BigTech Battle: Leading Internet of Things (IoT) Platforms Assessment – A Selection Guide

Digital Services
Market Report – October 2018: Complimentary Abstract / Table of Contents

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Custom research capabilities

- Benchmarking | Pricing, delivery model, skill portfolio
- Peer analysis | Scope, sourcing models, locations
- Locations | Cost, skills, sustainability, portfolio – plus a tracking tool
- Tracking services | Service providers, locations, risk
- Other | Market intelligence, service provider capabilities, technologies, contract assessment

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IoT adoption: A definitional framework

NOT EXHAUSTIVE

Internet of Things (IoT) is the concept of creating an ecosystem of connected machines, processes, and people, by transforming physical objects into virtual elements and enabling smarter business decisions and actions.

System integrators and service providers
- accenture
- AtoS
- Cognizant
- DXC.technology
- HCL
- genpact
- happiest minds
- IBM
- Infosys
- LTI
- LUXOFT
- NTT DATA
- Prodapt
- SYNTEL Consider IT Done
- TATA CONSULTANCY SERVICES
- Tech Mahindra
- virtusa Accelerating Business Outcomes
- wipro

Engineering service providers
- Aricent
- CYIENT
- EDAG
- epam
- HARMAN
- KPIT
- L&T Technology Services
- PERSISTENT

Tools and solutions providers
- Hortonworks
- MOJIO
- nest
- splunk>
- SAP
- Symantec
- SYSTECH
- tableau SOFTWARE

Platform providers
- AWS IoT
- C3 IoT
- cisco Jasper
- EVRYTHNG
- Google Cloud Platform
- IBM Watson IoT
- salesforce IoT cloud
- Microsoft Azure IoT Platform
- GE PREDIX
- SAP Leonardo
- Telit
- thingworx

Network connectivity providers
- Ayla Networks
- MTN
- sigfox
- Sprint
- verizon
- at&t
- Telefónica
- vodafone

Sensor and devices manufacturers
- arm
- intel
- Qualcomm
- SIEMENS
- TEXAS INSTRUMENTS

Cloud infrastructure providers
- amazon webservices
- CISCO
- xively by LogMeIn
- Google Cloud Platform
- Microsoft Azure
- salesforce

Source: Everest Group (2018)

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Background of the research

Enterprise interest in IoT and subsequently its adoption has increased manifolds over the last few years. As enterprises witness positive returns from their investments in pilots and Proofs-of-Concept (POCs), they have started shifting gears to scaling up the IoT projects. They are now exploring opportunities beyond gaining operational efficiency / cost savings with a more pragmatic approach of developing a connected ecosystem.

To support deployments at such a large scale and for complex use cases, enterprises need robust middleware capabilities and should take a careful approach toward IoT platform selection. With a multitude of players offering solutions labeled as IoT platforms, the ecosystem is becoming difficult to navigate. Most of these platforms cannot be differentiated purely on the basis of their technical capabilities and they

need to be evaluated based on broader parameters, such as, scalability, ease of deployment, and interoperability.

This report evaluates leading industrial IoT platforms and identifies nine of them based on overall capability assessment and market traction witnessed across industries. Nine of these platforms are further assessed based on market adoption, industry-wide applicability, and capability parameters, such as, scalability, modularity, interoperability, and security, and further substantiated with case studies in leading enterprises.

The report also focuses on demystifying the key technology focus areas for IoT platforms and associated market trends, in line with the enterprise demand for next-generation capabilities across IoT platforms

Sources leveraged:

- Everest Group's data set of more than 300 IoT case studies across industries
- Expert analyst inputs and interactions with enterprises
- Everest Group research and proprietary database of deals and engagements in IoT

Key topics covered

IoT market overview

IoT platform landscape

Future of IoT platforms

Scope of this report

Market segment
Digital services

Geography
Global

INDUSTRY
All industries

Summary of key messages

IoT market overview

- **Pilot to production:** With the advancement in the enterprises' understanding of the IoT landscape and the substantial returns from POC experimentation, they are gradually moving towards scaling up their IoT investments
- **Industry adoption:** The scaled Industrial IoT (IIoT) implementations are mostly prevalent in the manufacturing, utilities, healthcare, and transportation industries
- **Data to insight:** Enterprises are increasingly looking towards utilizing the data that has been captured by traditional OT (Operational Technology) and modern IoT applications to generate actionable insights. This is augmented by next-generation technologies such as AR/VR and AI/ML

85% of the enterprises have either adopted or plan to adopt IoT for their industrial applications

40% of the enterprises have moved from POC to scaled implementation of IoT applications

Evaluating IoT platforms landscape

- **Platform players**: The IoT platform market is cluttered with players across the IoT stack building platforms around their core capabilities. This includes providers of cloud solutions, telecom, hardware, and enterprise applications
- **Technical capability**: The technical capability of the broad pool of platform providers is assessed on the basis of their device management, connectivity enablement, infrastructure management, application development, data management, and security
- **Key differentiators**: Leading platform players are able to offer a complete solution that can not only be easily customized and scaled for each specific use case but also has an industry-wide adaptability

Evaluation of IoT platforms based on capability maturity and market adoption
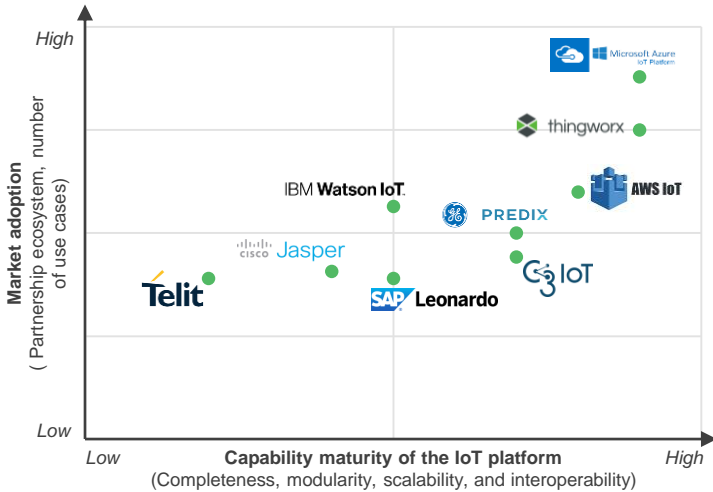
Source: Everest Group (2018)

Current state of IoT platform adoption

Advanced capabilities: This section provides the adoption of leading platform providers for advanced IoT use cases

Industry specificity: The existing partnership ecosystem, pre-build use cases, and industry-specific operation technology expertise has increased the industry-specific relevance of certain platforms

Multiplicity of IoT platforms: Enterprises tend to adopt multiple (>2) platform partners for their scaled implementation projects

Notable case studies: This section highlights the large scale implementations, giving an overview of the business challenge, the IoT use case, and the key differentiators for the platform leveraged

~50% of the enterprises have multiple (>2) platform partners for scaled IIoT implementation projects

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Decoding the next generation of IoT platforms

- **Device management:** Low power consumption and high processing capability of the devices along with open and secure management protocols are the focus areas at the device management layer. Platform providers are building capabilities around zero-touch onboarding, low power protocols, and security improvement

- **Connectivity enablement:** Developing remote and high density connectivity management are the focus areas at the network and connectivity layer of IoT. Platform providers are building capabilities around LTE and cellular networks

- **Infrastructure Integration:** Fog computing and edge computing are the focus areas of platforms to support scaled use cases

- **Data management:** Low latency for onsite data processing, edge analytics, ML, and AI capabilities are the areas of focus in the data management layer

- **Application development:** Increasing the ease of application development and overcoming the integration challenges through open APIs are the key   focus areas

Device management

Connectivity enablement

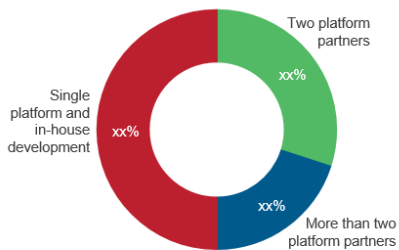Infrastructure integration

Data management

Application development kits
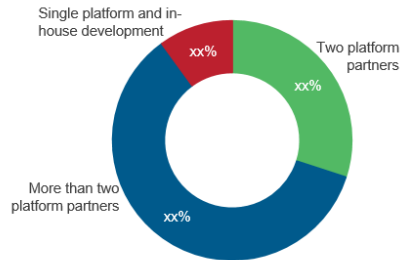
Source: Everest Group (2018)

Everest Group has assessed the digital transformation success and failure cases of enterprises to arrive at the future operating model to scale digital

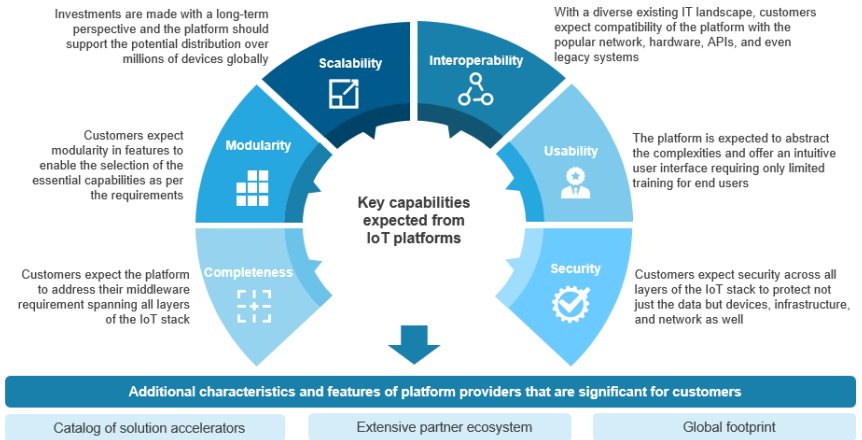## Enterprises chose multiple platform partners for any IOT project

POC / Pilot scale use cases[1]
2017-2018; Percentage of use cases

- Two platform partners — xx%
- Single platform and in-house development — xx%
- More than two platform partners — xx%

Large scale deployment use cases[1]
2017-2018; Percentage of use cases

- Single platform and in-house development — xx%
- Two platform partners — xx%
- More than two platform partners — xx%

Platforms cannot be differentiated purely on technical metrics

Key capabilities expected from IoT platforms

- **Scalability** — Investments are made with a long-term perspective and the platform should support the potential distribution over millions of devices globally
- **Interoperability** — With a diverse existing IT landscape, customers expect compatibility of the platform with the popular network, hardware, APIs, and even legacy systems
- **Modularity** — Customers expect modularity in features to enable the selection of the essential capabilities as per the requirements
- **Usability** — The platform is expected to abstract the complexities and offer an intuitive user interface requiring only limited training for end users
- **Completeness** — Customers expect the platform to address their middleware requirement spanning all layers of the IoT stack
- **Security** — Customers expect security across all layers of the IoT stack to protect not just the data but devices, infrastructure, and network as well

Additional characteristics and features of platform providers that are significant for customers

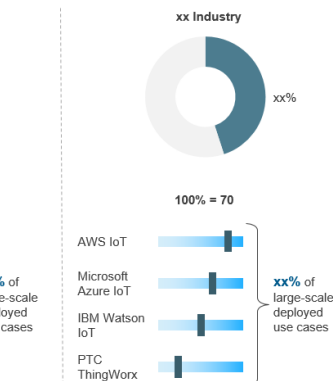| Catalog of solution accelerators | Extensive partner ecosystem | Global footprint |

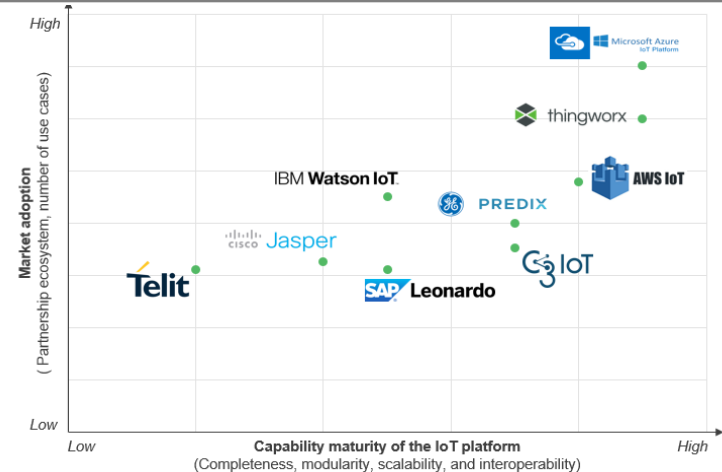## Industry expertise has increased relevance of some platforms

Large-scale deployment[1]
Percentage of use cases with large-scale deployment
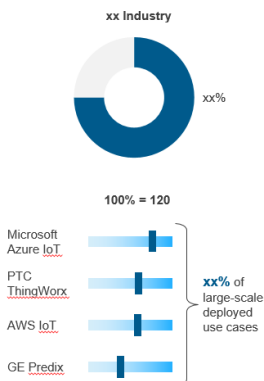
Traction of the platform provider in the large-scale deployment use cases — Low ▮ High

xx Industry — xx%
100% = 120

- Microsoft Azure IoT
- PTC ThingWorx
- AWS IoT
- GE Predix

xx% of large-scale deployed use cases

xx Industry — xx%
100% = 88

- GE Predix
- Microsoft Azure IoT
- AWS IoT
- C3IoT

xx% of large-scale deployed use cases

xx Industry — xx%
100% = 70

- AWS IoT
- Microsoft Azure IoT
- IBM Watson IoT
- PTC ThingWorx

xx% of large-scale deployed use cases

Comprehensive evaluation of leading IoT platforms

Market adoption (Partnership ecosystem, number of use cases) — High / Low

Capability maturity of the IoT platform (Completeness, modularity, scalability, and interoperability) — Low / High

- Microsoft Azure IoT Platform
- thingworx
- IBM Watson IoT
- GE PREDIX
- AWS IoT
- cisco Jasper
- Telit
- SAP Leonardo
- C3 IoT

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Research calendar – Digital Services

Flagship Digital Services reports	Release date
Digital Interactive Agencies – Market Report 2018: Digital Marketing in the Cognitive Era	December 2017
Enterprise Digital Adoption in Retail | Pinnacle Model™ Analysis 2018	March 2018
Enterprise Digital Adoption in Manufacturing | Pinnacle Model™ Analysis 2018	April 2018
Digital Services – Annual Report 2018: Future Operating Model to Scale Digital	July 2018
IoT Services Annual Report 2018	August 2018
Digital Services PEAK Matrix™ Assessment and Market Trends 2018	Q4 2018
IoT Services PEAK Matrix™ Assessment and Market Trends 2018	Q4 2018
Customer Experience | Pinnacle Model™ Analysis 2018	Q4 2018

Thematic Digital Services reports	
Design Thinking: Innovation Catalyst for Digital Transformation	July 2017
Enterprise Bots Adoption	July 2017
BigTech Battle: Leading Internet of Things (IoT) Platforms Assessment – A Selection Guide	**October 2018**
CX Trailblazers	Q4 2018
Big Tech Wars: Digital Marketing Platforms	Q4 2018

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Additional digital services research references

The following documents are recommended for additional insight into the topic covered in this report. The recommended documents either provide additional details on the topic or complementary content that may be of interest

1. **Internet of Things (IoT) Market Update 2018: Taming IoT Ecosystem Complexity – A Survival Guide** (EGR-2018-33-R-2758): As IoT adoption gathers steam, we are witnessing a large number of players developing different solutions for similar use cases using varying connectivity protocols, different cloud platforms, and different data models. These factors magnify the IoT complexity, which we believe stands in the way of IoT adoption in the future. In this research, we look at how the market is growing, the existing complexity challenges, case studies addressing complexity, drivers of the rising complexity, and how enterprises and service providers can hit the ground running to tackle this complexity conundrum.

2. **IoT Services PEAK Matrix™ Assessment and Market Trends 2017: Have You Taken the Plunge in IoT Yet?** (EGR-2017-4-R-2435): IoT is fast becoming a strategic priority for large enterprises, and is being viewed as a lever to achieve the desired digital transformation and business growth. With the anticipation of a high ROI and quantified benefits from IoT, the expectations from service providers have also increased manifold. Enterprises expect a partnership-based engagement from service providers. In this research, we present an assessment and detailed profiles of 18 IoT service providers featured on the IoT services PEAK Matrix.

3. **Top 20 IoT Trailblazers: Startups Crossing the Chasm** (EGR-2017-4-R-2171): Some of the key issues hindering IoT adoption pertain to lack of platform standardization, connectivity & network constraints, complexity in big data analysis, and threat of security & privacy breach. These gaps in the ecosystem are being worked on by startups that are innovating new solutions and platforms. In this research, we present an assessment of IoT startups primarily in the enterprise IoT landscape. The report contains detailed profiles of 20 IoT startups across data analytics, platforms, security, and network provisioning

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