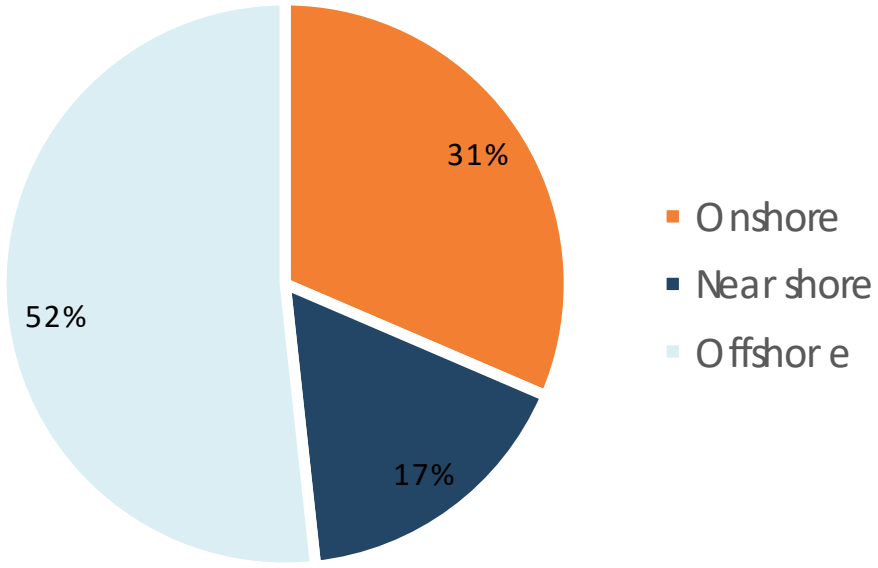
Note: 'Others' includes; Quality Inspection, HSSE, Corrosion Detection, Augmented Reality, RTLS, Blockchain, Connected Plant & Machinery, Smart Elevator ,Operational Excellence, Travel , Cargo Handling.

US represents the largest market for IoT services; ~50% of delivery is onshore/nearshore

IoT Services Client (Source) geography
% engagements



IoT Services delivery geography
% engagements



Sample set: Approx. 10,000 IoT Services engagements

Three Broad Go-to-Market Strategies Are Emerging: Full Service, Industry Focused, B2B vs. B2C Focused

- **Clients are getting more ambitious with IoT.** Particularly those that have been working with IoT for a decade or more, such as industrial manufacturing firms. They have the vision to see a completely digitalized organization and the massive ROI potential it could offer. One that uses digital operating principles and technology within the realms of their internal OT and IT, and as a basis for their product and service offerings. Thus, the bigger, more experienced service providers are gearing up for the challenge.

- **Three distinct market strategies** and tactics for service providers are emerging:

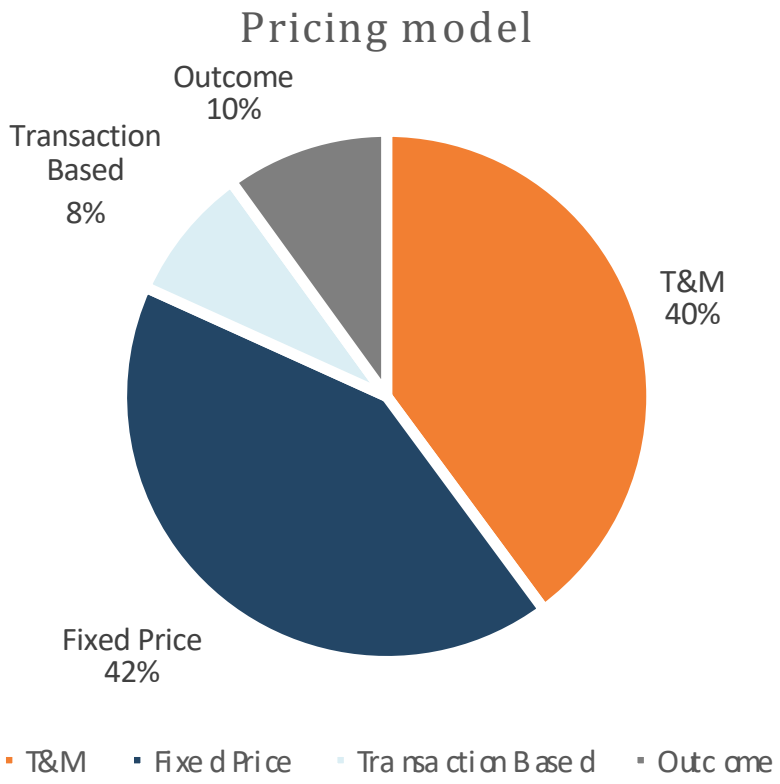
  — **Full service.** There are those who seek to provide full service, addressing all four aspects of the IoT Value Chain (e.g., Accenture, Capgemini, and Wipro). Others focus on their strengths in one or more elements (e.g., EPAM—productization, Altran—engineering and R&D).

  — **Industry focused.** There is particular specialization in one or more industries (e.g., Genpact—industrial IoT, NIIT Technologies—airline check-in and cargo handline, KPMG—smart cities, HARMAN—automotive).

  — **B2B vs. B2C focused.** Some target consumer, B2C, or smart home (e.g., Syntel, Happiest Minds), but most do not.

- **Increased levels of M&A and partnering to integrate new technologies and techniques**. IoT is but part of an organization's solution to digitally control processes, products, and services. It provides data on the "things" that must then be analyzed, processed, and displayed. Decisions must then be taken and actions implemented. To facilitate this, providers integrate artificial intelligence (AI), robotics, drones, augmented and virtual reality, voice interface, big data and analytics, cloud computing, blockchain, and various wearable technologies and materials into their solutions. The service providers compete with each other on capability and experience in using these new techniques and technologies. Some work with firms able to offer, for example, drones or advanced analytics, and consider it part of their IoT ecosystem. Others acquire these firms so that they have they have the knowledge in-house.

Most IoT Services leverage a T&M or Fixed-Price model, although outcome-based pricing is increasing



Sample set: Approximately 10,000 IoT services engagements done by 27 service providers.

- **Increased use of outcome-based pricing models.** Though outcome-based contracts represent only 10% of total engagements, some providers say that they are engaging in an increasing number of contracts that reward based on their customers' success, the number of transactions, or other aspects of the results of the engagement.

Emerging IoT Services Trends

- **Talent crunch.** The explosion in engagements is stretching engineering staff to the limit. Service providers are turning to acquisition to meet demand. Pressure is being applied to governments to expand engineering teaching in order to produce more qualified students.
- **Increasing demand for voice control.** As Amazon's Echo voice-based personal digital assistant (PDA) and the rapidly expanding range of competing devices take hold, service providers report a big growth in demand to incorporate voice interfaces into IoT projects.
- **Platform standardization.** Service providers are creating standardised offerings for specific verticals. These comprise IoT operating platforms and related ecosystem elements (robotics, AI, AR/VR, etc.) for factories, hospitals, smart cities, smart homes, cars, and so on. Customers tend to prefer industry-standard open platforms to the proprietary offerings that some providers have developed. Among the open platforms, Microsoft Azure was the most poplar last year, followed by IBM Watson, Amazon AWS, GE Predix, and PTC Thingworx.
- **Design thinking around the customer experience.** As already noted, it is wrong to think of IoT in isolation from the digitalization revolution that it is part of. Digitalization solutions need to address the user experience: how the human interacts with a new product, process, or service. So, service providers are investing in and acquiring design consultancies. These firms are skilled at thinking about how humans interact with their environments and take this into account in product design.
- **Greater focus on security, regulation, and privacy.** Service providers now address security in every facet of their solution: the IoT platform, sensor modules, communication infrastructure, cloud services, and IoT gateways. Security is on everyone's mind, as it should be. Providers must keep pace with this rapidly evolving area, as governments scramble to keep pace with the tech sector. Europe introduces its General Data Protection Regulation (GDPR) in May 2018, for instance. It has far-reaching consequences for businesses dealing with or operating in the EU. Data that is produced on an individual, like pedometers and location trackers, will be subject to increasing regulation such as the GDPR.

Research Methodology

Blueprint Research Methodology

Data Summary:

- Data was collected in Q4 2017 and Q1 2018, from buyers, providers and advisors/influencers of IoT services.
- Around 2,700 data points were collected, covering 27 major service providers.
- Revenue distribution of industry, value chain, and solutions is estimated by HfS.

Participating Service Providers:

This Report Is Based On:

- **Tales from the Trenches:** Interviews were conducted with buyers who have evaluated service providers and experienced the services. Some contacts were supplied by service providers, but many interviews were conducted by leveraging HfS' extensive network.
- **Sell-Side Executive Briefings:** Structured discussions with service providers to evaluate innovation, execution, market share, and deal counts.
- **Publicly Available Information:** Evaluations also include financial data, website information, and presentations given by senior executives, as well as other marketing collateral.

HfS IoT Services Blueprint scoring percentage breakdown

EXECUTION	100%
Scale of Operation	25%
Productization, Deployment and Operations strategy	10%
Capability of IoT Ecosystem	30%
Client Feedback on “Delivery” and Contract Structure	35%

INNOVATION	100%
IoT Strategy and Vision	30%
Client feedback on Experience and Innovation	30%
Breadth of Engagement Experience	15%
Experience in Integrating AI, VR/AR, drones, Advanced Analytics, Wearable Tech, Voice, etc.	25%

Execution criteria definitions

EXECUTION	How well does the service provider execute on its contractual agreement, and how well does the provider manage the client/provider relationship?
Scale of Operation	The SP's capability to deliver. It's global-ness (delivery organisation and customer distribution), and size of IoT practice as measured by the number of engagements done, revenue, and FTEs employed.
Productization, Deployment and Operations Strategy and Capability	An SP's offering in each of these categories, as listed on page five of this report.
Capability of IoT Ecosystem	An SP's partnerships and in-house capabilities. Its access to the popular IoT platforms.
Client Feedback on "Delivery" and Contract Structure	We interviewed clients and ask them to rate their SP on their delivery performance – meeting deadlines and delivering on commitments. We also asked them to rate their contracts: did the SP show flexibility around the terms, and pricing of the engagement. Were they prepared, for instance, to consider some outcome-based models?

Innovation criteria definitions

INNOVATION	How well does the service provider innovate its offering(s) in response to market demand, client requirements, and its own vision for how the Internet of Things services market will evolve?
IoT Strategy and Vision	What is the service provider's vision for the evolution of IoT and Digitalization? Is there a clear strategy for delivering a complete digital solution of which IoT forms a part? Do customers rate the services as innovative? Are there examples of innovation in engagements, as shared by customers and service providers? How are service providers leveraging their external ecosystem and partnerships? Are service providers leveraging thought leadership to educate and influence customers and stakeholders?
Client feedback on Experience and Innovation	We asked clients to rate the experience their SP demonstrated in using IoT, and whether they displayed any innovative approaches and solutions to challenges during the project.
Breadth of Engagement Experience	The breadth of experience the SP has with different industries (manufacturing, automotive, Healthcare….), and with different applications (asset tracking, robotic process control, street lighting…).
Experience in Integrating AI, VR/AR, drones, Advanced Analytics, Wearable Tech, Voice, etc.	Has the SP used any of the new technologies and techniques in projects? How many have they done? Have they partnerships, alliances or acquisitions in this space?

Service Provider Grid

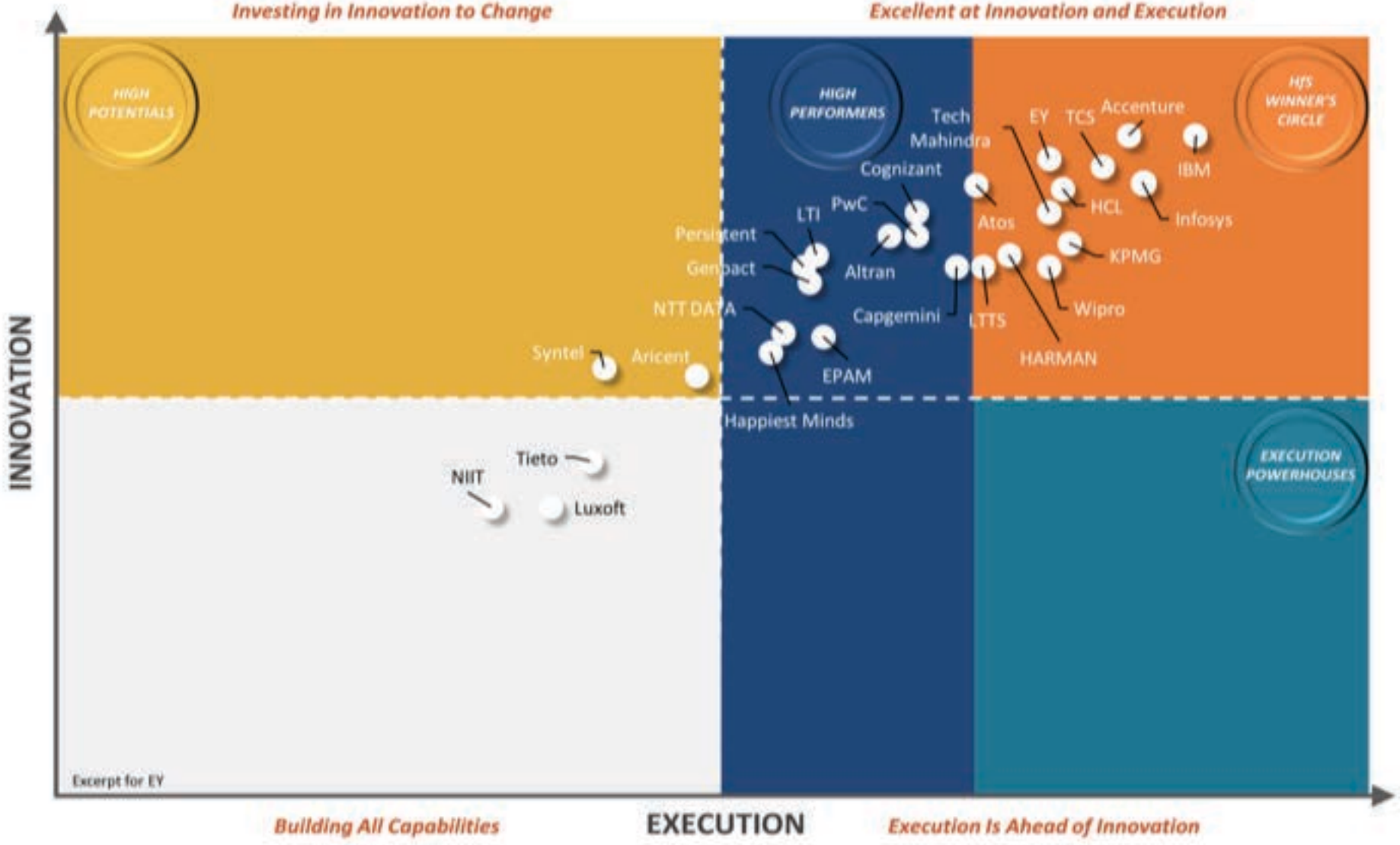
HfS BLUEPRINT REPORTS

Guide to the Blueprint Grid

To distinguish service providers that show excellence in both Execution and Innovation of IoT/Digitalization projects, HfS awards these providers the "Winner's Circle" designation.

	EXECUTION	INNOVATION
Winner's Circle show excellence recognized by clients in the 8 Ideals in execution and innovation	Collaborative relationships with clients, services executed with a combination of talent and technology as appropriate, and flexible arrangements.	Articulate vision and a "new way of thinking," have recognizable investments in future capabilities and strong client feedback, and are driving new insights and models.
High Performers demonstrate strong capabilities but lack an innovative vision or momentum in executing the vision	Execute some of the following areas with excellence: worthwhile relationships with clients, services executed with "green lights," and flexibility when meeting clients' needs.	Typically, describe a vision and plans to invest in future capabilities and partnerships for As-a-Service, and illustrate an ability to leverage digital technologies and/or develop new insights with clients.
High Potentials demonstrate vision and strategy but have yet to gain momentum in executing them	Early results and proof points from examples in new service areas or innovative service models but lack scale, broad impact, and momentum in the capability under review.	Well-plotted strategy and thought leadership, showcased use of newer technologies and/or roadmap and talent development plans.
Execution Powerhouses demonstrate solid, reliable execution but have yet to show significant innovation or vision	Evidence of operational excellence; however, still more of a directive engagement between a service provider and its clients.	Less evident vision and investment in future-oriented capability, such as skills development, "intelligent operations," or digital technologies.

HfS Blueprint Grid: Internet of Things Services 2018



Major service provider dynamics: highlights

EXECUTION

- **IBM:** Provide end-to-end Digitalisation services. They bring immense resources to bear through IBM Watson. Their pricing models offer considerable flexibility. Engineering work is tested thoroughly to ensure it is fool proof.
- **Infosys:** Infosys has a well thought through execution strategy. The network of experts they draw on is impressive. Ability and preparedness to learn is strong. They are keen to engage and have a strong work ethic.
- **Accenture:** Has completed thousands of engagements. They have deep enterprise and industrial expertise. They have made a large number of acquisitions, and built an extensive network of partners, thus enhancing their capabilities.
- **TCS:** As one of the largest Indian heritage IT service providers, TCS has the heft to drive large-scale IoT initiatives. From end-to-end visualization capabilities through to sophisticated IoT device work, TCS has tremendous breadth and depth in industrial-scale IoT work. .
- **KPMG:** KPMG's understanding of Smart City is strong. They are professional, responsive and supportive. They coach clients to ensure steady state operations after they complete engagements. KPMG's technical skills are impressive.
- **HCL:** HCL have been involved in industrial deployment of sensors for over a decade. Since before the term IoT came about. They are focused, flexible, and their technical knowhow is excellent.

INNOVATION

- **Atos:** Atos offers a phased approach to Industry 4.0 transformation, across customer-driven product lifecycles, integrated enterprise management and orchestration, and optimized supply chains.
- **Cognizant:** Cognizant has a strong IoT consulting presence and an advanced analytics team. Cognizant are known for their COTS (customer of the shelf) approach, and seek to apply this to their IoT solutions wherever possible.
- **Altran:** Altran is focused on Engineering and R&D services thus making productization in value chain stronger. Altran leverages multi-domain knowledge, technological expertise and innovative thinking to reinvent the manufacturing process.
- **PwC:** PwC is considered a thought leader and contributes considerably in field of IoT. They are technology-agnostic giving them ultimate flexibility in choosing who to partner with. PwC's intellectual property in advanced analytics, big data, and IoT present is world-leading.
- **HARMAN:** Through Samsung's ownership, and their IoT experience they have developed expertise in consumer products and connected cars. Harman Ignite IoT platform is capable, and their IoT Gateways performs well. There is much developing at HARMAN through the Samsung link.
- **LTTS:** LTTS combine an engineering and IT mindset. They have great technical depth. They are innovative and process driven. LTTS has an impressive set of technology partners.

Service Provider Profile

EY
Winners Circle

A strong global brand that has gained considerable IoT engagement experience.

Blueprint Leading Highlights

- One of the world's largest consultancy firms, with global presence.
- Great IoT experience
- They are technology-agnostic giving clients ultimate flexibility.
- Orchestrate an extensive partner network.

Value Chain Coverage:

- **Strategic consulting**
- **Productization**
- **Deployment**
- **Operations**

Strengths

- **"Big Four" accounting firm:** EY is one of the world's largest consultancy firms, which gives it vast access to client geographies across the globe, supported by an expansive capacity for global service delivery which can be leveraged.
- **Emerging technology group:** IoT linkage with other emerging technologies including blockchain forms part of emerging technology group.
- **IoT Experience:** EY has great IoT experience with over 500 engagements completed. EY is considered a thought leader and has made a significant contribution to the IoT movement.
- **Proprietary IoT Assets:** EY's IoT platform, accelerates speed-to-insights by operationalizing analytics quickly and cost effectively on an analytics-as-a-service platform. By adding EY capabilities around the behavioural aspects of analytics, it delivers scope and scale of analytics to clients. Other proprietary IoT assets include: Digital Factory Apps, Condition-Based Maintenance Application (CBM), Manufacturing Energy Management Solution (MEMS), Soft Sensors, and Intelligent Asset Management.
- **Partnership ecosystem:** They are technology-agnostic giving them, and their clients, ultimate flexibility in choosing who to partner with.
- **Engagement Strengths:** EY are good at advising and guiding throughout a project. And, they excel at taking the customer viewpoint in all things.

Challenges

- **Brand recognition:** EY has a strong reputation in the consultancy space, supported by a history of delivering business outcomes. They must establish the same reputation in IoT.
- **Conflict of interest:** EY may be prohibited to provide IoT services to audit clients. This is true for all Big Four accounting firms**.**
- **Delivery model:** We estimate that EY's delivery model is 50-75% onshore and 25-50% near/offshore. They juggle providing a high Value-Add service with cost control**.**

Relevant Acquisitions and Partnerships

- 2017: Acquired etventure, to strength their clients digitalization process
- 2015: Acquired EY NorthPoint to boost EY's digital capabilities
- 2015:Acquired EY Seren & EY Intuitive to strength digital design and innovation of customer service and experience
- 2015:Acquired C3 to form EYC3 to boost EY advanced analytics capabilities.
- 2015: Entegreat acquisition brought robust IoT capabilities and assets in the manufacturing sector.
- Partnerships with:
  - GE
  - Microsoft
  - IBM
  - SAP
  - Cisco
  - PTC
  - P&G
  - Nokia

Key Clients

Client split by geography: Not disclosed

Vertical specialization includes:

- Manufacturing ,Hi-Tech, Media & Telecom, Travel & Aerospace, Logistics, Hospitality, Retail, CPG, Financial service, Insurance, Healthcare , Energy & Utilities , Public sector ,Oil & gas , Chemical, Pharma, metallurgy

100+ clients including:

- leading bank in Australia
- Major municipality in RSA

Global Operations Centers

- **Headcount:** 2000+ FTEs
- **Customer experience centers**:
  17 "Wavespace" centers including 3 dedicated to IoT in Warsaw, Paris, Trivandrum. Plus IoT labs in Germany,
  Australia, Singapore, Korea, China, Puerto Rico, Chile, Brazil, USA.
- **Locations**: Delivery breakdown by FTE percentage (HfS estimates):
  - America : 30%
  - APAC: 20%
  - EMEIA: 40%
  - Japan:10%

Key Proprietary Technologies

- EY's Global IoT Network of Excellence – A global and adaptive network, which consists of the center node and capability pools from technology, cyber, analytics, digital and supply chain & operations.
- EY's IoT Offering: End-to-end service covering all four elements of the IoT Value Chain.
- EY's IoT Accelerator Framework: Helps to establish new ecosystems and accelerate IoT business models, solutions and prototypes.
- EY's OT/ IoT Technology Tree: A simplified and aggregated model presenting the most popular classes of OT, IT and IoT technology elements available on the market in a succinct form.
- EY Synapse - EY's proprietary IoT platform, accelerates insights by operationalizing analytics.
- EY proprietary IoT assets: Digital Factory Apps, Condition-Based Maintenance Application (CBM), Manufacturing Energy Management Solution (MEMS), Soft Sensors, Intelligent Asset Mgmt

Market Outlook and Recommendations

IoT Services: Outlook 2018

How is the IoT Services world set to evolve in 2018? The answer: much as it did in 2017.

- Headline growth will exceed 30%, stretching resources.
- Technology capability will improve.
- More experience will lead to provision of improved and more standardized solutions from service providers, potentially at a lower cost to the client.
- Technology partnerships, acquisitions, and industry alliances will increase, though "standards" will seem even more elusive.
- Regulations will increase. Europe's GDPR will come into effect by the end of May 2018, requiring new rigor in data protection and management.
- The service providers will hone their go-to-market strategies as the business becomes more segmented. Thus, customers should be choosier when selecting a vendor, based on what they're looking to implement. (HfS can help, here.)

So, resulting from this research, what advice can we give to both customers and service providers? The next few slides summarize what we think customers should bear in mind when considering an IoT engagement. After that, we provide advice for service providers on how to improve client satisfaction.

Customer checklist when engaging a Service Provider

There is much experience to draw on from professional services firms if you are considering embarking on an IoT project. Here is a checklist of things to look for when choosing:

- Be outcome driven and expect your service partner to contribute to your vision.
- Choose a firm that has experience in solving issues of scalability and upgradability. Expect your partner to be willing to have a stake in the project's outcome if you desire.
- Think beyond simple goals like asset optimisation and cost reduction. Work with your service partner to consider how IoT might transform your enterprise. They should be able to draw on considerable experience to help you.
- In your ideation and visioning stage, consider solutions that could utilise artificial intelligence, virtual reality, augmented reality, robotics, voice interaction, drones, wearable tech, and so on. Good services firms have already completed contracts that have involved solutions using such technology.
- Analyse your competition. Have they started using an IoT-based approach yet? Can you gain advantage over them through use of IoT?

Customer checklist when engaging a Service Provider (2)

- Don’t underestimate the change to people and process that your IoT project will cause. This will generate push-back from all over your organisation, and could kill it. It is the single biggest reason projects fail.
- Consider security and privacy at every step of the project.
- Service providers are happy to offer a variety of IoT platforms to meet your needs—proprietary or standard. They can also customise to meet your needs.
- IoT is all about what you do with the data generated. Expect your services firm to have access to sophisticated analytics solutions and great visual display tools.
- Work with your service partner to think through the edge vs. cloud decision. Where should compute power and data storage reside? Take into account scaling and upgradability again.

Service providers—improving customer satisfaction

In conducting research for this report we contacted over 50 of the Service Providers' clients. We asked them to rate their provider on its **ability to deliver**, **IoT expertise**, **innovation,** and their **commercial model**. The scores were used as part of our calculations for the Blueprint grid. We also asked clients to tell us what their providers' top three **strengths** were, and three areas that the provider could **improve**. Here, we provide a summary of the top three issues that clients wanted to see the sector improve.

1. **Communication, guidance, and education.** The strongest feedback we received was about service providers' ability and willingness to communicate and to inform and educate their client. Clients often complained that from the outset that their provider didn't let them know what was happening. Clients are often not technology experts. They are looking to learn about the new system or process that is being developed to prepare themselves for change. Instead, as projects wound down, hand-off was often poor, with providers offering little or no training. Processes weren't documented adequately.
2. **Lack of domain knowledge.** IoT is set to touch every aspect of life. It's impossible to expect that a service provider could have the customer's deep domain knowledge of, say, cars or wood pulp processing. Yet, customers expect their provider to be willing to listen and learn. We did come across cases where the provider didn't understand their customer's domain well enough, so they hired in the necessary skill. Bravo!
3. **Cumbersome internal process.** Customers complained that the providers' internal processes were intrusive and that the providers could be slow, over-planned, or lost the big picture. In some cases, the customers said the providers' internal structure seemed to be getting in the way. In others, the delivery operation was remote and didn't communicate well, leading to delays and mistakes.

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Overview

- More than 15 years' business experience in buy-side, sourcing advisory, delivery, and industry research in the global outsourcing industry across the US, Europe, and Asia
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IoT Research Agenda 2018

Timeline	Horizon 1: Act now	Horizon 2: Watch out	Horizon 3: Investigate
Q1 2018	• BP: The Internet of Things • POV: IoT Services – A Customer's Top 10 Considerations for 2018 • POV: The Four Hot-buttons of Customer Satisfaction		
Q2 2018	• POV: What makes a good IoT Service Provider? • POV: IOT Heatmaps by industry and use-cases • POV: Trends in IoT platform usage	• POV: Why does a customer select different service providers for each of their IoT project? • POV: How will IOT influence Triple-A Trifecta?	• POV: Are we poised for a period of huge M&A activity in IoT? • POV: Why is Telecom not making much money from IoT?
Q3 2018	• BP: IoT services in Industrial Manufacturing • POV: What comprises a true end-to-end IoT offering?	• Why do IoT projects go wrong • POV: What trends are emerging in commercial engagement models?	• POV: What will 5G bring to IoT?
Q4 2018	• What are the proven business benefits of IoT? • POV: Voice of the Customer for IOT Services in Industrial Manufacturing	• POV: How Blockchain enhance IoT Security	• Emerging Market Guide: Augmented/Virtual Reality (AR/VR) • POV: Is there enough Storage capacity to cope with the IoT?

The HfS Mission: Defining Future Business Operations

The HfS mission is to provide visionary insight into the major innovations impacting business operations: Automation, Artificial Intelligence, Blockchain, Internet of Things, Digital Business Models and Smart Analytics.

HfS defines and visualizes the future of business operations across key industries with its OneOffice™ Framework.

HfS influences the strategies of enterprise customers, to help them develop OneOffice backbones to be competitive and to partner with capable services providers, technology suppliers, and third-party advisors. The "As-a-Service Economy" and "OneOffice" are revolutionizing the industry.

Read more about HfS and our initiatives on our website.