HfS Blueprint Report

Internet of Things (IoT) Services

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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:

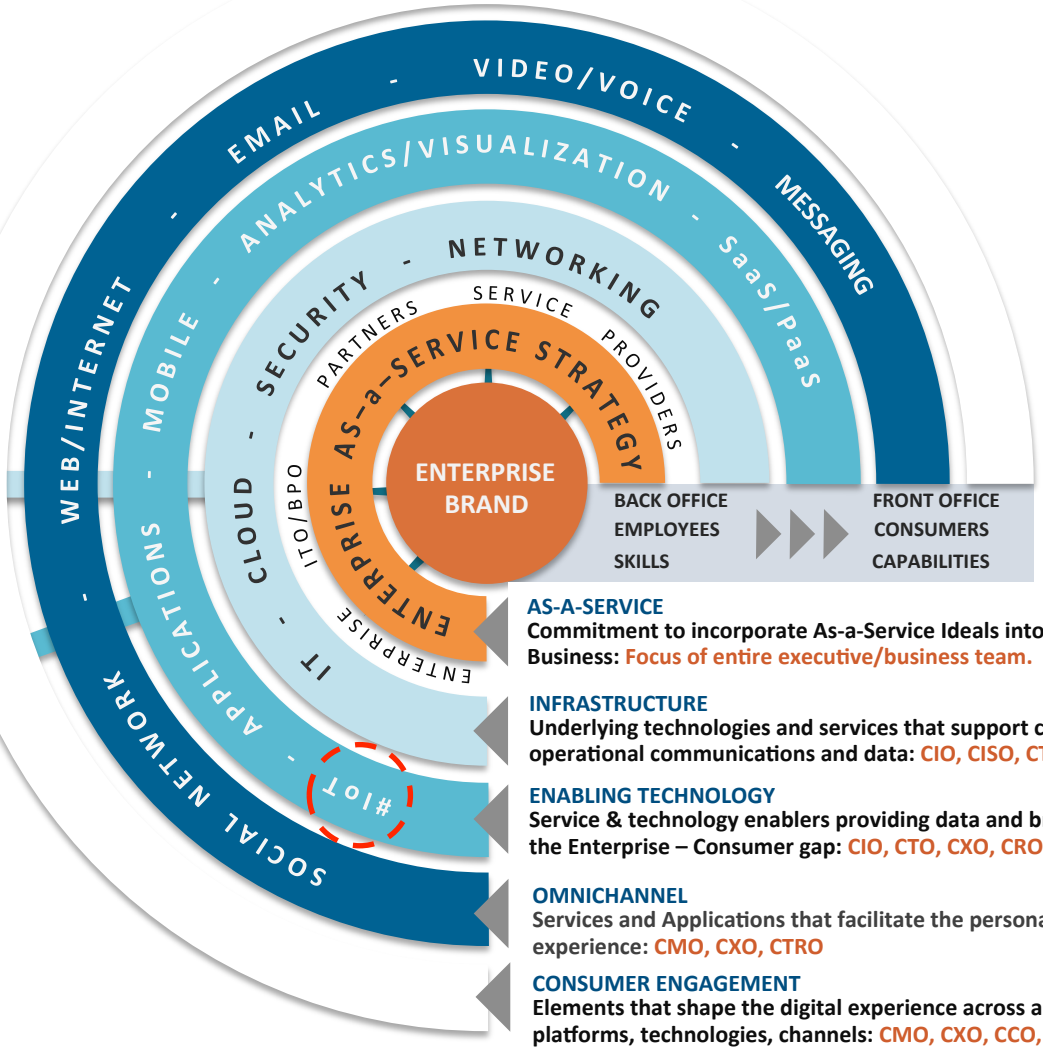
- Design Thinking
- Brokers of Capability
- Intelligent Engagement

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

HfS BLUEPRINT REPORTS

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

HfS BLUEPRINT REPORTS

The Current Maturity of Service Provider IoT Service Offerings

	CONSULTING	ENABLEMENT	CONNECTIVITY	INTEGRATION	MANAGEMENT
Accenture					
Atos					
Cognizant					
Dell					
EPAM					
Genpact					
Harman					
IBM					
IGATE					
Infosys					
Luxoft					
NiiT					
NTT Data					
TCS					
Tech Mahindra					
Tieto					
Unisys					
Virtusa					

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

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.

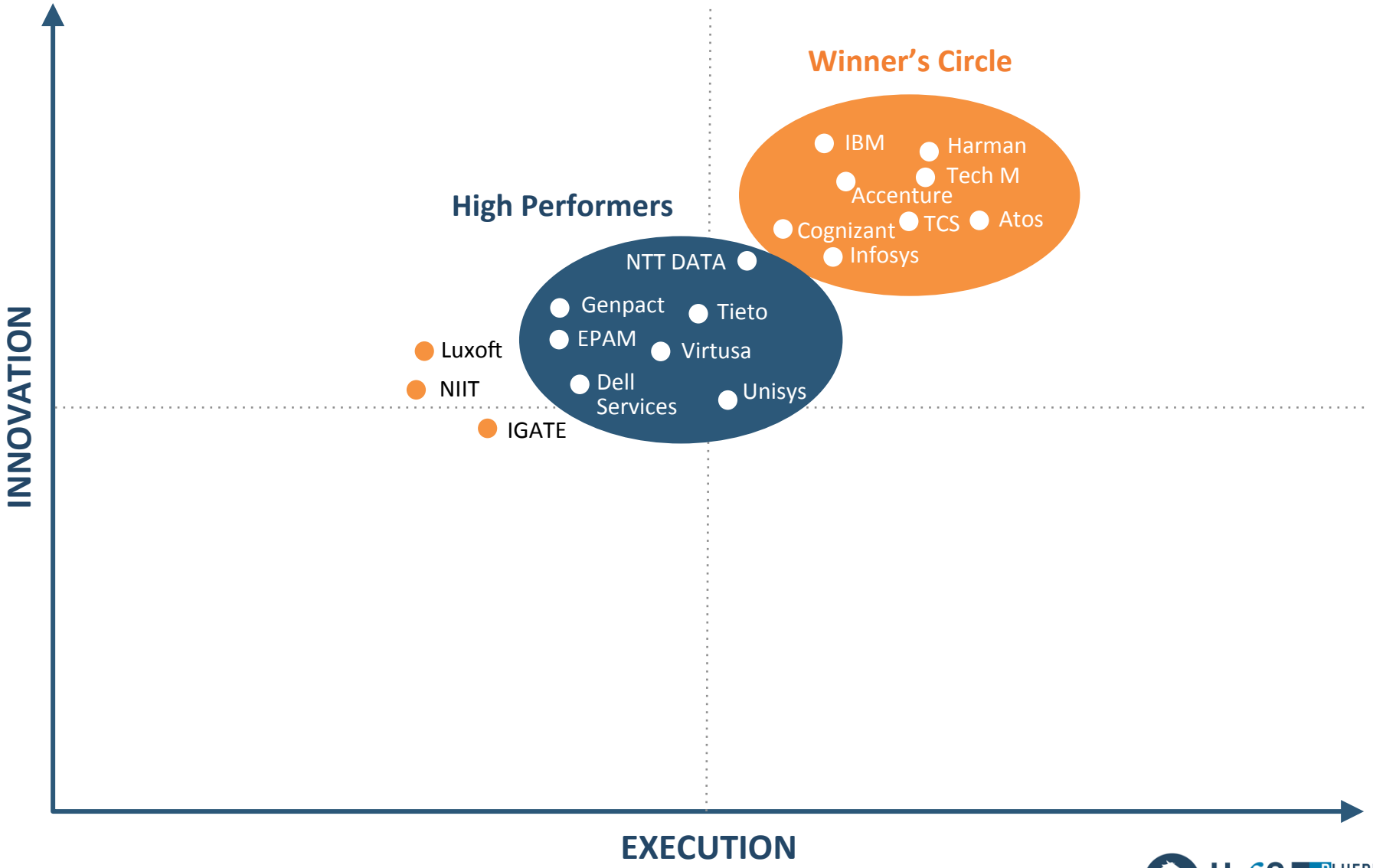
- From an ***execution*** perspective, providers have developed strong relationships with clients, execute services beyond the scope of hitting green lights, and are highly flexible when meeting clients' needs.
- From an ***innovation*** perspective, providers have a strong vision, concrete plans to 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 Profiles

Relies on Partners

Less Mature Services

More Mature Services

Accenture

Winner's Circle

A breadth of robust platform-based offerings, IoT expert bench strength and As-a-Service pricing models make Accenture a leading IoT partner

Blueprint Leading Highlights

- Flexible Pricing Models
- Strength of Vision for IoT
- Creation of Proprietary Frameworks
- Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Portfolio of Proprietary Use Cases.** Accenture has leveraged its deep enterprise and industrial expertise to build one of the most thorough reference architectures and corresponding platforms allowing clients to quickly embrace experimentation.
- **Committed Partnership Model.** Accenture has made the choice to commit a series of anchor partners in IoT recognizing the strength of going to market with leaders in related areas of technology, with more partners to come.
- **Connected Platforms As-a-Service (CPaaS) Offering.** Accenture has developed a robust platform that quickly enables Service Orchestration, Advanced Analytics, Data Streaming, Storage, Security, Device Management for IoT operations. CPaaS can be customized to use different technology from, for example, Microsoft and/or Intel to meet client needs.
- **Array of Pricing Models.** Offers a full range of pricing from standard custom solution to off the shelf pricing based on relevant industry units (i.e. per connected device, per end-user, per connection to our platform, per transaction, per volume of data processed, etc.). This approach enables a low up front cost and facilitates better cost control.

Challenges

- **IoT Enablement Potentially Hampered By Complex Partnering.** Accenture does not have the same history of providing engineering services at the device level to support IoT enablement as many of the other Winner's Circle service providers. For many clients, this is not an issue, but in industries where clients do not have these capabilities internally, choosing Accenture for IoT solutions may lead ultimately to building more complex partnering models to develop the end solution.
- **As-a-Service Positioning**. Accenture is actively building its IoT offerings around an As-a-Service model. These are still early days for these models and Accenture is working to create market momentum and the platforms behind this effort in IoT.

Business Overview

Self-declared FTEs: ~1,100

Org Structure:
Accenture's IoT practice is run by Craig McNeil within the Accenture Mobility Practice which is part of the Accenture Digital Growth Platform.

Delivery Centers:
- 30% Onshore (US, Europe, and Asia)
- 70% Offshore (India 55%; Philippines 10%; Eastern Europe: 5%)

Go To Market

Accenture's IoT practice is organized into 5 business towers whose focus is to productize "As-a-Service" verticals based on specific use cases. The five towers are: Connected Transport; Connected Spaces; Connected Operations; Connected Health; Connected Commerce.

Target Industries:
Accenture targets the G2000 across: Transport and Industrial Equipment, Health, Public Service, Consumer Goods, Retail, Banking, Insurance, Capital Markets, Media & Entertainment, Electronics & High Tech, Communications, Utilities and Energy

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Evopro (2014)
- Symbian (2011)

Relevant Strategic Investments
- VenueNext (2015)
- Crittercism (2014)
- Apigee (2013)

Partnerships:
- Intel
- Microsoft
- Apigee
- Amazon Web Services
- GE
- Cisco

Proprietary Technologies / Platforms

- Connected Vehicle, Insurance Telematics, Fleet Management, Connected Ship etc.
- Connected Home offerings for Utilities and Technology companies, Digital Underground Mapping, Smart Buildings solutions etc.
- Connected Asset Management, Connected Workers, Precision Farming, Connected Mines, IIOT Security, Smart Wearables, Digital OEM etc.
- IoT Virtual Health strategies, Health Facility Way-Finding, IoT Virtual Care Platform, IoT Population Health Management, Health Asset Management
- Cryptocurrency & Processing Strategy, Block Chain Asset Management, Tokenization, Paydiant Ecosystem Enablement, Beacons for Commerce etc.

Atos

Winner's Circle

The Siemens alliance, IoT Platform and capabilities in security make Atos a leading IoT services provider today

Blueprint Leading Highlights

- Flexible Pricing Models
- Proprietary Delivery Models
- Acquisition and Investment Strategy
- Strength of Vision for IoT

IoT Services Offering Maturity:

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

Strengths

- **Siemens Alliance.** Siemens owns 15% stake of Atos and the two companies collaborate closely on a variety of IoT projects. In July 2015, the firms announced an increase in its joint collaboration bringing €150M investment, with much of this going towards R&D around IoT. That coupled with a joint go to market initiatives means it brings a very strong proposition when Siemen's products come into play.
- **True End To End Provider.** Atos provides a full range of services from device engineering and sensor development all the way through to operating an IoT as a service for a client firm, with reference clients for each. Additionally, Atos is pursuing a vertical IoT strategy developing solutions in 10 clear markets.
- **Effective IoT Platform To Accelerate Project Initiatives. .** Having made significant up front investments in a building an IoT platform that is easily configurable, Atos can get a project up and running quickly and at lower cost than if it needed to be assembled from scratch.
- **IoT Security**. Atos approaches the risks of IoT head on and by doing so makes sure it is a consistent thread across all aspects of the IoT Services Value Chain. Coupled with its ability to deliver across all phases means it can ensure a lock tight environment without the challenges that arise during a hand off.

Challenges

- **Delivery In New Areas.** While clients cited Atos's strength in meeting the demands of developing new capabilities it was also said this can lead to underestimating the initial resources that will be required to get the job done on time. However, clients also pointed out that Atos was able to correct this by allocating more FTEs from what is a rapidly growing practice.
- **Nearshore Delivery.** Atos is very reliant on nearshore based resources for IoT which is a challenge for some clients given the uncertainty and complexity surrounding most IoT projects which often cause clients to want to feel surrounded by on-site teams. To Atos's credit, it seems thought that when this has been an issue so far, Atos was willing to relocate resources onsite to get past the key issues.
- **European Centric**. Atos has yet to demonstrate the benefits of its Xerox acquisition and partnership in its expansion into the US.

Business Overview

Self-declared FTEs: ~1,000 (plus an additional 3,500 from analytics.)

Org Structure:
Atos is divided into two separate business units – an IT Services division and a Payment and e-Services division known as Worldline. It has IoT offerings within each.

Delivery Centers:
- 28% Onshore (US)
- 42% Nearshore (Morocco 5%; Czech Republic 7%; Austria 30%)
- 30% Offshore (India)

Go To Market

Atos goes to market with two dedicated IoT Practices sharing the same IoT platform. One delivers bespoke services around consulting and System Integration and the other provides white label IoT capacity as a BPO offering via Worldline. It also goes to market with Siemens.

Target Industries:

Atos actively targets companies of all sizes with its bespoke offerings and B2B2B or B2B2C operations with its Worldline offerings.

- Aerospace, Transportation, Manufacturing (Automotive Industry, Machine Builders & Home Appliance Manufacturers), Manufacturer products retailers, Public Sector, Insurance

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Blue Elephant Systems: (2015)

Partnerships:
- Telecommunications: Orange, Transatel
- Navigation and Located Based Service : HERE
- Electronic Consumer Devices: SAMSUNG
- Smart Energy Services: EEBUS Alliance
- Hardware: Actia, Continental Automotive
- Applied Research: Siemens

Proprietary Technologies / Platforms

Worldline's solutions range includes:
- Connected Living Enabler: a dedicated IoT platform
- WL Connected Vehicle: Fleet Mgmt, In-Vehicle Infotainment, Usage Base Insurance, Vehicle Relationship Mgmt
- WL Connected Home: Home Appliances Monitoring & Control and Remote Diagnostics, Inter-Objects scenarios for Smart Home & Smart Energy
- WL Connected Infrastructure: Stolen Assets retrieval, Monitoring & Control, Remote Diagnostics & Predictive Maintenance for Industrial Machines, Vending Machines, City Infrastructure systems, etc.
- AppShop, e-Payment services, Subscriptions' offerings.

Cognizant

Winner's Circle

IoT services well integrated into broader corporate thought leadership on "Code Halos" and the value of digital capabilities

Blueprint Leading Highlights

- Account Management
- Standard Delivery Methods
- Partnership Ecosystem
- Collaboration Techniques
- Strength of Vision for IoT

IoT Services Offering Maturity:

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

Strengths

- **IoT Vision Backed By Execution.** Cognizant brings the rare combination of thought leadership with excellence in execution. The IoT practice is part of its Digital Works Technology initiative – the CEO sponsored hub for the firms digital strategy and focus for investment. The firm has undertaken 40+ successful IoT client engagements.
- **Smart IoT Practice Structure Fosters Rapid IoT Development.** Operating IoT as a *hub* amid spokes of other emerging technology practices such as Social & Mobile, Security, Cloud, Analytics, and Engineering and Manufacturing Services, draws expertise from each practice area, without needing to replicate work. This allows it to tap the best, most appropriate resources rather than work with captive talent, regardless of fit. For IoT, with opportunities across many industries, this is the ideal go to market approach.
- **Willingness To Co-invest With Clients.** With the emerging and uncertain nature of IoT, most enterprise buyers are looking for an IT services provider which can either demonstrate experience from a similar initiative or is willing to invest time and money developing solutions. Clients regularly cite Cognizant's willingness to co-invest.
- **Strong Account Management**. Regularly shows a commitment to listening to client problems, suggesting workable solutions, and a willingness to bring in the right partners to get the job done. This is consistent across many of Cognizant's solution areas.

Challenges

- **Not Strong At Pushing Its Innovation Agenda.** While clients cited Cognizant as a strong innovator at times, some clients reported that requests had to be made for innovation to be brought to the deal.
- **Field Support Necessitates Further Partnerships / Investments.** While Cognizant performs strongly, overall, in support and management, the distributed nature of many IoT engagements means the firm is facing a support environment that resembles more end-user client or mobile support, than enterprise IT management. Cognizant needs to demonstrate this gap is plugged through the right partnership(s).
- **Scale Of Onshore Consulting.** IoT is not an off the shelf solution, so requires significant consulting resources to sell and deliver effectively. The traditional consulting firms are able to draw on a larger bench than the likes of Cognizant.

Business Overview

Self-declared FTEs: ~300 (plus an additional 300 sourced as needed from other practices.)

Org Structure:
Cognizant's IoT practice is run by Adithya Sastry as part of the Emerging Business Accelerator program run by Sean Middleton who reports directly to Cognizant's CEO Francisco D'Souza.

Delivery Centers:
- 20% Onshore (US, UK, Netherlands)
- 80% Offshore (India)

Go To Market

Cognizant's IoT practice operates in a hub and spoke model connecting other emerging technology practices as part of its Digital Works Technology group a multi-disciplinary team comprised of strategic consultants, industry experts, design thinkers, and technologists that work together to transform an enterprise using our structured, yet agile, methodology. The IoT practices was officially formed in 2013.

Target Industries:
Targets enterprises with $1B+ revenues
- Core: Manufacturing & Logistics, Banking, Insurance, Retail, Healthcare, Life Science
- Additional: Travel, Hospitality

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Odecee (2014)
- Cadient Group (2014)
- TriZetto Corp (2014)

Partnerships:
- Platform Vendors: Xively, PTC/Axeda, Microsoft & Azure IoT, Zebra Technologies, AWS, Cisco, Intel, and GE Predix
- Innovative Solutions: iControls, Vuzix, Google Glass, WIFARER
- Applied Research: Carnegie Mellon University

Proprietary Technologies / Platforms

- APEx: Asset management as-a-service
- Foresight: Connects devices and transmits, aggregates, visualizes and analyzes data to accelerate the deployment of IoT projects.
- HealthActivate: Targeted at life sciences companies and healthcare providers, for cloud-based patient engagement Interactive Exposure Map: geospatial solution targeted to insurers
- MedVantage: Cloud-based sales, service, and complaint management system
- S3P: Subscription Enablement Platform.
- Unprotect Failure prediction services

Harman

Winner's Circle

A great fit for an enterprise needing robust end-to-end capabilities of the highest quality and experience

Blueprint Leading Highlights

- Proprietary Delivery Models
- Acquisition and Investment Strategy
- Partnership Ecosystem
- Strength of Vision for IoT
- Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **True End-to-End Provider**. From sensor design to ongoing management, Harman brings robust capabilities up and down the entire IoT stack and has an established track record in each. In particular, product development and life cycle management. Assists not only in the initial consulting and implementation, but also on an ongoing basis as IoT matures.
- **Capable Go-To-Market Partner**. In addition to partnering in the creation of IoT offerings, Harman brings the capability for joint go-to-market initiatives as either white label offerings as the services integrator and direct sales channel. This is an important complement of skills for those enterprises entering the services market for the first time via IoT.
- **OTA Capabilities.** Delivering Over the Air (OTA) updates is a critical capability for supporting IoT environments, and Harman has made a number of recent acquisitions in this space . As such, enterprises can be assured their initiatives will have the capability to stay current without costly intervention in the field.
- **Portfolio Of Accelerators And IP**. Harman not only brings experience, but has a breadth of proprietary technologies and platforms for testing and specific vertical and common solutions.
- **Analytics Capabilities.** Harman brings very strong data analytics capabilities to every IoT engagement not only gathering data, but also providing actionable insights.

Challenges

- **Problem Of Plenty.** Because Harman can develop an innovative new solution for an enterprise does not always mean it should. There are times when it invests time and energy solving problems that enterprises do not necessarily have or at least are not the top priority to solve.
- **IoT Silos.** Given the breadth of capabilities across Harman in the realm of IoT and because many of these have been underway for years, there is not one singular IoT practice, as there is in most other service providers. This means Harman is missing a central point for establishing broad and deep partnerships with other IoT stakeholders within the service provider.
- **IOT Management Needs Development**. This is an evolving capability for Harman compared to other Winner's Circle service providers which have been in the provision of IT services for much longer.

Business Overview

Self-declared FTEs ~3,000

Org Structure:
Harman's IoT offerings are not organized within a stand alone unit but instead are within a broad range of practice areas found within its Connected Services division (what used to comprise the recently acquired Symphony Teleca).

Delivery Centers:

- 25% Onshore (US 13%; Germany 6%; and South Korea 6%)
- 75% Offshore (India 45%; Russia 20%; China 5%; Poland 5%)

Go To Market

Harman sells its IoT Services a part of discrete practice areas within its Connected Services division.

Target Industries:
Harman targets companies of all sizes across industries and has major clients including: Major Healthcare ISVs, Smart Meter ISV, Storage Giant, Tier 1 Chipset Manufacturer, Tier 1 Telecom operator, Tier 1 Property Consulting Company in US, Tier 1 Retailers, Tier 1 Manufacturers, Commercial Real Estate leader.

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions

- Symphony Teleca (2014)
- Aditi Software (2014)
- Red Bend (2015)

Partnerships:

- Silicon: Intel, Marvell, Freescale
- Service Platforms:- Gemalto, Microsoft Azure, Google, PLAT.ONE
- Telecom: Verizon
- Connectivity Modules: Telit
- Wearables: Qualcomm and MTK
- Automotive: AT&T (Drive Studio)
- Big Data: Hortonworks

Proprietary Technologies / Platforms

- ATLAS: Analytical framework for Connected Car lifecycle
- Health SymMetrics: Cloud-based IoT integrated insights platform for patient care management
- Insight Connect (OTA, on-board/cloud based intelligence)
- Redbend – Over the Air Software Update Management for device management
- Harman IoT Gateway for Data Ingestion
- Harman IoT Test Harness
- Marimba: Cloud-based platform for managing enterprise IoT (configuration mgmt., patching, updates)

IBM

Winner's Circle

Focus on solving for complexity in IoT related business challenges with a deep level of integration in analytics implementation

Blueprint Leading Highlights

- Proprietary Delivery Models
- Acquisition and Investment Strategy
- Strength of Vision for IoT
- Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Clear Commitment To IoT.** IBM wants to be seen as a thought leader around IoT with its "Smarter X" campaign and by announcing a $3B commitment to invest in the technology. IBM has been successful in the past in establishing itself as thought leader through a combination of R&D, acquisition and client investment. We note similar moves in both mobility and cloud. We expect the same to occur with IoT with this level of attention.
- **Portfolio Of Tools and Platforms.** IBM's already gone deep in building out solutions for IoT and has a broad set of offerings across its core industries that can quickly solve an IoT challenge.
- **True End To End Managed Service Provider.** Whatever IBM builds, it will also run and maintain, has the capacity to perform all functions to a high standard and scale to allow it to use any flexible pricing model, when needed.
- **Vertical Presence.** IBM developed a broad portfolio of industry based use cases and IoT solutions that are relevant to most major client industries. This breadth is one of the differentiators it brings versus High Performers and other service providers.

Challenges

- **Rigid Delivery Model.** Some enterprise buyers stated IBM can be strict in adherence to formal SOWs and while some like this approach as it eliminates surprises others felt it held back innovation in areas like IoT that evolve in needs and definition over time.
- **Business Benefit Communication.** IBM can suffer from business benefits getting lost in the technology, particularly when it goes to market with a concept like IoT. The messaging around its IoT offerings has not caught up with the technology, which can impact a clients ability to engage and be certain to receive the desired outcome.

Business Overview

Self-declared FTEs: 1,500

Org Structure:
IBM's IoT practice is run by Al Opher as part of the larger Business Analytics and Strategy group within IBM GBS.

Delivery Centers:
- 25% Onshore (North America 15%; Europe 10%)
- 75% Offshore (AP 40% CEMEA 25%; LA 10%)

Go To Market

IBM's IoT Services are organized under its Business Analytics and Strategy Service line via its Digital Operation practice. IBM also formed the IBM IoT independent business unit in March 2015 responsible for providing the platform and ecosystem components (Analytics, Cloud, Watson, and Security) across IBM.

Target Industries:
IBM GBS actively targets, but is not limited to, global enterprises with 1,000 + employees or $1B + revenue
- Core industries include: Discrete Manufacturing, Public Sector, Transportation, Healthcare, Retail, and Energy & Utilities

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Softlayer
- Cloudant
- Worklight
- Q1Labs
- TRIRIGA

Partnerships:
- Twitter (for social insight around devices and services)
- Texas Instruments
- AT&T
- ARM
- Semtech
- The Weather Company
- ESRI (GIS technology)

Proprietary Technologies / Platforms

- Predictive Asset Optimization (PAO)
- Energy Optimization
- Maximo and Tririga implementation
- Emergency Management
- Fleet and Asset Management
- Connected Home
- Connected Vehicle
- Connected Building
- Connected Patient
- Connected Factory
- Supply Chain Analytics
- Transparent Supply Chain

Infosys

Winner's Circle

Engineering services is front and center of strategy with benefits for developing the IoT services offering for the future

Blueprint Leading Highlights

- Standard Delivery Models
- Proprietary Delivery Models
- Partnership Ecosystem
- Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Engineering Services.** Infosys has elevated its engineering services organization to act as a spearhead for not only IoT but initiatives in Design Thinking, Digital, and a general As-a-Service push. While this group was always quite capable, its elevation to a more visible role will serve it well in deriving enterprise solutions for IoT.
- **Vision Into Reality.** When given clear mandate, enterprise buyers highlight that Infosys delivers exactly as expected. This means IoT projects will stay on focus and be executed on time. Given all the variation and possibilities that IoT opens up, such ability to focus is critical today
- **Seamless Team Integration.** The Infosys team is seen as integrating incredibly well into a company's culture and are not consider to be "outside" resources as these teams act and make decisions as if the team members were internal associates.
- **Investing Heavily In Repeatable IP.** Infosys is investing in IIC and Industry 4.0 with a focus on Asset Efficiency and an understanding of the complexity involved. Not just a sensor and data but a complex system approach and the investment in reference solutions to quickly spin this up. Demonstrated understanding of the criticality of security in IoT with strong capabilities within and across the IoT stack.

Challenges

- **Business Models.** Enterprise buyers indicated to HfS that Infosys needs to be quicker to embrace and adopt innovative business arrangements for IoT where traditional models are not as suitable or flexible enough for the fast evolving nature of this market.
- **Excellence In Execution Can Hinder Innovation.** Given the strength Infosys brings to delivering what is asked, clients feel at times it can be a challenge to get them to think different and make decisions on its own. However, when pushed for this, Infosys will bring it as well.

Business Overview

Self-declared FTEs ~1,500

Org Structure:
Infosys' IoT Practice is part of the Infosys Engineering Services, a Horizontal Business Unit.

Delivery Centers:
- 30% Onshore (North America, UK, Germany, France, APAC)
- 70% Offshore (India)

Go To Market

Infosys has a dedicated sales team for its IoT practice and organizes its offerings around targeting Asset Efficiency; Security, Safety & Quality of Life; and "Smart" – large ecosystem impacts.

Target Industries:
Infosys actively targets, but is not limited to, G2K clients globally.
- Core: Discrete Manufacturing, Automotive, Aerospace, Retail, Healthcare, Logistics, Communication Providers
- Target: Farming, Process Manufacturing, Public Sector

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions and Investments
- Panaya (2014)
- Airviz (2015)

Partnerships:
- Intelligent Devices: Murata, Intel, Bosch, PTC-ThingWorx, PTC-Axeda, ILS, AMD
- Connectivity: Sierra Wireless, Murata, Telit, Digi, AT&T, Vodafone
- M2M Platform: ThingWorx, Axeda, Bosch, Microsoft, ILS, Cumulocity, IBM
- Applied Research: University of Aachen, Germany (RWTH) and Industrial Internet Consortium (IIC)
- Blackberry Technology Solutions for Asset Tracking and Logistics

Proprietary Technologies / Platforms

- Infosys Information Platform - Big Data Lake and Data Analytics Platform
- Infosys Location Based services
- Infosys Billing Edge Platform
- Infosys Enterprise Gamification Platform-
- Infosys Proximity Solutions Application Platform
- Infosys Cooler Monitoring Platform
- Infosys Asset Maintenance Solution
- Infosys IoT Mediation Layer
- Infosys Contact Center Solution for IoT Operations
- Infosys Serviceability Workflow Platform

TCS

Winner's Circle

Driving an agile IoT strategy that is powered by a willingness to co-create and co-invest in potential vertical solutions

TATA CONSULTANCY SERVICES

Blueprint Leading Highlights

- Standard Delivery Models
- Flexible Pricing Models
- Collaboration Techniques
- Strength of Vision for IoT

IoT Services Offering Maturity:

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

Strengths

- **Co-Investment.** Clients cite TCS ability to go the extra mile in providing upfront analysis and POC's as a real draw to partnering with them in IoT.
- **Co-Creation.** Establishing a Digital Re-imagination ™ Center along the lines of MIT's Media Lab, TCS is looking to establish quarter-long collaboration with clients and prospects in a dedicated IoT environment that will go well beyond the quick hit PoCs. No other service provider is yet going to this length to demonstrate co-creation. TCS also has a Silicon Valley Customer Collaboration Center (SVCCC) for onsite advisory, consulting and engagements with clients.
- **Industry And Technology Skill Mix.** IoT perhaps more than any other emerging technology area requires a mix of both industry insight and very deep technical skills. TCS brings both in a way that few if any other service providers can.
- **IoT Enablement**. TCS capabilities in engineering and other aspects of IoT Enablement are significant and are competitively differentiating versus many of the other leading service providers.
- **Broad Capabilities**. TCS is the largest of the Indian offshore outsourcing firms and enjoys the broadest delivery capabilities. This adds business process and infrastructure capabilities across the broadest set of customers both industry and geography. This gives it a better starting point for expanding its IoT offers than the other India based service providers.

Challenges

- **Pushing Back.** Clients were satisfied that TCS IoT teams captured their requirements and delivered to specification but felt that a greater role as "devil's advocates" should be taken by TCS to challenge what might be mistaken assumptions and requirements on the part of clients to begin with.
- **IoT Skills Silos.** Enterprise buyers complained that it could be difficult to get access to larger related IoT skills from other parts of the service provider to supplement the teams that were available from the IoT practice itself.

Business Overview

Self-declared FTEs ~N/A

Org Structure:
The IoT practice has been established under the Digital Enterprise organization. The Digital Enterprise organization is headed by a Global VP & Business Unit Head , who reports directly in to the CEO

Delivery Centers:
- N/A

Go To Market

IoT is viewed as a "composite force" of Digital Reimagination ™ by TCS that is a combination of Big Data & Analytics , Mobility, Social, AI& Robotics Services and is part of the TCS Digital Enterprise practice. IoT can be divided into two distinct segments i.e. Consumer IoT and Industrial IoT. TCS goes-to-market through the Silicon Valley Contribution Center (SVCCC), the Industries, their partners and a Digital Reimagination ™ Tower in India, Silicon Valley and events.

Target Industries:
TCS targets global enterprises with revenue over $5B
- Manufacturing , Retail, Utilities , High Tech, Energy & Resources, Travel & Hospitality, Life Sciences, Healthcare, Insurance and Telecom Industries.

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- TCS has invested in a Joint Venture in Japan with Mitsubishi IT group – partly to provide localized IoT services in Japan.

Partnerships:
- Platform Vendors: Intel and Cloudera, PTC, Bosch, IBM Predix, Splunk, IBM Bluemix, Microsoft Azure,
- Applied Research: Industrial Internet Consortium, Allseen Alliance, Open Interconnect Consortium

Proprietary Technologies / Platforms

- TCS IoT Sensor Data Analytics Framework: For deep analytics with predefined models
- TCS GoSafeTM : TCS Insurance Telematics Solution-a smartphone based telematics solution for drivers with insurance
- TCS dreamUP™: A data visualization platform with charting components for rendering analytical insights.

HfS BLUEPRINT REPORTS

Tech Mahindra

Winner's Circle

Bringing the full spectrum of IoT technologies and capabilities to client business needs

Blueprint Leading Highlights

- Acquisition and Investment Strategy
- Partnership Ecosystem
- Strength of Vision for IoT
- Collaboration Techniques

IoT Services Offering Maturity:

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

Strengths

- **Technical Depth.** Enterprise buyers frequently report being pleasantly surprised by the technical depth Tech Mahindra brings to engagements. As well as robust and thorough understanding of the current points of connectivity and process.
- **Eco-system Approach to Partnering.** Tech Mahindra is building an ecosystem of partners across the different IoT areas. Helping to augment its internal skills and pull together an end to end offer from best of breed partners.
- **Acquisition Ambitions.** With big stated ambitions for growth and Digital, it is likely Tech Mahindra will be in the market to acquire complimentary firms. Doing so will allow it to augment its existing strength in the most advantageous of ways.
- **Investment In PoCs.** Repeatedly cited willing to put it's own skin in the game and develop robust PoCs and platforms. Buyers indicated this goes well beyond "slideware" to actual functioning architectures that can be quickly deployed.
- **Leverage Engagements In Asia.** TM has successfully completed almost 40 IoT projects in Asia – giving it experience in designing and implementing a broad range of projects.

Challenges

- **Design Thinking Not Well Developed.** While clients cited Tech Mahindra's strengths across many aspect of IoT, it was cited for being still nascent in applying design thinking in its approach to complex business needs. However, this is a challenge that can be addressed through investment in capabilities and in cultural change management.
- **IoT Marketing.** By comparison to many of the other Winners Circle service providers, HfS has not seen Tech Mahindra as visible in the direct marketing of IoT capabilities. With so many opportunities in the existing client base this is not a significant challenge but we believe that Tech Mahindra may not be getting a "fair share" of tendered opportunities as a result.
- **Relationships In US/Europe Are Very Limited**. Many of the IoT projects so far have been outside of key US/Europe markets. Giving rise to questions about resources it is able to muster for potentially consulting heavy onshore engagements

Business Overview

Self-declared FTEs ~450

Org Structure:
Tech Mahindra's IoT practice is integrated at its Digital Enterprise Solutions group while the Industrial IOT through the Product Engineering group.

Delivery Centers:
- 35% Onshore (US 20%; UK 15%)
- 65% Offshore (India)

Go To Market

Tech Mahindra uses a mix of alliance and partner teams, delivery and pre-sales teams, and geography based sales teams to sell IoT services

Target Industries:
SMBs to large enterprises with annual revenues of greater than $5 Billion since we have solutions for all kind of enterprises including SOHO's

- Healthcare, Automotive, Telco, Manufacturing (Discrete and Process), Aerospace (OEMs, MROs), Energy (Renewable, O&G), Consumer Goods, Transport Travel and Logistics, BFSI, Retail

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Aftermarket Telematics Suite (2014)
- Acquired Device Testing Lab (2014)

Partnerships:
- Aeris, Jasper, Verizon, TeliaSonera, T-Mobile, AT&T, ThingWorx, Axeda, ConnectM, Google, here, AnyData, **B**osch, Sierra Wireless, CalAmp, Radius, OpenNet, neeeco, Realtime Innovations (RTI),Rasilant Technologies, Hadoop, Digi,Gaurd

Proprietary Technologies / Platforms

- 30+ verticalized IoT offerings. E.g., Remote Patient Monitoring, Aircraft health monitoring, Driver/passenger health monitoring, Track & Trace for Power Tools, Remote Monitoring for Renewable Energy Assets, Fleet Management for Multiple Industries & Vehicles, Telematics solution for EV, Farm to Fork, Smart Parking, Smart Lights, Smart Bin, Usage Based Insurance, iDEP, etc.
- Multiple solutions across the following umbrellas: Connected Vehicles, Connected Factories, Connected Equipment, Connected Care, Connected Aerospace, Smart City Solutions Suite

Dell Services

High Performer

Dell brings strength in the hardware and connectivity components of the IoT value chain with an emerging services offering

Blueprint Leading Highlights

- Account Management
- Acquisition and Investment Strategy
- Strength Of Vision In IoT

IoT Services Offering Maturity:

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

Strengths

- **Robust IoT Product Line.** Dell has an IoT OEM group within Client Solutions building core gateways. Dell's OEM team provides the go-to-market (Sales) effort for the gateways. Similarly, its strong data management software (Boomi and Toad) also fuel the pipeline. These various product lines feeds opportunities for Services that go beyond the typical implementation and integration role for a Global SI.
- **Breadth Of Service Capability.** IoT creates challenges around remote support that not many enterprise services organizations have significant experience handling. Dell, with its product services, has very strong capabilities here and is looking to leverage this across IoT – even if delivered from separate practices today.
- **Focused Partnership Model.** Dell has secured a partnership with PTC as a participant in ThingWorx Global Systems Integrator Alliance program. This will allow it deep insight into one of the leading IoT platforms today and includes the ability to explore approaches within its dedicated Solution Lab in San Jose.
- **Investment In Advisory Services.** For example, as part of initial engagement Dell use a model to gauge clients current IoT maturity. Using this as a basis for roadmap discussions with clients starting on IoT journey.

Challenges

- **Services Brand.** One of Dell's strengths, the reach of its brand, can also be a detriment as the firm's capabilities in Services are much less well known than those in hardware which is also the case with IoT.
- **IoT Messaging.** Because Dell's approach to IoT is so broad – spanning hardware, software, and a full range of services, there is a risk that the enterprise services activity will be confused with activity in say, OEM. Dell Services will need to work harder to get its message across.
- **Design Thinking Limitations.** HfS has not yet seen the same level of investment in Design Thinking and its application to client business problems at Dell that we have seen emerging amongst a number of the competing service providers.
- **Scale Still Small.** Currently IoT is still nascent for Dell, with less than 20 clients, primarily in the US and the UK.

Business Overview

Self-declared FTEs: pure IoT 15, inc broader resources estimate c200.

Org Structure:
Dell's IoT practice is run by Chethan Gorur who reports to the head of Digital Business Services run by Raman Sapra.

Delivery Centers:
- 40% Onshore (US 30%; UK 10%)
- 60% Offshore (India)

Go To Market

IoT Services is part of the Digital Practice within Application Services at Dell. In addition, Dell has an IoT OEM business as part of its hardware division.

Target Industries:
Dell Services actively targets, but is not limited to large enterprises globally
- Core - Healthcare (Payers / Providers / Life Science), BFSI (Banking / Financial Services / Insurance), Manufacturing, Energy & Utilities, Hospitality
- Target - Banking, Financial Services, Logistics, Transportation, Hospitality, Education, Hospitality

Relevant Acquisitions / Partnerships

Relevant Acquisitions
- Boomi (2010)
- Toad (2012)

Partnerships:
- PTC / ThingWorx

Proprietary Technologies / Platforms

- Smart Connected Applications
- Smart Connected Operations
- Smart Connected Products
- Smart Connected IoT Enterprise
- IoT Advisory and Transformation Services
- IoT Application Integration Services
- IoT Application Development Services
- Enable Smart Connected Products
- Enable Smart Connected Operations

EPAM

High Performer

Strong Engineering and Application Development capabilities complement an integrated IoT Enablement offering and should lead to a dedicated practice with unique capabilities

Blueprint Leading Highlights

- Standard Delivery Models
- Acquisition and Investment Strategy
- Collaboration Techniques
- Strength of Vision for IoT

IoT Services Offering Maturity:

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

Strengths

- **Enviable Client List.** EPAM has enviable tech clients include technology companies such as Google, Oracle, and eBay.
- **Response To Complexity.** Clients site its ability to innovate around complex challenges while staying grounded in business strategy as a key differentiator for EPAM over other IT services firms
- **Highly Skilled Workforce.** EPAM puts a majority of senior folks on each project teams and they all speak English well. Clients report finding them very predictable and reliable and that EPAM is able to readily delegate projects and clients trust these will be done well and on time.
- **Break New Ground.** With an embedded device practice and its strength in software engineering EPAM becomes a good choice for technically challenging custom engagements in untried IoT areas.
- **IoT Enablement.** With an embedded device practice, EPAM brings robust capabilities in device design and enablement and when coupled with its strength in software engineering it becomes a go to choice for those breaking new and perhaps strategic ground with its IoT initiatives.

Challenges

- **Time Zone Challenges**. While not as challenging as working with Asian based development staff, the time zone differences for those in North America can still impact effectiveness. However, this may be elevated as EPAM opens a center in Mexico.
- **IoT Delivery Silos.** Despite strengths in embedded devices and software development, there is no single unit directed at serving clients across the IoT value chain. While this capability can be stitched together, doing so requires learning on the fly that is not required when all orchestrated under one practice.
- **IoT Consulting And Management.** EPAM should continue to invest in capabilities for IOT business consulting and solution development and in the support infrastructure management as it grows its presence in the IoT market
- **Scale.** Engagements to date with less than 10 that are exclusively IoT, but at least several dozen where IoT is a component of an overall solution.

Business Overview

Self-declared FTEs: ~200

Org Structure:
EPAM does not have a stand alone IoT practice but brings capabilities to market primarily through its Product Development Service line which sit along side its Technology Solutions and Product Engineering Services lines.

Delivery Centers:
- 9% Onshore (US 5%; Germany 2%, Sweden 2%)
- 91% Offshore (Belarus 75%; Ukraine 11%; Singapore 3%)

Go To Market

EPAM considers IoT as an integrated and holistic set of services offerings that dove-tails into its general service lines that are driving Advanced Engineering, Intelligent Enterprise and Digital Engagement.

Target Industries:

EPAM targets Hi-tech companies and large enterprises with revenues $1B and more
- Core: IT, Financial Services, Energy, Healthcare & Life Sciences, Retail, Sport & Lifestyle, Travel, Media & Entertainment
- Additional: Manufacturing, Telecom

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- NavigationArts (2015)
- Great Fridays (2014)
- Netsoft (2014)
- GGA Software (2014)
- Empathy Lab (2012)

Partnerships:
- Platform Vendors: Oracle, SAP, IBM, Microsoft
- Innovative Solutions: TI, Freescale, ARM and Analog Devices

Proprietary Technologies / Platforms

- EPAM IoT Platform - This system monitors itself, dynamically adapt to changing conditions and still allow external control and keep users informed on what's going on.

Genpact

High Performer

A process led approach to IoT that allows Genpact to innovate with clients to bring IoT into the existing operations

GENPACT

Blueprint Leading Highlights

- Incorporation of Feedback
- Collaboration Techniques
- Strength of Vision For IoT
- Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Process First Approach.** Genpact focuses first on understanding core processes and what data should be captured and analyzed to improve performance. This results in a focus on impact rather than one of technology deployment
- **Clear Focus On Asset Optimization.** Genpact is not distracted by a myriad of what's possible with IoT but instead focuses on clear demonstrated use cases today where the returns are measurable such as field service operations for enterprises with large assets. While this focus may evolve, by keeping it narrow today it can develop deeper expertise at areas of greatest impact.
- **Robust Engagement Analytics.** Genpact's IoT offerings are crafted and delivered from within its Analytics group which means it never stops at mere data creation. Further it focuses not just on data to insight but insight to action. Creating sensors on data is the easy part of IoT. Understanding what it means and how best to react is where the greatest value is to be found.
- **IoT Platform**. Genpact has developed its own IoT platform - Intelligent Process Insights Engine (IPIE). IPIE includes Data Discovery, Text Analytics, Sensor Data Processing, and Advanced Analytics modules that can be deployed via a cloud. Genpact also leverages partner ecosystem platforms i.e. GE Predix, IBM, Decysion, and Mitsubishi.

Challenges

- **Narrow Focus.** While Genpact's focus on Asset Optimization primarily for companies 'that make things' means it brings particular strength in that narrower area, it also means its services are not for all. Yet as the adoption of IoT grows to one fueling revenue enhancement – especially as products get repacked as services – Genpact may need to look to build this out to keep core clients happy.
- **IOT Enablement and Connectivity.** Genpact is still building out capabilities in IoT Enablement and Connectivity in comparison to other service providers which have had a longer tenure in the delivery of engineering and IT services that underlie these capabilities.
- **Scale of Onshore Consulting.** IoT is not off the shelf solution so requires significant consulting resource to sell and deliver effectively. The traditional consulting firms are able to draw on a larger bench.
- **Practice Scale.** Compared with some of the other providers Genpact has a relatively small number of IoT engagements to date with less than 20. Although the involvement with large scale initiatives with firms like GE makes up for this somewhat.

Business Overview

Self-declared FTEs ~1,450

Org Structure:
Genpact's IoT activity is delivered as part of its analytics and under Genpact's Digital Lean branding. This is how Analytics, Engineering, Consulting and IT will deliver end to end solutions in IoT.

Delivery Centers:
- 30% Onsite (US)
- 10% Nearshore (Italy)
- 60% Offshore (India)

Go To Market

Genpact focuses its IoT efforts today on Industrial Asset Optimization. All relevant sales personnel are trained in this but it also pairs a subject matter expert along with a relevant engineering SME focus on how best to combine process, technology, data science, and people.

Target Industries:
Genpact actively targets enterprises with revenue over $10B
- Industrial Machine Services, Customer Insight, Hi Tech Manufacturing, and CPG

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- N/A

Partnerships:
- Platform Vendors: GE Predix, IBM, Cisco, Sentient Science, Decisyon, ILST, AXEDA (PTC), ConnectM (In process)
- Applied Research: Industrial Internet Consortium, UI Labs

Proprietary Technologies / Platforms

- Intelligent Process Insights Engine (IPIE). Modular in its architecture IPIE provides an Enterprise Data Hub with modules that include Data Discovery, Text Analytics, Sensor Data Processing, and Advanced Analytics.
- Analytics Center of Excellence

HfS BLUEPRINT REPORTS

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. These include Coca-Cola, Sony, BP, 7-11, Repsol, and Orange.

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, TST 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

HfS BLUEPRINT REPORTS

Tieto

High Performer

IoT is core to strategic growth of Tieto and capability investments are being made to realize the increased importance of this offering

Blueprint Leading Highlights

- Standard Delivery Models
- Investment Strategy
- Collaboration Techniques

IoT Services Offering Maturity:

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

Strengths

- **IoT Focus.** IoT was tapped as one of three primary growth opportunities for the service provider in the Spring of 2014 and as such is an area of focus and invest with the highest visibility all the way up to the CEO yet set up as a fairly independent entity to attract the highest level of talent and allow the company to invest.
- **Platform Investments.** While it is not making bets in any one area, Tieto is exploring multiple platforms for expediting the deployment of IoT. The end goal is to identify those platforms most likely to succeed and to bring skills around them so projects can be quickly deployed. This pragmatic approach will likely save enterprise buyers not only time and money but false starts as well.
- **Co-Investment.** Alongside Tieto's internal investments in IoT, clients cite its ability to co-invest in its own initiatives as a strength. With uncertainty surrounding IoT, Tieto eases some of this by lessening the burden on the adopting firm. One of the best examples of this is a 10 year agreement the company signed to contribute its own IP as part of a project to build and enable a residential apartment complex that will serve as a living IoT lab.
- **Innovation Approach.** While Tieto brings the technical skills, enterprises highlighted its and readiness to bring innovation as a particular strength.

Challenges

- **Geographic Coverage.** While its footprint is expanding, unfortunately the company primarily serves the Nordic region and to a lesser degree the rest of Europe. That is a shame for those located outside as it continues to be a top notch provider across the realm of Digital.
- **Cost Pressures.** With the attention of Offshore Outsourcers now having turned toward Europe, Tieto and others are facing cost pressure in development that is requiring them to look for ways to shift resources as well. While this will ultimately benefit enterprise buyers, it may prove a short term distraction.
- **IOT Enablement.** Tieto may need to further build out capabilities in IoT Enablement as this market develop and clients look for end to end services to move beyond proofs of concept into full deployment.

Business Overview

Self-declared FTEs ~100

Org structure:
Industrial Internet unit headed by Taneli Tikka, reporting to the board chaired by Tieto CEO. Team based lean organization.

Delivery Centers:
- 90% Onshore (Finland 50%; Sweden 40%)
- 10% Nearshore (Czech Republic 10%)

Go To Market

Tieto participate in relatively few formal written requests and tend to discuss and engage its customers in a dialogue instead. This consultative approach can help them stand apart from the often product-centric offerings of some competitors.

Target Industries:
Tieto targets medium to large companies primarily within the Nordics
- Manufacturing, Forest Industry, Energy, Welfare, Logistics, Retail, Telecom, Media, and Agriculture

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- N/A

Partnerships:
- Teradata, Oracle, Microsoft, Google, Cisco Systems, HP, IBM, Cumulocity, BaseN, TeliaSonera, MaintPartner, Livion, FougaIT, Asema, Data Rangers, Houston Analytics, Roima Intelligence, Control Express Finland, Scandinavian Radio Technology, Solteq, Trelab, Oliotalo, Quuppa, Kaltio Technologies.

Proprietary Technologies / Platforms

- Smart housing & facility management IoT platform
- Real Time Factory -platform for the manufacturing industry,
- M2M in a box IoT device platform for smart devices on the go
- Advanced Analytics platform for IoT associated data science and big data
- Tieto Vital: predictive situational awareness & fleet management platform
- eSense platform for welfare & healthcare services

Unisys

High Performer

Focused IoT solutions built around security for the Public Sector vertical are a real strength but so too is analytics for IoT

Blueprint Leading Highlights

- Incorporation of Customer Feedback
- Proprietary Delivery Models
- Industry Expertise
- Frameworks for Needs Analysis

IoT Services Offering Maturity:

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

Strengths

- **IoT Security.** With its Unisys Stealth technology that is able to cloak any communications between devices, Unisys can ensure IoT environments remain secure. This makes them a strong choice for those engagements were security is absolutely critical.
- **Big Data & Analytics Focus**. Unisys has a proprietary reference architecture built for big data called BDA as a Service and extended this offering into the IoT environment. This makes it a strong choice for areas with massive volumes such as medical or retail – two areas of focus.
- **Remote Support Capabilities.** IoT is often an offsite challenge and most service providers are less equipped to engage with supporting field operations in the same way it support a core enterprise. Unisys is an exception with strong capabilities in field management.
- **Strength Government Provider.** Given Unisys legacy strength in US Federal government and its capabilities around security, big data and support, it is extremely well suited for brining IoT to large scale complex areas such as governments may require – for initiatives like *smart states* or *smart infrastructure*.

Challenges

- **Vertical Coverage.** Unisys focused approach to IoT means many enterprises will not find them operating within its space.
- **Small Data.** While many IoT challenges are well in the realm of Big Data, many others are not and these means Unisys may miss some opportunities until it further builds out capabilities here alongside Big Data.
- **Limited Industry Depth.** Even within the industries it focuses, Unisys brings less depth in business understanding than some of its peers. This may shift its IoT focus to a question of technological enablement and away from process transformation.
- **Lack of IoT Practice.** IoT is delivered as part of multiple service lines. This lack of a distinct focus, may leave it underinvested.

Business Overview

Self-declared FTEs ~35 with others borrowed from other practices.

Org Structure:
Unisys does not disclose its organizational structure.

Delivery Centers:
- 10% Onsite
- 20% Onshore
- 70% Offshore (India)

Go To Market

Unisys does not separate IoT into a separate practice but instead delivers as part of multiple service lines.

Target Industries:
Unisys targets enterprises in the $1 – 3 billion revenue range.
- Pharmaceuticals, Federal, Public Sector, and Retail

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- N/A

Partnerships:
- Azure, AWS, Airwatch, and Pureshare, and Mobile Iron

Proprietary Technologies / Platforms

- Unisys Stealth
- BDA as a Service. Unisys has a robust Big Data & Analytics platform that it has extended to IoT environments with connections to a wide range of device communication protocols.

Virtusa

High Performer

Building a scaled IoT practice supported by tested and secure delivery with business consulting around IoT the next area to scale

virtusa
Accelerating Business Outcomes

Blueprint Leading Highlights

- Strength of Vision For IoT
- Partnership Ecosystem
- Creation of Proprietary Frameworks

IoT Services Offering Maturity:

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

Strengths

- **Strong Partnership Ecosystem.** Virtusa has created strong set of partnerships to augment its own IoT capabilities as it acknowledges the complexity of IoT and how the market can best be served. So while it may not bring the depth of skills across every element of IoT, it can tap these for a client and likely get even greater capabilities than if it attempted to do it all on its own.
- **Delivery.** Rather than recreating an IoT specific delivery organization, Virtusa leverages the breadth and depth of capabilities it has across the organization. This allows it to flex up and down more quickly depending on the specifics of each engagement while not creating a conflict of needing to move certain skills off its bench.
- **Rapid IOT Prototyping with Skylab.** While IoT is still a nascent opportunity for Virtusa it has put together a strong partner network, reference architectures and virtual lab environment that provides rapid prototyping of IoT and AI use cases.

Challenges

- **Limited Industry Expertise.** While Virtusa brings solid technical capabilities, it is more limited in the depth of industry expertise. This means it makes for a good partner in building IoT solutions but may require extra input on the exploration and design side. We saw promising sides of Virtusa building out industry IoT solutions in healthcare, insurance and telecom that should be further enhanced into 2016.
- **IOT Enablement.** Virtusa may need to further build out capabilities in IoT Enablement as this market develop and clients look for end to end services to move beyond proofs of concept into full deployment.

Business Overview

Self-declared FTEs ~1,540 (This includes consultants from the Digital and Infrastructure.)

Org Structure:
Virtusa's IoT strategy and evangelizing is led by Kartik Iyengar. The execution and delivery capability for IoT is within Virtusa's Digital Practice which is headed by Frank Palermo.

Delivery Centers:
- 10% onsite
- 10% nearshore
- 80% offshore (India / Sri Lanka)

Go To Market

Virtusa has setup a dedicated IoT practice called "SMART" within its digital business unit. The goal of the SMART team is to help its industry teams engage with clients to educate, envision and develop IoT based solutions. The SMART team is developing IoT solutions and/or points of view across all of its key verticals such as Telecom, Healthcare Manufacturing, Retail, Media, Financial Services and Insurance.

Target Industries:
Virtusa targets the G2000 but particularly in
- Healthcare, Telecommunications, Insurance, Manufacturing, Transportation

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Apparatus (2015)
- Agora (2015)

Partnerships:
- IBM (BlueMix; Watson; Softlayer)
- Intel
- ThingWorx
- Exosite
- Libelium
- Glassbeam/Flutura/Splunk
- Conversica
- Jasper

Proprietary Technologies / Platforms

- Skylab which consists of various layers:
  - An IoT Foundation (leveraging Virtusa's GTO, BPM, Digital & Infra practices)
  - Machine Data Analytics (leveraging Virtusa's EIM practice)
  - Artificial Intelligence (leveraging Virtusa's GTO & EIM practice)
  - Augmented/Virtual Reality (leveraging Virtusa's CEM & Mobility practice)

HfS BLUEPRINT REPORTS

IGATE

Delivering client focused IoT solutions linked to key client business needs

IGATE
Speed.Agility.Imagination

Blueprint Leading Highlights

- Incorporation of Customer Feedback
- Partnership Ecosystem

IoT Services Offering Maturity:

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

Strengths

- **Willing To invest Time And Money in PoCs.** IGATE has participated in the early stages of some very interesting trials with clients as it views IoT as an area of investment today. So while it may not have a long list of reference accounts where it can demonstrate completion, it brings an understanding of the issues and challenges within embracing IoT today.
- **Incubating IoT As Cross Company Initiative.** By forming its IoT practice within Research & Innovation rather than a particular go-to-market business unit, IGATE is able to scale fast and explore the most appropriate resource mix along the way without being locked into challenges of managing a bench that might be weighted toward one particular skill set.
- **Demonstrating Itself As A Strategic Partner.** While much of the IoT work IGATE performs for clients today is more along the lines of staff augmentation than project lead, much of the work is of the most strategic nature for the client. This is giving them valuable exposure to how IoT is being utilized to transform businesses today.
- **Willingness To Invest In Proprietary Platforms.** IGATE is developing a number of horizontal and industry specific IoT platforms, productizing IoT services.

Challenges

- **Focus.** While clients cited IGATE as a strong in ambition and interest around IoT it was also cited them as willing to tackle areas that were perhaps not in its core area of expertise and this left them learning along the way.
- **Capgemini Integration.** While little is being communicated externally regarding Capgemini's integration of IGATE, it is fair to expect at least some level of disruption as two large IT service providers merge.
- **Vertical Industry Expertise.** While IGATE operates across a broad range of industries, it does not bring the depth of business understanding to these that some other service providers bring. This means there conversations and engagement around IoT may be more of a technical nature. However, this might change as the Capgemini acquisition progresses.

Business Overview

Self-declared FTEs ~45

Org Structure:
IoT Practice is being incubated by Research & Innovation group. This is one of several horizontal business units. IGATE also operates vertical business units, a Product & Engineering Services group, and a Digital & Cloud practice that also support IoT.

Delivery Centers:
- 20% Onshore (US 18%, UK 2%)
- 80% Offshore (India)

Go To Market

IGATE'S IoT practice co-ordinates service delivery through resources pooled from existing business units across engineering, testing, Digital, BI, Analytics, etc. Sales support is provided by three different sales groups: Vertical-centric Sales, Product & Engineering Sales and Digital Practice Sales.

Target Industries:

Targets enterprises with $1B+ revenues
- Retail, Manufacturing, Media and Entertainment, Mining, Energy & Utility, Banking, Insurance, Automotive Electronics, Consumer Electronics, Industrial Automation, Medical Electronics

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- N/A

Partnerships:
- Platform Vendors: PTC- Axeda & ThingWorx Software AG (Apama), and Microsoft SQL
- Innovative Solutions: indoo.rs
- Applied Research: UCLA, Georgetown University, ESADE

Proprietary Technologies / Platforms

- ICAT: Intelligent Context Aware Things framework
- ICAN: Intelligent Context-aware Navigation (using BLE Beacons, Wi-Fi Access Points, Indoo.rs software)
- IAUTOPULSE: Predictive Analytics Solution for auto industry to reduce warranty costs, improve uptime, and avoid catastrophic failures.
- IGATE Wellness Platform

Luxoft

Master level engineering skills combined with vertical focus deliver value for marquee IoT clients

Blueprint Leading Highlights
• Partnership Ecosystem • Strength of IoT Vision • Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Experienced Technology Talent.** Luxoft brings a very high percentage of advanced degrees to the majority of its engagements. Its delivery centers are filled with senior developers with five or more years of experience not freshers that are learning on every job. This makes them a leading choice when a complex solution, such as telematics, is being tackled.
- **Deep (Focused) Industry Understanding.** While Luxoft targets a narrower set of industries with IoT than other service providers, it serves those ones quite well based on client feedback and can bring a strong understanding of underlying business and technology challenges in industries such as automotive, aerospace or agriculture.
- **Low Delivery Turnover.** Luxoft faces much lower rates of attrition than many other IT services firms and this means consistent staff on projects from year to year. It also means Luxoft grows alongside clients and evolves with them as projects change and mature from merely digitizing processes to analyzing them and creating new ones.

Challenges

- **Project Independence.** Some enterprise buyers felt that Luxoft allowed daily project staff to have too much discretion when it came to maintaining the core relationship and delivery responsibility.
- **Not An Order Taker.** Luxoft brings skilled and experience staff to every project and this means the staff may have seen a similar challenge before and have preconceived notions as how it might best be approached. If an enterprise buyer is looking for a service provider to carry out what is asked without giving it much thought, Luxoft might not be the right choice.

Business Overview

Self-declared FTEs ~N/A

Org Structure:
Michael Minkevich , VP for Technology Services reports to the CEO, Dmitry Loschinin. Michael is responsible for Energy, Technology, and Telecommunications verticals and the IoT and Big Data practice as it relates to the Radius acquisition. Anders Brown, former President of Radius Group is MD for IoT based in Seattle.

Delivery Centers:
- Onshore (US)
- Offshore (Ukraine; Germany; Poland; Bulgaria; Romania, Russia and Vietnam)

Go To Market

IoT is a horizontal practice supported by CoEs on mobile, big data, agile, security, and others which is led by MD, Anders Brown.

Target Industries:

Luxoft targets the Global 2000
- automotive, aerospace, telecommunications, oil and gas, hi-technology, precision agriculture/ manufacturing, and retail.

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Radius Group (2014)

Partnerships:
- Microsoft Azure, Cloudera, Mashery, Intel, Amazon Web Services, HortonWorks, Informatica, Jasper, Google, Splunk, Esri, and ATT.

Proprietary Technologies / Platforms

- Retail Engagement Suite
- IoT Big Data Simulator
- Horizon (visualization platform)

NIIT Technologies

Pragmatic developers with a keen sense of the business problems that can be addressed by IoT in focus industry verticals

Blueprint Leading Highlights
• How Service Providers Incorporate Customer Feedback • Collaboration Techniques • Industry Expertise

IoT Services Offering Maturity:

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

Strengths

- **Focus In Travel & Insurance.** While most service providers readily target a broad range of industries, NIIT technologies is very focused on IoT solutions mainly in the travel and insurance industries today.
- **IoT-Specific Labs.** Seeing the need to experiment and invest in IoT, NIIT Tech set up labs in Bangalore and Delhi. Seeking to develop PoC's for existing and potential clients rather than wait for enquires to emerge. NIIT Tech also provides IoT-led innovation as a service to its clients under incubation offerings.
- **Pragmatic Approach.** NIIT Tech looks for solutions that can be readily implemented rather than ones that are the most sophisticated in design. e.g. When tasked with expediting the identification and classification of hazardous cargo for an airport terminal, it developed image processing algorithms that could function of standard stickers issued globally rather than relying on a new tagging system that would take a massive effort to adopt.
- **Learning Culture.** Rather than assuming It has all been seen before, NIIT Tech approaches every project with open ears and an open mind to try and solve a client's unique problems in the best way each time while maintaining a flexible approach to solving challenges that arise.

Challenges

- **UI / UX Design.** Enterprise buyers report NIIT Tech design capabilities tend to be rather template and not strong on the creative side but also report seeing improvements being made.
- **Industry Coverage.** While clients within Travel, Insurance and Manufacturing will be pleased with NIIT Tech's IoT capabilities, clients outside these areas my need need to look elsewhere for a strong partner today with the exception of Financial Services but that is an area not seeing much IoT initiatives at this time.
- **Execution Over Innovation**. While NIIT Tech brings great strength in execution and a willingness to work extremely hard, it does not always approach problems with creativity and that puts more innovation on the client's shoulders at times.
- **Scale.** Currently IoT is still nascent for NIIT Tech with less than 10 engagements so far.

Business Overview

Self-declared FTEs ~110

Org Structure:
NIIT Tech's IoT efforts fall within its Digital Services Portfolio under a Global Head who reports to the COO.

Delivery Centers:
- 10% Onshore (US)
- 90% Offshore (India)

Go To Market

NIIT Tech does not yet have a separate IoT practice area but instead delivers these services as part of its Digital Experience practice which includes Analytics, Cloud and Digital Integration.

Target Industries:
NIIT targets enterprises in the $1B - $5B range.
- Ground transportation, airlines, insurance, manufacturing (APAC), cargo ground handling /logistics

Relevant Acquisitions / Partnerships

Relevant Recent Acquisitions
- Incessant Technologies (2014)

Partnerships:
- 2 small startups (proprietary tech)
- ESRI (GeoEvent Extension)

Proprietary Technologies / Platforms

- Technology Incubation Services
- IoT Testing
- IoT Analytics

Market-Wrap and Recommendations

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

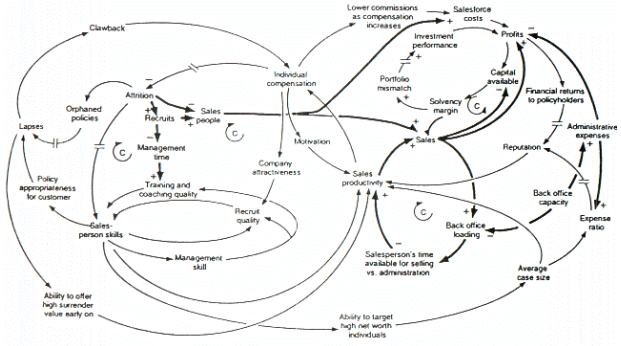
IDEAL	AS-A-SERVICE IDEAL DEFINITION	NON EXISTENT	INITIAL	EXPANSIVE	EXTENSIVE	ALL PERVASIVE
Design Thinking	Generating creative solutions by understanding the business context		2015		2017	
Business Cloud	"Plug and Play" business services		2015		2017	
Intelligent Automation	Blending of automation, analytics 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

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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.

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