HfS Blueprint Report

Internet of Things (IoT) Services
Excerpt for NTT Data

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Executive Summary

Introduction to the HfS Blueprint Report: Internet of Things (IoT) Services

- The Internet of Things (IoT) Services HfS Blueprint Report is a first take at the emerging value chain of services developing from service providers which are addressing this potentially huge and transformative technology stack. Unlike other quadrants and matrices, the HfS Blueprint identifies relevant differentials between service providers across a number of facets under two main categories: innovation and execution.
- HfS is emphasizing the emerging nature of IoT with 55% of the total Blueprint scoring linked to innovation based evaluation criteria.
- HfS Blueprint Report ratings are dependent on a broad range of stakeholders with specific weightings based on 1,109 stakeholder interviews from the 2014 State of Outsourcing Survey that covered:
  - Procurement Outsourcing Enterprise Service Buyers
  - Procurement Outsourcing Service Providers
  - Procurement Outsourcing Industry Influencers (sourcing advisors and management consultants)
  - HfS Sourcing Executive Council Members with Procurement engagements
  - HfS Research Analysts with hands-on Procurement knowledge and experience

HfS Definition for the Internet of Things (IoT) Services

HfS Defines IoT As:

1. The association of data to a physical device and,
2. The delivery of this data from that device to a centralized repository for further processing.

Note: The devices delivering the data may or may not create the data themselves and may or may not process the information prior to delivery. i.e. These 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 windmill processing data onsite regarding its power generation. Further, the communication of the data may be done via a combination of wired and / or wireless networks. These networks can be either open or private and while this communication is often carried out via IP protocol, it is not a requirement. As a result, IoT includes a broad set of activities some of which have been ongoing for decades such as certain aspects of industrial control.

HfS defines IoT Services as any service provider engagement directed at developing associated strategy for enterprise embrace of IoT and / or assisting an enterprise gather data associated with a physical asset and communicating that data to a centralized platform for the purpose of deriving insight into how it may raise operational efficiency or increase revenue through the creation of new products or services. The critical starting point for most IoT Services engagements is a business problem or need.

Why This HfS Blueprint on IoT Services Today?

A debate has begun to rage across the technology landscape today regarding IoT. Is it or is it not the next big thing for Enterprise IT?

Semi-pessimists view IoT as largely an industrial focused opportunity where big assets are better monetized and controlled via intelligent digital interfaces. These folks see IoT as nothing new and - while an important trend - not one to get overly excited about. Optimists, typically those who more recently turned their attention to IoT, maintain a broader vision that hones in on what is possible rather than probable.

Often with these debates the final level of activity rests somewhere between the two. This time, however, we see one of those rare exceptions when reality may likely surpass the expectations of both. The reason is twofold:

- First, the definition of IoT is expanding. This is because IoT is not a technology market but a go to market concept that incorporates the deployment of core emerging technologies already being actively deployed today. Big Data, Analytics, Mobility, and Cloud are all enablers of IoT and this allows – even requires – it to become a unifying theme.
- Second, the scope of what is probable is on the rise. As the cost of creating, gathering and analyzing data continues to drop, conversely the business cases for doing so continue to expand. As a result IoT is beginning to touch every industry, and we anticipate this will accelerate in 2016+.

Key Highlights: The State of the IoT Services Market

- **Proofs of Concepts (PoCs) lead the market.** Today the discussion is led by disruptors embracing IoT – from consumer applications like Uber and Airbnb to industrial uses such as GE's revamp of the airline engine business – but the current market reality has few enterprises embracing IoT beyond a few core areas that has been operating in this fashion for years. (Think factory automation.) Yet complacency is to be avoided. HfS has seen a explosion in PoCs during 2015 and expect many of these to go into production during 2016.
- **There is nothing close to a consensus on IoT services.** Service providers are approaching the IoT opportunity from every conceivable angle. Not only is it of an amorphous nature but IoT bridges multiple competencies currently housed within different practice lines. Needing to tap engineering, analytics, mobility and cloud, individual service providers are being pragmatic with approaches and this means each is defining it so that it leads with the most relevant capabilities.
- **Systems Thinking may be the next big skill.** The ability to generate and gather data on a broad range of physical assets and interactions will only yield value if the right insight and action can be understood. Systems thinking combines a mix of art and science that is well suited to this challenge and HfS expects an uptick in interest as enterprises look to grasp the opportunities available to them via IoT.
- **IoT opportunities requiring competitors to collaborate.** Getting value from IoT means harnessing "the network effect" where the value of individual inputs takes on more meaning as the number of inputs grow, it is IoT. Platforms that integrate data from multiple sources will be the ones that yield greatest value. Manufacturers and service providers will need to be open with APIs if the offerings are to be tied into the emerging new web.

Key Highlights: The State of the IoT Services Market (Continued)

- **Learning to partner becoming a key skill.** For traditional IT service providers, the complexity surrounding IoT will drive each to partner with a broader range of companies and as each does it will heighten its ability to do so well as a key differentiator. There is nothing close to a set of IoT standards today and likely never will be for years as the broad range of sensor, network and data protocols all make sense within the unique markets for which they have emerged. Therefore, stitching all this together quickly will be a key need and it does not make sense for any one firm to develop expertise in it all.
- **Risk has become a third dimension of go / no-go alongside value and cost.** Enterprise buyers are advised to look at overall risk as a key criteria in the decision whether to pursue a strategy based on IoT. At a minimum, they need to ensure someone at their firm is taking a holistic view of risk and security so as to prevent piecemeal parts of IoT from opening up vulnerabilities to the entire company in unforeseen ways.
- **Strategic nature of IoT today limiting leverage across clients.** Most enterprises embarking down the IoT path see it a strategic – whether in increased operating efficiency or allowing them to enter new markets or serve old ones in new ways. As such, enterprises are keeping the activities under wraps and requiring service providers to do the same.

Research Methodology

Research Methodology

Data Summary

- More than 1,080 data points were collected from more than 56 IoT Services contracts, covering 18 major service providers. There were others such as Wipro, HCL, HP and Capgemini whose IoT service offerings are still evolving and were not yet in a position to be included but which we will report on later.
- Data was collected in Q2-Q3 2015, covering buyers, providers, and advisors/influencers of IoT Services.

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 were supplied by service providers, but many interviews were conducted by HfS Executive Council members and participants in our extensive market research.
- **Sell-Side Executive Briefings:** Structured discussions with service providers were intended to collect data necessary to evaluate innovation, execution and market share, and deal counts.
- **HfS "State of Outsourcing" Survey:** The industry's largest quantitative survey, conducted with the support of KPMG, covering the views, intentions, and dynamics of 1,100+ buyers, providers, and influencers of outsourcing.
- **Publicly Available Information:** Financial data, website information, presentations given by senior executives, and other marketing collateral were evaluated.

IoT Services Value Chain

IoT Services are those that design, create, and manage a pathway for the physical world to enter the As-a-Service Economy by creating a bridge between hard goods (& services) and digital infrastructure.

IoT CONSULTING	IoT ENABLEMENT	IoT CONNECTIVITY	IoT INTEGRATION	IoT MANAGEMENT
• Strategic planning and business case development • Governance strategy • IoT technology roadmap (reference architecture) • Custom App Dev (dashboards, visualization, etc.)	• Product engineering • Sensor development • Software engineering • Embedded technology • Device security	• Network engineering • Network implementation • Network security	• Database design and build • Analytics Implementation • System integration • Application modernization	• Device management • Cloud hosting • Network management • Data security

IoT Services, however, do not include the following activities when conducted as a standalone service: deploying or operating analytics; implementing or running a data repository; developing or delivering a network; and creating or maintaining a physical device with the capacity to create and or / communicate data. Those standalone activities would be classified as Analytics, Big Data, Network Implementation, and Product Engineering Services, respectively.

Key to Services Maturity on the Service Provider Profile Pages

Relies on Partners
Less Mature Services
More Mature Services

Maturity is based off the full set of weighting criteria for IoT Services, and the five boxes are the five areas of the value chain

Key Factors Driving the HfS Blueprint

EVALUATION CRITERIA

Two major factors:

- **Execution** represents service providers' ability to deliver services. It includes but is not limited to:
  - Customer satisfaction
  - Tools and methodologies
  - Technology expertise
- **Innovation** represents service providers' ability to improve services. It includes:
  - Industry and Process expertise
  - Collaboration capabilities and partnerships
  - IoT specific offerings

CRITERIA WEIGHTING

Criteria are weighed by crowdsourcing weightings from the four groups that matter most:

- Enterprise Buyers
- Service Providers
- HfS Research Analysts Team
- Advisors, Consultants, and Industry Stakeholders

HfS IoT Services Blueprint Scoring Percentage Breakdown

EXECUTION			**45.0%**
Quality of Customer Relationships		15.0%	
Quality of Account Management Team	5.0%		
How Service Providers Incorporate Customer Feedback	10.0%		
Real-World Delivery Solutions		20.0%	
Proprietary Delivery Models	15.0%		
Standard Delivery Methods	5.0%		
Flexible Pricing Models to Meet Customer Needs		10.0%	
INNOVATION			**55.0%**
Future Alignment with Changing Market		25.0%	
Acquisition and Investment Strategy	5.0%		
Partnership Ecosystem	10.0%		
Collaboration and Development Techniques	10.0%		
Strength of Vision for IoT Services		15.0%	
Ability to Go Beyond Stage 1 (Digitization) in IoT		15.0%	
Creation of Proprietary Frameworks for Analyzing Needs	5.0%		
Industry Experience	10.0%		
TOTAL			**100.0%**

Blueprint Scoring Definitions: Execution

EXECUTION	How well does the service provider execute on it's contractual agreement and how well does the service provider manage the client/provider relationship?
Quality of Customer Relationships	**How engaged are service providers in managing the client relationship based on the following metrics: quality of account management, service provider / client engagement, and incorporation of feedback?**
Quality of Account Management Team	What is the quality level of professional skills in the account management team?
How Service Providers Incorporate Customer Feedback	How have service providers taken feedback and incorporated that feedback into offerings?
Real-World Delivery Solutions	**Does the solution provided compare favorably to peers with regard to value creation through current offerings, partnerships, subject matter expertise, and delivery models?**
Proprietary Delivery Models	What if any proprietary software platforms and process structures has the service provider created to deliver these services?
Standard Delivery Methods	What if any standard software tools and business platforms does the service provider utilized to deliver these services?
Flexible Pricing Models to Meet Customer Needs	**How flexible are service providers when determining pricing of contracts? Have the service providersaligned these terms with the unique demands around IoT projects?**

Blueprint Scoring Definitions: Innovation

INNOVATION	Innovation is the combination of improving both services and business outcomes.
Future Alignment with Changing Market	**How future looking is the service provider in terms of aligning itself – both in skills and offerings – with the evolving market demand? Is it keeping pace, a fast follower, or leading the way?**
Acquisition and Capability Development	How does the service provider incorporate capability development investments including acquisitions into its strategy and what has been accomplished already?
Partnership Ecosystem	What is the role of partnerships in the development of the service provider's solution ecosystem? How extensive is the current partnership ecosystem?
Collaboration Techniques	How well does the service provider collaborate with clients and partners to develop PoCs into full scale business solutions and IoT offerings?
Strength of Vision for IoT Services	**Does the service provider have a strong vision for services across the IoT value chain?**
Ability to Go Beyond Stage 1 in IoT	**How well have service providers integrated innovative new approaches and emerging skills and technologies into services? Does it also bring the core technology platform to assist an enterprise deploy the next level of IoT solutions?**
Creation of Proprietary Frameworks for Analyzing Needs	What if any proprietary frameworks does the service provider utilize to analyze the underlying business need?
Industry Expertise	Does the service provider have any industry IoT specific offerings? If so, what are the nature of these and how far advanced is it in building this area out?

Key Market Dynamics

IoT Services are Based on Realizing the Eight Ideals of the As-a-Service Economy

LEGACY OUTSOURCING	*Simplification*	AS-A-SERVICE ECONOMY
Resolve problems by looking first at the process	**1. Design and System Thinking**	Generate creative solutions by understanding the business context
Complex, often painful technology and process transitions to reach steady state	**2. Business Cloud**	"Plug and Play" business services
Fragmented processes requiring manual interventions, multiple technologies	**3. Intelligent Automation**	Blending of automation, analytics, and talent
Operations staff doing mostly transactional tasks	**4. Proactive Intelligence**	Operations focused on interpreting data, seeding new ideas
Ad-hoc analysis on unstructured data with little business context	**5. Intelligent Data**	Real-time applied analytics models, techniques, and insights from big data
Legacy technology investments drain budgets to remain functional	**6. Write Off Legacy**	Use of platform-based services makes many tech investments redundant
Governance staff manage contracts and service levels	**7. Brokers of Capability**	Governance staff manage towards business-driven outcomes
Pricing and relationships based on cost, effort, and labor	**8. Intelligent Engagement**	Pricing and relationships based on expertise, outcomes, and subscriptions

IoT Services are Incorporating the Ideals of the As-a-Service Economy

IDEAL	AS-A-SERVICE IDEAL DEFINITION	NON EXISTENT	INITIAL	EXPANSIVE	EXTENSIVE	ALL PERVASIVE
Design Thinking	Generating creative solutions by understanding the business context		**2015**			
Business Cloud	"Plug and Play" business services		**2015**			
Intelligent Automation	Blending of automation, analytics and talent			**2015**		
Proactive Intelligence	Operations focused on interpreting data, seeding new ideas				**2015**	
Intelligent Data	Real-time applied analytics models, techniques, and insights from big data				**2015**	
Write Off Legacy	Use of platform-based services makes many tech investments redundant		**2015**			
Brokers of Capability	Governance staff manage towards business-driven outcomes			**2015**		
Intelligent Engagement	Pricing and relationships based on expertise, outcomes and subscriptions		**2015**			

IoT Is Embedded in the HfS Digital Framework

AS-A-SERVICE IDEALS:

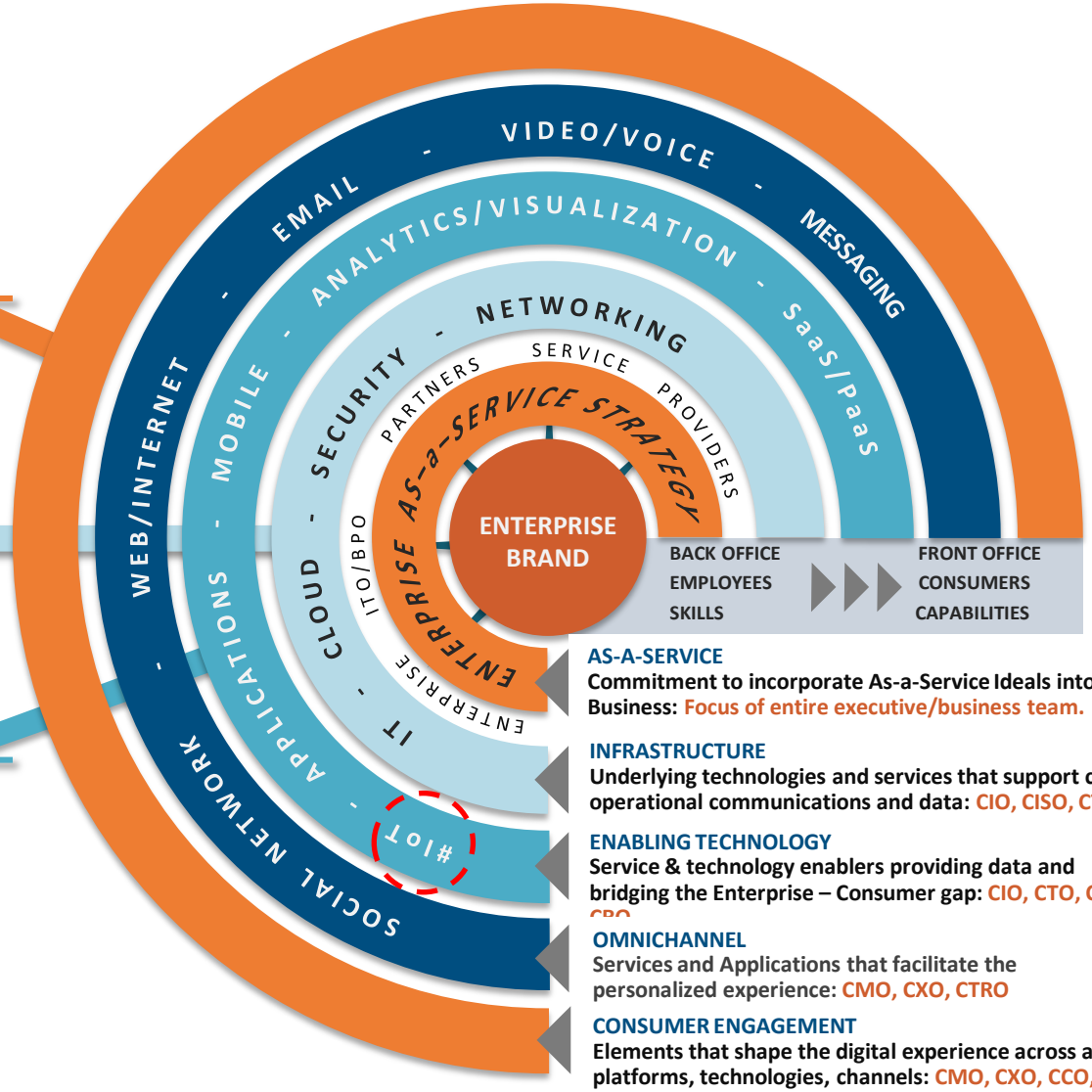
- Design Thinking
- Brokers of Capability
- Intelligent Engagement

AS-A-SERVICE IDEALS:

- Design Thinking
- Business Cloud
- Write Off Legacy

AS-A-SERVICE IDEALS:

- Design Thinking
- Intelligent Automation
- Intelligent Data
- Proactive Intelligence



AS-A-SERVICE
Commitment to incorporate As-a-Service Ideals into the Business: Focus of entire executive/business team.

INFRASTRUCTURE
Underlying technologies and services that support core operational communications and data: CIO, CISO, CTRO

ENABLING TECHNOLOGY
Service & technology enablers providing data and bridging the Enterprise – Consumer gap: CIO, CTO, CXO, CRO

OMNICHANNEL
Services and Applications that facilitate the personalized experience: CMO, CXO, CTRO

CONSUMER ENGAGEMENT
Elements that shape the digital experience across all platforms, technologies, channels: CMO, CXO, CCO, CTRO

THE 8 IDEALS OF THE AS-A-SERVICE ECONOMY:

1. Design Thinking
2. Business Cloud
3. Intelligent Automation
4. Proactive Intelligence
5. Intelligent Data
6. Write off Legacy
7. Brokers of Capability
8. Intelligent Engagement

AS-A-SERVICE ROLES:

- CEO: Executive
- CMO: Marketing
- CTRO: Trust/Risk
- CIO: Information
- CISO: Information Security
- CTO: Technology/Product
- CXO: Customer Experience
- CCO: Client/Consumer
- CHRO: HR/Talent

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IoT Services Value Chain

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Key to Services Maturity on the Service Provider Profile Pages

Relies on Partners
Less Mature Services
More Mature Services

Maturity is based off the full set of weighting criteria for IoT Services, and the five boxes are the five areas of the value chain

The Current Maturity of IoT Service Value Chain

CONSULTING	ENABLEMENT	CONNECTIVITY	INTEGRATION	MANAGEMENT
Strategic Planning and Business Case Development	Product Engineering	Network Engineering	Database Design and Build	Device Management
Governance Strategy	Sensor Development	Network Implementation	Analytics Implementation	Cloud Hosting
IoT Technology Roadmap (Reference Architecture)	Software Engineering	Network Security	System Integration	Network Management
Custom App Development	Embedded Technology		Application Modernization	Data Security
	Device Security			

Mature Competitive market with examples of service offerings and customer case studies from large number of service providers

Nascent Market in development with more limited examples of service offerings and customer case studies

The Current Maturity of Service Provider IoT Service Offerings

	CONSULTING	ENABLEMENT	CONNECTIVITY	INTEGRATION	MANAGEMENT
Accenture	More Mature Services	Less Mature Services	More Mature Services	More Mature Services	More Mature Services
Atos	More Mature Services	More Mature Services	More Mature Services	More Mature Services	More Mature Services
Cognizant	More Mature Services	Less Mature Services	More Mature Services	More Mature Services	More Mature Services
Dell	More Mature Services	More Mature Services	More Mature Services	Less Mature Services	More Mature Services
EPAM	Less Mature Services	More Mature Services	More Mature Services	More Mature Services	Less Mature Services
Genpact	More Mature Services	Relies on Partners	Less Mature Services	More Mature Services	More Mature Services
Harman	More Mature Services	More Mature Services	More Mature Services	More Mature Services	Less Mature Services
IBM	More Mature Services	More Mature Services	More Mature Services	More Mature Services	More Mature Services
IGATE	More Mature Services	More Mature Services	Less Mature Services	More Mature Services	Less Mature Services
Infosys	More Mature Services	More Mature Services	More Mature Services	More Mature Services	More Mature Services
Luxoft	Less Mature Services	More Mature Services	More Mature Services	More Mature Services	Less Mature Services
NiiT	More Mature Services	Less Mature Services	Less Mature Services	More Mature Services	More Mature Services
NTT Data	More Mature Services	Less Mature Services	Less Mature Services	More Mature Services	More Mature Services
TCS	More Mature Services	More Mature Services	More Mature Services	More Mature Services	More Mature Services
Tech Mahindra	More Mature Services	More Mature Services	More Mature Services	More Mature Services	More Mature Services
Tieto	More Mature Services	Relies on Partners	More Mature Services	More Mature Services	Less Mature Services
Unisys	Less Mature Services	Less Mature Services	More Mature Services	More Mature Services	More Mature Services
Virtusa	Less Mature Services	Less Mature Services	More Mature Services	More Mature Services	More Mature Services

Key to Services Maturity on the Service Provider Profile Pages

- Relies on Partners
- Less Mature Services
- More Mature Services

IoT Solution Examples Across Verticals

INDUSTRY VERTICALS	EXAMPLES
Aerospace	Connected Aerospace, Connected Repair Solutions
Automotive & Transportation	Connected Car, Insurance Telematics, Fleet Management, Connected Ship, Interactive Geospatial Solution, Connected EV Stations, Predictive Analytics to Reduce Maintenance & Warranty Cost,
Manufacturing	Connected Asset Management, Connected Workers, Remote Diagnostic & Predictive Maintenance for Industrial Machines, Stolen Asset Retrieval, Transparent Supply Chain, Connected Shopfloor
Buildings	Connected Home, Smart Energy, Connected Building
Agriculture	Precision Farming, Farm to Fork
Consumer Electronics	Smart Wearables, Subscription Enablement Platform, Authentication Applications For Wearables
Urban Infrastructure	Smart Parking, Smart Light, Smart Bin, Smart Waste, Digital Underground Mapping, Infrastructure Monitoring, Bridge Monitoring
Healthcare & Life Sciences	Connected Healthcare, Health Facility Way Finding, Virtual Care Platform, Patient Engagement Platform, Connected Patient, Emergency Management
Oil & Gas	Digital Oil Field, Smart Drilling, Smart Oil Transportation
Utilities	Smart Grid, Smart Metering, Connected Power Plant, Connected Solar Farm, Connected Wind Farm
Mining & Resources	Connected Mines
BFSI	Cryptocurrency, Block Chain Asset Management, Beacons for Commerce

Service Provider Grid

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Winner's Circle and High Performers Methodology

To distinguish providers that have gone above and beyond within a particular line of delivery, HfS awards these providers a "Winner's Circle" or "High Performer" designation. The below provides a brief description of the general characteristics of each designation:

WINNER'S CIRCLE:

Organizations that demonstrate excellence in both execution and innovation.

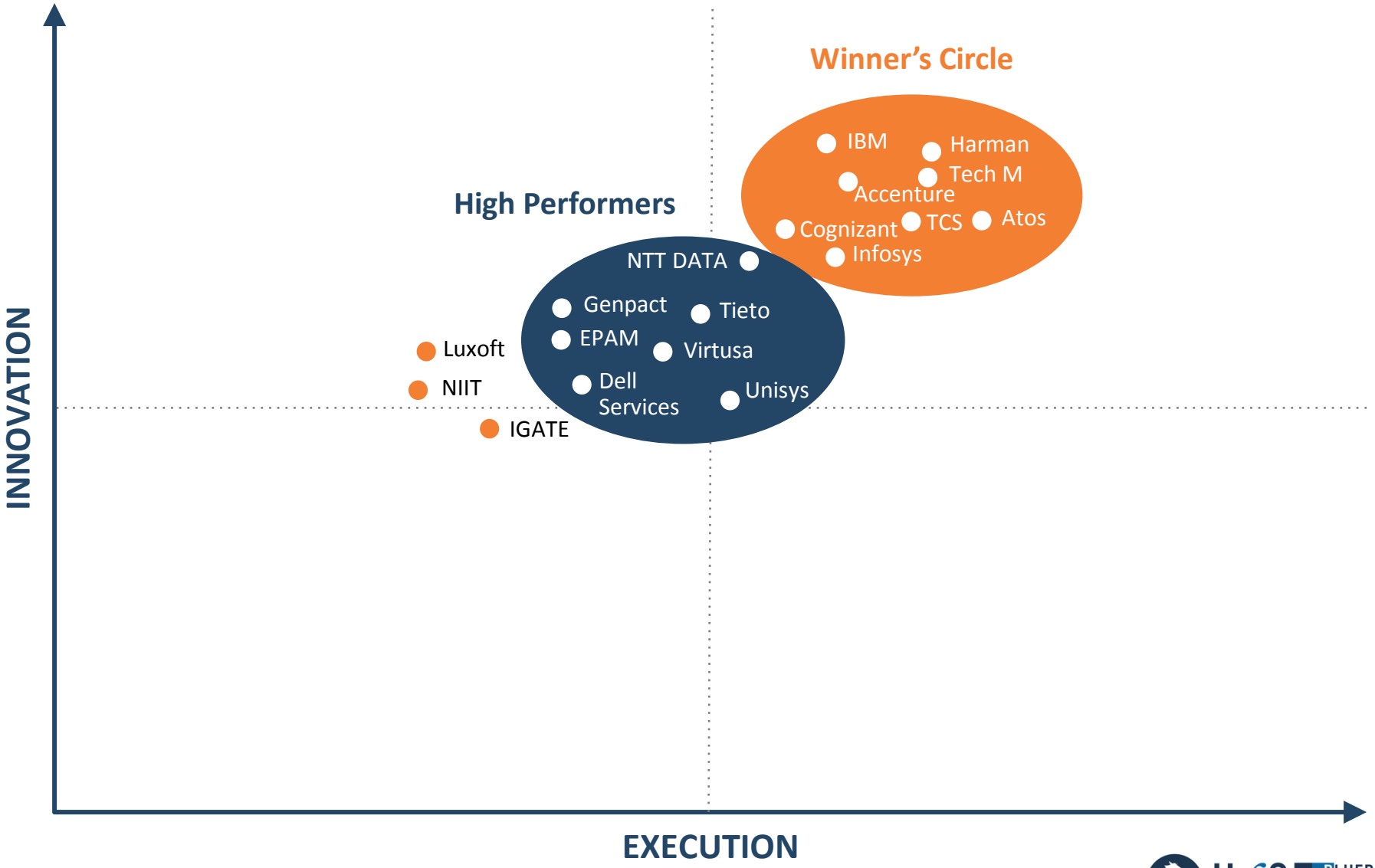
- From an ***execution*** perspective, providers have developed strong relationships with clients, execute services beyond the scope of hitting green lights, and are highly flexible when meeting clients' needs.
- From an ***innovation*** perspective, providers have a strong vision, concrete plans to invest in future capabilities, a healthy cross-section of vertical capabilities, and have illustrated a strong ability to leverage external drivers to increase value for clients.

HIGH PERFORMERS:

Organizations that demonstrate strong capabilities in both execution and innovation but are lacking in an innovative vision or execution against their vision.

- From an ***execution*** perspective, providers execute some of the following areas with excellence, but not all areas: high performers have developed worthwhile relationships with clients, execute services and hit all of the green lights, and are very flexible when meeting clients' needs.
- From an ***innovation*** perspective, providers typically execute some of the following areas with excellence, but not all areas: have a vision and demonstrated plans to invest in future capabilities, have experience delivering services over multiple vertical capabilities, and have illustrated a good ability to leverage external drivers to increase value for clients.

IoT Services Service Provider Matrix 2015



Major Service Provider Dynamics: Highlights

EXECUTION

- **Atos, Harman and Tech Mahindra all cited for their proprietary delivery models.** Many enterprise buyers cite their IoT initiatives as being strategic for the success of the firm and many are under significant pressure to progress their implementations quickly. Service providers that are already investing in IoT delivery models, ahead of engagements, are rapidly gaining the advantage over those which are relying on clients clients to fund their investments.
- **Atos, TCS, Accenture, NTT DATA, and Tech Mahindra already offer As-a-Service pricing for IoT.** IoT enables an enterprise to experiment with new as-a-Service business models by shifting the traditional one time product sale to that of an ongoing subscription built around a promised outcome / series of outcomes. To support this, ambitious service providers must make bold adjustments to their existing revenue models, making some short tem revenue sacrifices for the longer term gain in the process.
- **Cognizant, Tieto, TCS, Infosys, and Dell Services demonstrate a strong willingness to co-invest with clients to develop new solutions.** Getting results in the uncertain realm of IoT requires enterprises to take considerable risks. These providers were cited for their strength in undertaking the journey as well.

INNOVATION

- **IBM, Genpact, NIIT, Luxoft, Unisys, and Accenture seen as strong in industry and / or process expertise.** The technical aspects of IoT are often the easiest part. Understanding how core processes can be improved and aligned with IoT initiatives is where some of the biggest gains will occur and these providers all performed well in this regard.
- **IBM, Harman, and Tech Mahindra aggressive in acquiring the capabilities they need.** IoT brings a need for new technical capabilities beyond traditional IT markets. Sensors and the emerging communication protocols that are being deployed to link them together as well as new data platforms require traditional IT service providers to gather new capabilities and skills. These three providers are aggressively doing so by acquiring the talent they need.
- **Cognizant, Genpact, IGATE, EPAM, and NIIT reach the highest levels of cooperation.** While most service providers received good marks for working alongside their clients, these five were highlighted as true partners in working alongside customers as they solved a particular need.

Service Provider Profile

Relies on Partners

Less Mature Services

More Mature Services

NTT DATA

High Performer

Vertical breadth and capabilities depth in Japan being rolled out globally will make NTT DATA a potential IoT powerhouse

NTT DATA

Blueprint Leading Highlights

- Proprietary Delivery Models
- Flexible Pricing Models
- Strength of IoT Vision
- Partnership Ecosystem

IoT Services Offering Maturity:

- IoT Consulting
- IoT Enablement
- IoT Connectivity
- IoT Integration
- IoT Management

Strengths

- **Dedicated IoT Center Of Excellence.** Outside of Japan, NTT DATA has centralized its IoT activity around a center of excellence it calls Center of Excellence Smart located in Madrid. This center serves to unify its IoT activities globally across regionally segmented operations.
- **Willingness To Utilize Consumption Based Pricing.** Once NTT Data have completed initial build out phase typically for a fixed fee, NTT DATA has transferred the ongoing revenue model for the operation of several IoT projects to a pay per use billing determined by number of devices deployed.
- **Partnership For End To End Delivery.** NTT DATA has built out a robust partner network to ensure it can meet every need around IoT as the prime integrator. From partnerships with established global partners, to innovative R&D joint ventures, to many small emerging market players, NTT DATA has a wide and deep ecosystem which ensures clients will have access to the breadth of skills required for success.
- **Client Partners**. NTT DATA is partnering with a number of global branded companies around IoT to develop IoT products and services in conjunction with them.

Challenges

- **Global Fragmentation.** NTT DATA demonstrated examples of effective delivery across multiple regions but work remains in this regard. While Global One initiatives are smoothing legacy differences the service provider remains far from a global operating model and this can risk isolating pockets of expertise.
- **Global Branding.** While within Japan the NTT DATA brand is extremely strong, the brand has somewhat weaker mindshare outside. This challenge is highlighted by its use of acquired brand names in some regions rather than a single unified name.
- **Nascent Business**. This is a new business for NTT DATA with less than 20 engagements to date.

Business Overview

Self-declared FTEs ~1,290

Org Structure:
NTT DATA's IoT services are part of its general IT service organization.

Delivery Centers:

- IoT delivery mainly on-site currently. NTT DATA has global delivery capability offshore and near shore. These include: Chile (Temuco), Spain (Alicante, Murcia, Seville), Argentina (Tucumán) and Brazil (Uberlandia), plus North America and APAC including India

Go To Market

NTT DATA has a Smart Center of Excellence in Madrid dedicated to providing services around IoT (e.g. hardware integration, device testing, tailored projects. Other Digital areas have related global one initiatives and a Center of Excellence that spans across the regional divisions. These are responsible for best practice sharing and orchestration for cross regional business from a global perspective, and work closely with IoT related services business unit depending on the client demand.

Target Industries:

NTT DATA targets large enterprises for IoT in: Public Sector, Manufacturing, Utilities

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions

- everis (2014)

Partnerships:

- NEC, Telefónica, SIGFOX, Itron, NEDAP, owasys, Telit, and several IoT start-ups
- alliances with IoT hardware manufacturers that provide sensors/devices
- Alliance with Intel for promoting standardization and solution development
- Collaboration with NTT group companies: such as NTT Communications, Dimension Data, etc.

Proprietary Technologies / Platforms

- eMDM: Smart metering
- Fleet.i: Fleet intelligence.
- Liquitrax: Smart transportation Upstream Oil
- allWaste: Smart Waste
- allParking: Smart parking.
- allLight: Smart Lighting
- allEyes: Citizen as a sensor.
- net4Things: connected home services
- BRIMOS: bridge monitoring system
- ANYSENSE: rapid deployment of IoT solutions
- Authentication application for google glass
- BEACON NAVI:
- 3D printer monitoring solution
- GaiaLinX: Electronic Vehicle power stations
- RemoteOne: Energy management solution

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Market-Wrap and Recommendations

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Where Next For IoT Services

We see the following as the major trends that will foster the future evolution of IoT Services over the next 2-3 years:

- More and more Service Providers will continue to push into the market as a handful of innovative use cases create a spike in attention to IoT
- The market will remain poorly defined as some Service Providers rebadge Analytics, Mobile, or Cloud practices as IoT Services while others create standalone practices – some of which are narrow and some of which are broad.
- Systems Thinking becomes a hotbed of attention as the complexity that IoT unleashes will increasingly necessitate a methodological process driven solution.
- Industry insight and expertise will give way to those offering insight based on themes of activity (Home, Auto, Building, City, etc.)
- Learning to partner well becomes a necessary skill. Leadership will be defined by those service providers that can effectively coordinate this layer of external complexity.
- Creating data lakes and stitching together APIs will continue be the bulk of integration work while analytics and process expertise become the areas of competitive value add.

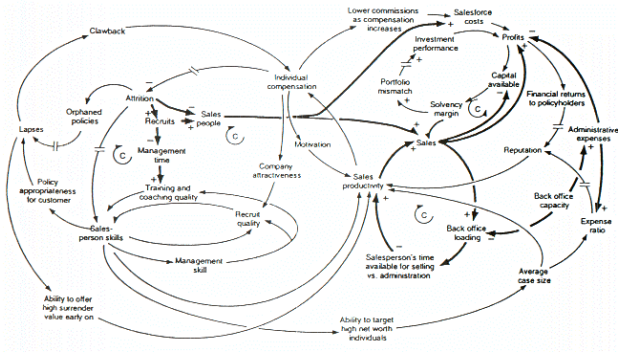
Hfs Expects to See Even Greater Adoption of the Ideals of As-a-Service by IoT Service Providers by 2017

IDEAL	AS-A-SERVICE IDEAL DEFINITION	NON EXISTENT	INITIAL	EXPANSIVE	EXTENSIVE	ALL PERVASIVE
Design Thinking	Generating creative solutions by understanding the business context		2015		2017	
Business Cloud	"Plug and Play" business services		2015		2017	
Intelligent Automation	Blending of automation, analytics and talent			2015		2017
Proactive Intelligence	Operations focused on interpreting data, seeding new ideas				2015 2017	
Intelligent Data	Real-time applied analytics models, techniques, and insights from big data				2015	2017
Write Off Legacy	Use of platform-based services makes many tech investments redundant		2015	2017		
Brokers of Capability	Governance staff manage towards business-driven outcomes			2015	2017	
Intelligent Engagement	Pricing and relationships based on expertise, outcomes and subscriptions		2015		2017	

Systems Thinking – a.k.a. How to Approach IoT

> *"Systems Thinking is the art and science of making reliable inferences about behavior by developing an increasingly deep understanding of underlying structure."*
>
> – Barry Richmond

A formal application of Systems Thinking drives one to an understanding of a particular set of outcomes that goes well beyond observing an event and understanding its underlying trends. Systems Thinking helps one grasp and measure the relevant inputs that drive an outcome and in turn allows one to attempt to improve a future outcome by controlling the critical sources of influence while not inadvertently making it worse by ignoring or adversely affecting unforeseen influences. In the realm of IoT, it is one of the best approaches HfS knows of for bringing meaning to the primordial chaos that the process of digitizing everything creates.



2015-16 Recommendations: Enterprise Buyers

- **Demand Co-Innovation and Experimentation.** As nearly every Services Provider builds out its own portfolio of IoT engagements, enterprise buyers are in a strong position to demand that service providers put some energy and investment into building out skills. If a provider is unwilling to do so, it is likely not committed to the space and instead of being the partner you require to navigate the emergence of IoT.
- **Be Sure to Keep Security and Risk Front and Center.** Security needs to be one of the top considerations at every step of the way. The primary reason is that as projects splinter there is an increased risk of the creation of access points that are innocuous to one set of concerns but catastrophic to another. Enterprises are advised to task someone with examining every and all implications of IoT across the entire firm.
- **Stay Calm, Most IoT Activity Remains as a PoC.** Despite the increased attention and hype around IoT today, the bulk of activity for most enterprises remains in the realm of a PoC. The potential for strategic impact might be identified but with only a few exceptions most are testing the waters as to how it will likely unfold. Further, with the technology component often the easiest piece, those enterprises that will need to play catch up can likely do so a fast pace. There is no need to panic today when it comes to IoT.
- **Pick Your Initiatives With Care.** As it remains early days in IoT, enterprise buyers are advised to approach the market with caution even if being aggressive appears to be possible at little cost. Adding sensors and gathering data is often the easiest aspect of IoT. Even creating data repositories that can capture this new insight is straightforward and can be leveraged across the firm. The real challenges for IoT will come with process change and this needs broader acceptance and a level of energy that might not arise if dozens of different experiments are underway. Less is more when it comes to adopting IoT.

Shared Strategic Challenges for IoT Service Providers

- **What Operating Approach Should be Utilized to Serve IoT?** Service providers are deploying a broad range of operating models to develop offerings in IoT. Some are taking the approach of incubation and leveraging skill sets found in existing practice areas. Others have identified IoT as strategic and are investing in creating dedicated practices. There is no single solution that wins out today so service providers need to recognize the strengths and weaknesses of each and be flexible in responding to what is required.
- **Should IoT Services Focus Exclusively on Asset Optimization or Go Beyond?** Today's opportunities in IoT are clearly found in the realm of asset optimization and especially as the cost of those individual underlying assets rise. But broader applications of IoT hold the promise of not just running a business better but running it differently and likely in disruptive ways. Service providers need to balance market demand today with the notion that tomorrow's demand may be in a much different realm.
- **How Fast and Aggressive to Invest in IoT?** Not only is the direction of IoT uncertain but the pace of enterprise adoption around IoT has yet to generate enough sample points for clarity to have emerged. This puts continued pressure on service providers to keep a close eye on the market and make sure the pace of investments are aligned.
- **Will Product Engineering and Sensor Development Emerge as a Key Offering?** While some service providers are gaining significant attention around IoT capabilities by highlighting non-traditional areas of IT services such as device engineering and sensor deployment or design, it is not clear whether these capabilities will be critical to service the market in the coming years. Traditional SIs have always relied on specialized partners to meet certain new needs and it is likely many will successfully do the same with regard to IoT.
- **What is the Best Platform Approach?** In a similar vein, it is unclear whether IT service providers will benefit from having an IoT platform to deploy. Conversely, such an offering might even become a detriment as it seen to create a conflict and to diminish any attempts at offering best of breed solutions. Yet in the near term, having a platform might allow one to move quickly from PoCs into broader deployments.

2015-16 Recommendations: Service Providers

- **Don't Expect Leverage During Early Days.** With all the attention directed to As-a-Service provisioning, it would be expected for Service Providers to foresee themselves as platform providers in the realm of IoT. But like other pockets of enterprise IT demand where the underlying need is seen as strategic, few will be willing to settle for an 'off-the-shelf' solution or allow a service provider to reuse significant pieces of IP to serve a competitor with a similar need. Right or wrong, the bulk of work in IoT will be bespoke and service providers are advised to go to market expecting this.

- **Build Out Systems Thinking Skills.** HfS made and continues to make a push around the need for Service Providers to bulk up on Design Thinking and we will continue to do so in the coming years. However, for those targeting IoT, a more systematic approach is required. "Systems Thinking" is a formal approach to determining, measuring and building into any model the impact from multiple variables in order to determine why things happen not merely what is happening.

- **Learn to Partner Well.** The complexity in which IoT not just enables but demands will require that traditional competitors regularly cooperate. Connected homes, cars, cities, and energy all implies a mix of data providers and beneficiaries that will all have varying degrees of interest and needs. Service providers that can manage this complexity and bring a broad mix of participants not to the table but keep them engaged will position themselves extremely well in the coming years.

- **Look to Cross Internal Silos Well.** IoT is not only an opportunity that requires heightened collaboration outside a service providers walls but perhaps more important internally as well. Most every IoT engagement by a global SI will need to tap a range of skills such as big data and analytics, cloud, mobility, engineering, as well as strategy and process change, most Service Providers are not set up well to work across these disparate practices but that will be required to excel in IoT.

About the Author

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Overview

- Oversees the research agenda and the analyst team for HfS across the "As-a-Service Economy".
- Personally covers the areas of digital services, intelligent automation and business platforms as well as the supply chain and procurement business functions.
- Over a 25+ year career has focused on his personal skills in authoring thought leadership, developing implementable strategies, executing on acquisitions, driving business development efforts and managing long term investment planning.
- Since joining HfS in 2013, Charles spoken widely at industry forums including NASSCOM, ABSL and SIG and has had his research covered widely in the business and outsourcing press.

Previous Experience

- Charles has been in the business services market for 20 years. Previous roles include:
  - Growth & Strategy MD for Accenture's multi-billion dollar Operations Growth Platform
  - Chief Strategy Officer for a $500M BPO Service Provider
  - Growth & Strategy for Application and Infrastructure Outsourcing, Accenture
  - Growth & Strategy for Communications, Media and High Tech OG, Accenture
  - Media & Entertainment Strategy Consultant, Accenture
  - Marketing Director, Olivetti

Education

- MBA from INSEAD in Fontainebleau, France
- Honors BA in Economics and Political Science from the University of Toronto

About HfS Research

HfS Research is the leading analyst authority and global network for IT and business services, with a specific focus on global business services, digital transformation, and outsourcing. HfS serves the research, governance, and services strategy needs of business operations and IT leaders across finance, supply chain, human resources, marketing, and core industry functions. The firm provides insightful and meaningful analyst coverage of best business practices and innovations that impact successful business outcomes, such as the digital transformation of operations, cloud-based business platforms, services talent development strategies, process automation and outsourcing, mobility, analytics, and social collaboration. HfS applies its acclaimed Blueprint Methodology to evaluate the performance of service and technology in terms of innovating and executing against those business outcomes.

HfS educates and facilitates discussions among the world's largest knowledge community of enterprise services professionals, currently comprising 150,000 subscribers and members. HfS Research facilitates the HfS Sourcing Executive Council, the acclaimed elite group of sourcing practitioners from leading organizations that meets bi-annually to share the future direction of the global services industry and to discuss the future enterprise operations framework. HfS provides sourcing executive council members with the HfS Governance Academy and Certification Program to help its clients improve the governance of their global business services and vendor relationships.

In 2010 and 2011, HfS Research's Founder and CEO, Phil Fersht, was named “Analyst of the Year” by the International Institute of Analyst Relations (IIAR), the premier body of analyst-facing professionals, and achieved the distinctive award of being voted the research analyst industry's Most Innovative Analyst Firm in 2012.

In 2013, HfS was named first in rising influence among leading analyst firms, according to the 2013 Analyst Value Survey, and second out of the 44 leading industry analyst firms in the 2013 Analyst Value Index.

Now in its seventh year of publication, HfS Research’s acclaimed blog “Horses for Sources” is widely recognized as the most widely read and revered destination for unfettered collective insight, research, and open debate about sourcing industry issues and developments. Horses for Sources today receives over a million web visits a year.

To learn more about HfS Research, please email research@HfSResearch.com.