# Snippets:
# Global IoT Application Landscape

These are the snippets from our report on IOT Trends Across Industries & Opportunities for Technology Service Providers (TSP)

**CLICK HERE**
**To access the full report**

# AGENDA

| | Report Profile |
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| 01 | Overview of IoT ecosystem |
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| 02 | IoT Application by Industries |
| 03 | Service Provider engagements and opportunities |

**Topics Covered:**

o Global IoT Market overview
o Trends & Challenges
o Key Industries using IoT
o Major IoT application segments
o Industry adoption by major IoT areas
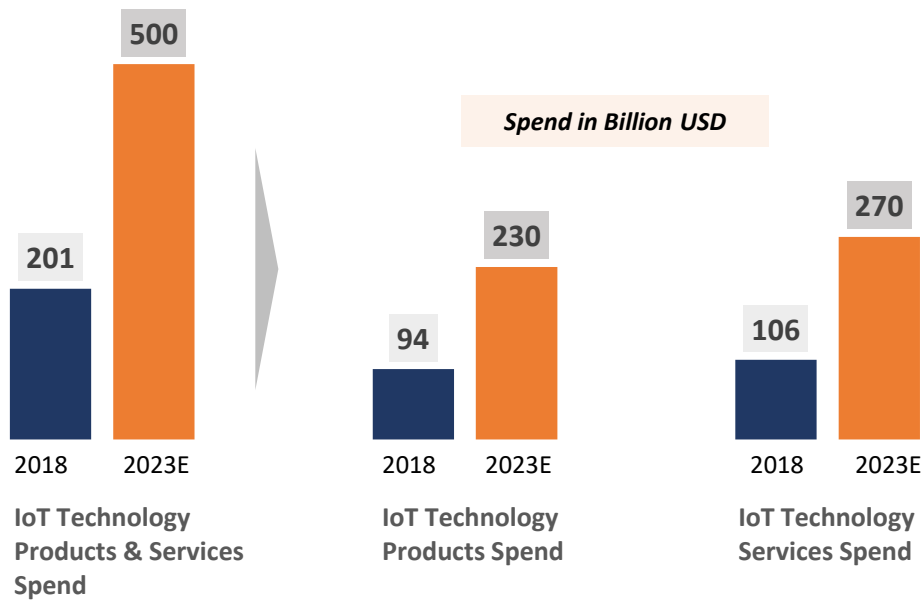o Digital Maturity of IoT based Use cases

■ Topics covered in the Snippets Report

■ Topics covered only in the Full Report

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# Global IoT Market overview: Rising need for data to drive the innovation of digital technologies is surging the investment for IoT solutions

**Spend in Billion USD**



**IoT Technology Products & Services Spend**

| | 2018 | 2023E |
|---|---|---|
| | 201 | 500 |

**IoT Technology Products Spend**

| | 2018 | 2023E |
|---|---|---|
| | 94 | 230 |

**IoT Technology Services Spend**

| | 2018 | 2023E |
|---|---|---|
| | 106 | 270 |

## US$1.1 – 1.2 Trillion

**Global IoT market by 2025**

Excluding IoT hardware revenue (device, module and chipset)



| | |
|---|---|
| Platforms, applications and services | 62% |
| IoT professional services | 28% |
| Connectivity | 10% |

- The overall IoT technology Products & Services spend is expected to grow by 20% YoY from ~$201 Bn in 2018 to ~$500 Bn by 2023 .

- The spend of IoT technology products refer to hardware products like Sensors, chips, storage/ server infrastructure as well as IoT platforms

- IoT technology services refer to  IoT Strategy & Consulting, IoT Engineering, IoT System Integration & Deployment, Managed services & support
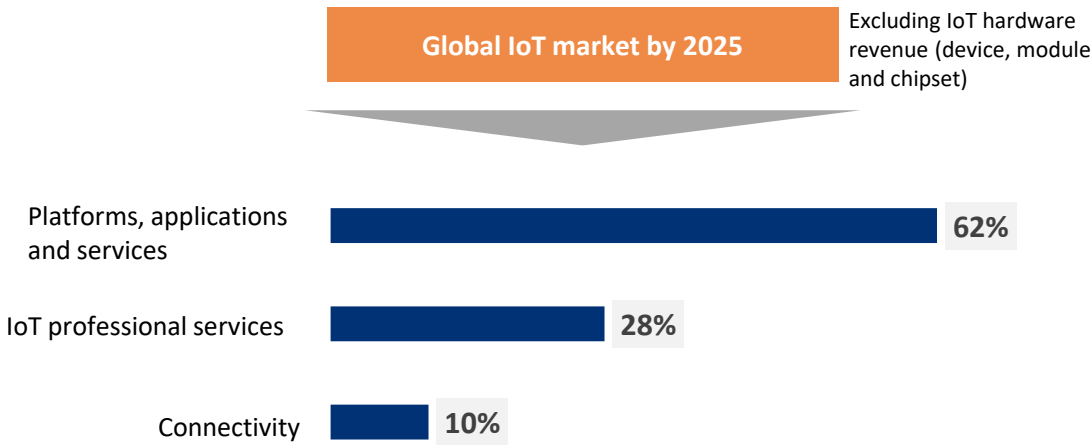
- IoT professional services market  will continue to have incremental growth as the ecosystem matures and scope for digitisation in traditional industries broaden

- Region wise push of government for Smart Infrastructure, Energy saving solutions, Worker safety solutions and increasing cost of assets and components are the major growth drivers for IoT adoption across industries

- Asia Pacific region is forecasted to become the largest global IoT region in terms of both connections and revenue by 2025

**Trends & Challenges:** Edge computing, Cloud computing & 5G are going to enable real time IoT use cases across industries; Security & Data Integrity are immediate concern for IoT adoption

| Major Trends in IoT technology | Major challenges in IoT technology |
|---|---|

**Edge Computing:** Edge computing is outperforming the Cloud when it comes to faster processing and cost. Data processing with the Edge Computing will exist with the Cloud for the betterment of IoT as Faster processing of data is prominent in all the smart devices

**Cloud Computing:** Infrastructures for Data Protection is going to be one of the most important security trends. Cloud will complement IoT devices like keep the record of the hackers, robbers, etc.

**5G :** 5G standards are going to offer more potential for IoT devices, with mobile communication for embedded devices benefiting from the drastically reduced latency and reliability

**Predictive Maintenance Boost :** The scope for Predictive maintenance is going broaden at consumer level owning IoT products and will find traction in new industries like aviation, agriculture etc.

**IoT integration with blockchain:** Data acquired from blockchain IoT devices will be reliable and secure, blockchain distributes this data throughout devices connected to the chain, making malicious or accidental modification of data impossible

**Energy management using IoT:** As the smart city concepts becoming reality and the regulatory bodies are imposing norms for energy saving, the use of IoT in physical all the physical Infrastructure will become inevitable for autonomous energy conservation

**Security:** Data security and privacy is a challenge for IoT industry as companies use a wide array of IoT devices so data is constantly being harnessed, transmitted, stored and processed leading to potential risks of digital burglary, malware ingestion, and data breaches
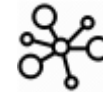
**Connectivity:** No proper Internet connectivity is one of the many challenges faced by industries in IoT adoption. There is a need for powerful and reliable network connectivity as networks grow to join billions and hundreds of billions of IoT devices

**Immature Infrastructure:** Due to continuously growing data in real-time, companies needs a sustainable solution for data storage. Companies require right infrastructure that manages IoT connected devices, sensors, and data

**Data Integrity:** Data integrity is a challenge for companies that uses IoT or cloud. With so much data coming in from multiple sources, it's tough to separate useful and actionable information

**Government Regulations:** Businesses are hesitant in adopting widescale adoption of IoT as they are waiting for government officials to intervene with new standards and regulations for IoT

Source: Draup

# IOT Ecosystem : Players across IoT value chain in the ecosystem are capitalizing on growing convergence and collaboration in the value chain to move beyond core offerings
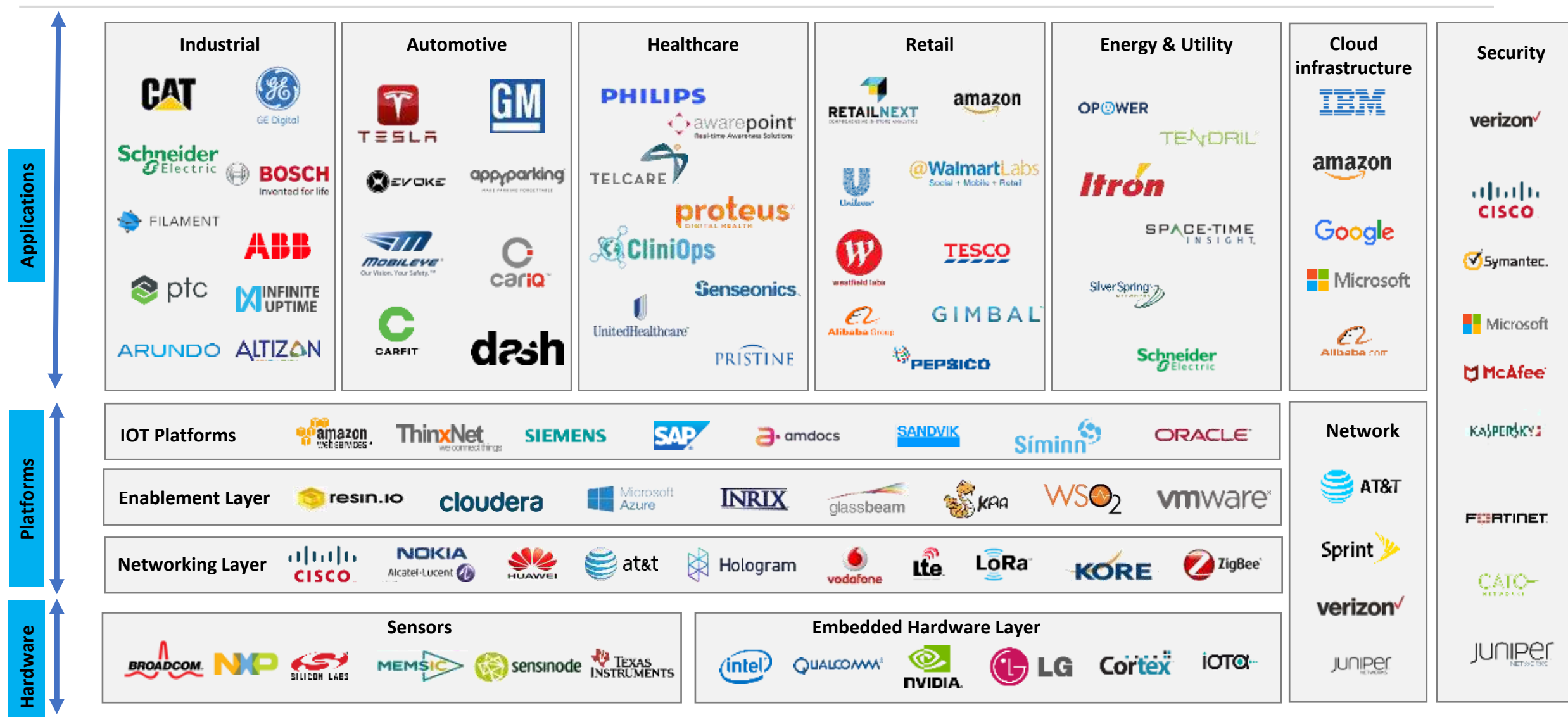
# Top Industries using IoT : Capable industries have started to realize the ROI on IoT deployment and are planning for wide scale adoption across their value chain as the need of digitization increases

**Industrial:** Companies are leveraging IoT solutions in areas of Connected robots, IoT-Enabled Predictive Maintenance and to develop a digital replica of their business assets (digital twins)

**Automotive:** Firms are focused in advancing safety solutions like ADAS ,improving Telematics offering, smart manufacturing and warehouse optimization

**Energy & Utility:** IoT technology is being deployed by utility in smart meters, smart grids and smart energy management solutions owing to energy regulation norms by government

**Education:** Academic institutions are focused on providing education of future by providing for smart Classrooms, smart labs, smart training for students

**Retail:** IoT solutions are used by top retail companies mainly in the areas of improving Customer experience, inventory management and shelf monitoring to analyze the demand of fast moving products

**Telecommunication:** Companies are leveraging sensors, mobile devices, and Internet connectivity to boost interactions and obtain data points between physical and nonphysical objects and also provide offerings like Remote SIM Provisioning
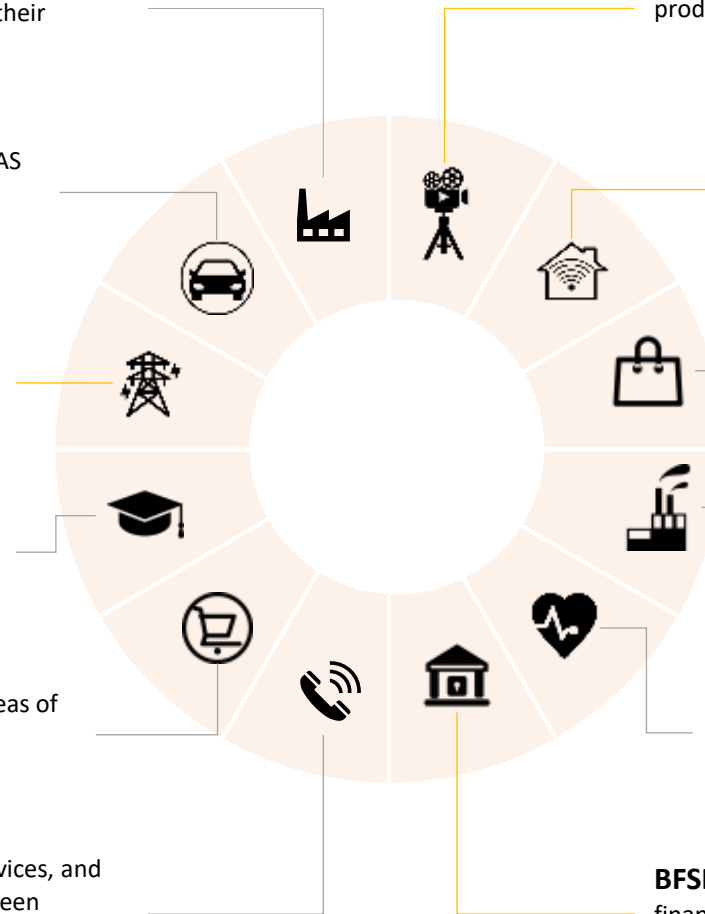
**Media & Entertainment:** Media companies are using IoT for tracking products, Operation and warehouse tracking and customer experience monitoring

**Home Automation:** IoT smart home solutions are changing the lives of people by providing smart  products and giving autonomous control remotely to the customers like Voice assistance

**Consumer goods Manufacturing:** Companies are using IoT solutions in Quality control, Logistic management, Inventory movement control and distribution center management

**Oil & Gas:** IoT is being used by O&G companies for fleet monitoring solutions, leak detection, well/ tanker monitoring, refinery monitoring, Preventive maintenance to avoid losses

**Healthcare:** IoT has a major impact on healthcare as it helps institutions and doctor gather huge amount of data from patients remotely and diagnose accurately

**BFSI:** Banking, Financial services and Insurance firms are providing tailor-made financial products like Usage based Insurance by monitoring customer behaviour in real time and improving the overall experience

**IoT adoption intensity by Industries:** Connected cars, Smart manufacturing and Connected supply chain solutions are driving parallel innovation across Auto, Industrial and Retail verticals



**High**

**Followers**

**Leaders**

**IoT Innovation**

Consumer Electronics

Media & Entertainment

Education

Automotive

Industrial

Retail

Energy & Utility

BFSI

Healthcare

Telecommunications

Aviation

Consumer goods Manufacturing

Oil & Gas

Defense

Pharma

Agriculture

**Laggards**

**Emerging**

**Low**

**Capability**

**High**

**Key Insights**

- Connected cars and Autonomous cars with advanced safety solutions are driving the demand of IoT integration in Automotive industry

- With the increasing cost of components and production, it is becoming inevitable for Industrial companies to deploy IoT solutions in machineries to track health, performance in real time to avoid any critical losses due to equipment failure

- Industries like Oil & Gas, Defense, Pharma and Agriculture have huge scope of digitization using IoT and are expected to invest highly in IoT solutions in future

- IoT adoption landscape by industries will change dynamically as the ecosystem matures and industries realize the profit and scope of IoT based solutions

Note: The infographic above shows analysis done on specific industries

Source: Draup

**Major IoT application segments:** Companies are building IoT framework that balances end to end use cases across all segments to achieve quick ROI

| | CONNECTED ASSETS | CONNECTED PRODUCTS | CONNECTED LOGISTICS | CONNECTED WORKFORCE | CONNECTED CUSTOMERS |
|---|---|---|---|---|---|
| **\*POC** | Industrial assets like heavy machineries with very high value and critical for enterprise operations | Products like cars, smart meters which are used at consumer level and used on day to basis by customers | Supply chain management components like Fleet, Cargos, Inventory, Warehouse | Workforce refers to Internal employees, Field workers or labors or On-site personnel | The end customers of respective industries availing direct products/service and post sales benefits from companies |
| **Automotive** | • Real-time Fleet management<br>• Vehicle Theft Alert<br>• Preventive Maintenance | • Over-the-Air Updates<br>• Platooning<br>• Advance Navigation Assistance | • Cargo Monitoring<br>• Fleet Tracking<br>• Smart Parking<br>• Warehouse Optimization | • Vehicle Field Servicing<br>• Driver Logs | • Automated Service Alerts<br>• Roadside Assistance<br>• Threat Alert System<br>• Over-the-Air Updates |
| **Industrial** | • Location Monitoring<br>• Asset Performance Management | • Smart Industrial Products<br>• Self-guided maintenance | • Stock Monitoring<br>• Warehouse optimization<br>• Route Planning and optimization | • Smart accessories<br>• Remote Personnel monitoring<br>• Geofencing | • Usage-based maintenance<br>• Remote servicing |
| **Retail** | • Smart shelves<br>• Theft Alerts<br>• Warehouse robots | • Smart Labels<br>• Smart Merchandising | • Inventory Tracking<br>• Predictive Planning<br>• Warehouse Automation | • Wearables | • Beacons<br>• Social-media monitoring<br>• Mobile Apps |
| **Energy & Utility** | • Connected Batteries<br>• Smart Powerhouses<br>• Smart grids | • Leakage Monitoring<br>• Connected HVAC systems<br>• Intelligent sprinkler systems | • Storage Conditions Monitoring<br>• Power Theft detection and Monitoring System | • Smart Helmets<br>• Geofencing<br>• Health & Safety monitoring | • Smart metering<br>• Energy Use recommendations<br>• Smart decision making |

Note: The infographic above shows analysis done on specific industries
*POC stands for Point of contact for IoT solution with respect to Industries

# Industry adoption by major IoT areas: Products, assets and logistic based solutions are gaining high attention among Industry players while niche labor safety use cases for Oil & Gas and Energy verticals is driving connected workforce segment

| Industry / IoT application areas | CONNECTED ASSETS | CONNECTED PRODUCTS | CONNECTED LOGISTICS | CONNECTED WORKFORCE | CONNECTED CUSTOMERS |
|---|---|---|---|---|---|
| Automotive | High | High | High | Low | Low |
| Industrial | High | High | High | Medium | Low |
| Retail | Medium | High | High | Medium | High |
| Energy & Utility | High | Medium | Medium | High | High |
| BFSI | Not applicable | High | Not applicable | Not applicable | High |
| Healthcare | Low | Medium | Low | Low | Medium |
| Oil & Gas | High | Medium | High | High | Low |
| Telecommunication | Medium | Medium | Low | Not applicable | High |
| Media & Entertainment | Low | High | Medium | Not applicable | High |
| Consumer goods Mfg. | High | Not applicable | High | Low | Low |
| Consumer Electronics | Medium | High | Low | Low | High |
| Education | Medium | Medium | Not applicable | Low | Low |
| Agriculture | Medium | Medium | Medium | Low | Low |

Adoption intensity: High · Medium · Low · Not applicable

Note: The infographic above shows analysis done on specific industries

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Source: Draup
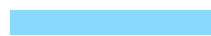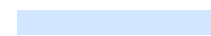
**Digital Maturity of IoT based Use cases/ applications:** Logistics and Asset based connectivity solutions are integrated in high scale as they enable high operational efficiency



**High**

**Trending**

**Leading**

**Key Insights**

- Asset Tracking
- Predictive maintenance
- Fleet management
- Route optimization
- Remote monitoring
- Warehouse automation
- Production Floor Monitoring
- Smart Wearables
- Smart lighting
- Building Automation
- Asset Threat Notification
- Remote Servicing
- Beacons
- Consumer behaviour tracking
- Smart Energy management
- Remote Site Surveys
- Smart parking
- Traffic Optimization
- Smart packaging
- Smart Metering
- Smart grid
- Inventory tracking
- Environmental monitoring
- Smart waste management
- Precision Farming
- Leakage Monitoring

**IoT adoption**

- Tracking, monitoring and Predictive maintenance of assets are the most sought out solution by industries like Industrial, Energy & Utility, Oil & Gas and Automotive due to high cost saving realization and optimized operations

- Connecting logistics ecosystem help companies to monitor, track their supply chain accurately and cater their end customers on time and minimize the risks associated with vehicle investment, improving efficiency and productivity while reducing overall transportation and staff costs

**Nascent**

**Emerging**

**Investment in IoT**

**Low** ← → **High**

- Connected Assets
- Connected Products
- Connected Logistics
- Connected Workforce
- Connected Customers

Model Analysis is based on the DRAUP's proprietary engineering database, updated in August 2019

Source : DRAUP

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Source: Draup

# AGENDA

| | |
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| | |
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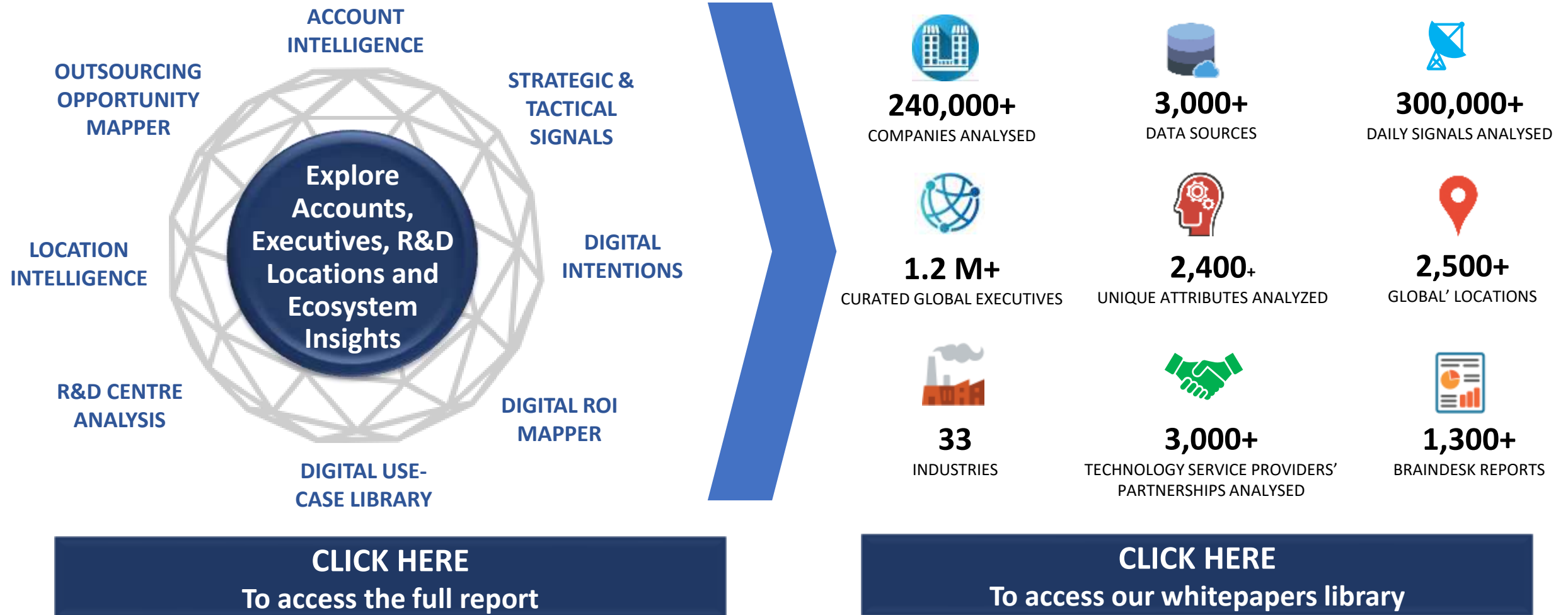
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*Topics Covered:*

➢ IOT Applications by Industry
- o Automotive
- o Industrial
- o Retail
- o Energy & Utility
- o Banking & Financial Services
- o Insurance
- o Emerging Industries

➢ Service Provider engagements and opportunities
- o Business models of IoT service providers
- o Key Services Provider engagements
- o IoT Opportunity Propensity by Industry

These sections are covered in the Full Report

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**STRATEGIC & TACTICAL SIGNALS**

**Explore Accounts, Executives, R&D Locations and Ecosystem Insights**

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**DIGITAL ROI MAPPER**

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**3,000+**
DATA SOURCES

**300,000+**
DAILY SIGNALS ANALYSED

**1.2 M+**
CURATED GLOBAL EXECUTIVES

**2,400+**
UNIQUE ATTRIBUTES ANALYZED

**2,500+**
GLOBAL' LOCATIONS

**33**
INDUSTRIES

**3,000+**
TECHNOLOGY SERVICE PROVIDERS' PARTNERSHIPS ANALYSED

**1,300+**
BRAINDESK REPORTS

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