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Gaining Customer Value from the Internet of Things

Tata Communications Delivers More than Just Global Connectivity

Stratecast Analysis by

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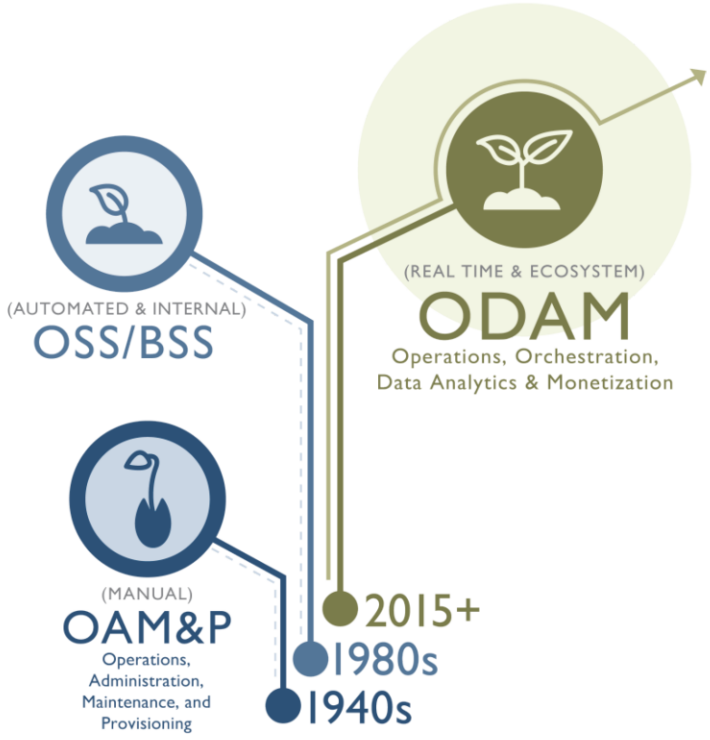


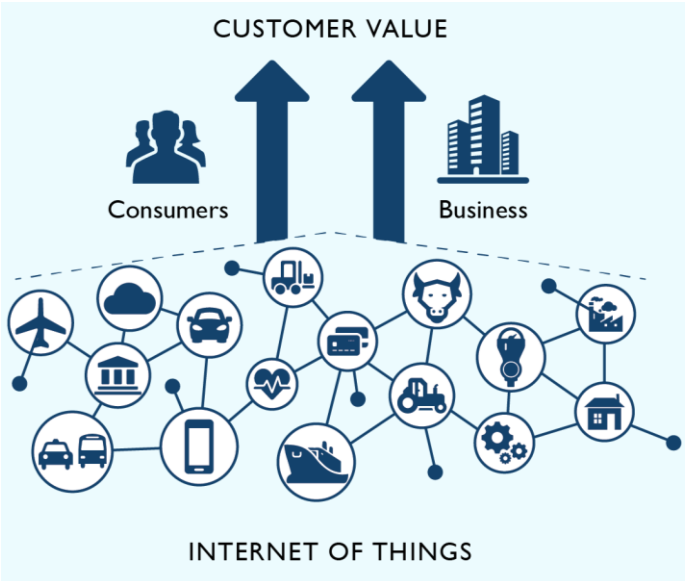
An Industry Thought-Leadership Paper Prepared for Tata Communications

Gaining Customer Value from the Internet of Things

Tata Communications Delivers More Than Just Global Connectivity

Introduction[1]

Beyond smartphones, our "everything connected world" is fostering a rising business opportunity for organizations globally. Industry-specific and cross-industry Internet of Things (IoT) projects are growing into smart industrial initiatives that provide their respective benefactors with measureable improvements. Smart utilities, smart automobiles, smart public transportation, smart healthcare, smart aviation, and smart logistics are just a few examples of where promised benefits are starting to be realized. But, at what cost to the organizations involved? What level of complexity do such solutions impose? What is the return on investment now versus five years from now when these solutions are more evolved?



The delivery process for IoT-based solutions is much more than connecting purpose-built devices to the internet. Yet, businesses and consumers focus on the outcomes from device-to-device interconnection, with no thought concerning the underlying inter-workings that make the experience seamless.

Customers of all types engage with IoT solutions assuming that the appropriate levers of process automation combine adequately and affordably with the right type of connectivity. Customers also assume that connectivity is always available with the speed, capacity, reliability, and security necessary to transport data between their interface point, all connected devices, and the cloud applications that ultimately deliver customer value.

This report summarizes the outcomes from several implemented use cases that address business and customer needs across a variety of industries. It outlines the key requirements for businesses to take full advantage of an IoT strategy that creates high customer value. The report also defines some of the key attributes to consider for profitably meeting the demands of any IoT business opportunity, including the right type of network connectivity. The report further explains why engaging with trusted partners that "know the ropes," such as Tata Communications, are essential for IoT business success.

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[1] In preparing this report, Stratecast conducted interviews with the following representatives of Tata Communications:

- Michael Higgins, Vice President Global Mobile and IoT Products
- Timothy Sherwood, Vice President Mobile Segment Strategy
- Ben Bannister, Director Product Marketing, Mobility and IoT Services

Please note that the insights and opinions expressed in this assessment are those of Stratecast, and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

Connected Business Solutions Are In All Global Industries

Companies in many disciplines are improving business opportunity by changing how they meet customer needs. These organizations use a connected interface to transform traditional products into services through an Anything-as-a-Service (XaaS) model. For example, people subscribe to services they perceive as delivering immediate value, such as streaming music or video, rather than engaging with previous generation (CD's, DVDs) purchases. Other examples are:

- A large Southeast Asian city had difficulties with the timing of waste removal from public receptacles for regular waste and recyclables. Collection bins were typically emptied on scheduled intervals regardless of fill level. Fitted with capacity sensors, bin servicing is now automatically scheduled based on need, resulting in resource deployment cost savings, especially during peak usage periods.

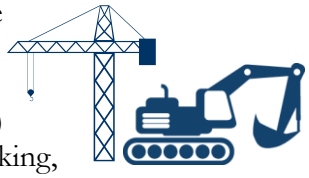
- Printed near field communications (NFC) tags now help logistics companies track the exact routing of package delivery, and confirm, with a tap of a smartphone, if tampering occurred during transport. If so, the package can "say" when and where. Several European international mail delivery organizations use these tags. The tag delivers its tracking details to the cloud, which can be accessed through a smartphone app by the end-user and through the web by delivery companies on a subscription basis.

- Airline pilots have traditionally carried paper charts for navigational back-up and for take-off and landing calculations. Carrying the charts is an inconvenience and adds to weight and cockpit clutter. With cellular connectivity working with satellite, the charts are now held on a tablet. Take-off and landing calculations are automated, and digital charts are always up to date; minimizing the potential for human error.

- Businesses prone to electrical interruptions from weather-related events consume emergency generator electrical power as a service. This service is defined through usage and subscription parameters transported from the on-site generator across a mobile network to the cloud. This model has yielded more money for the generator manufacturer than its former direct equipment sales.

- Airlines purchase "pay-by-the-hour" jet engine usage and long-term maintenance contracts based on data transmitted from a plane in service, rather than buying engines outright. All three of the major global engine manufacturers (GE Digital, Rolls-Royce, and Pratt & Whitney) provide this service, which reduces the capital spend airlines need to make on new equipment and associated maintenance. This approach helps them to be better focused on the rest of their business.

- The high-rise construction industry is quickly converting to a tonnage lifted business model for many urban locations, rather than renting or buying a building crane. Also, rental of specialty equipment for land and road development (backhoe, drilling equipment, and land excavator) relies on GPS-based tracking for equipment identification, location tracking, job planning, and usage monitoring. Operational data, combined with location information, is transported to the cloud, where business value is created for both the equipment owner and service user.



- Autonomous freight-hauling truck caravans routinely traverse the Australian desert between Sydney and Perth. Multiple layers of operating data such as fuel consumption, brake wear, load weight, speed, and deceleration braking are collected for each truck, and transported whenever connectivity is available. Sensors on each vehicle enable autonomous transport operation. In another case, non-autonomous fleet trucks crossing multiple national borders are routinely notified about trip performance from analysis of the same data parameters.

- Bicycle sharing requires a real-time, location-based service that synchronizes with the cloud, so users can locate the nearest available bike to their location. In one large Asian city, many users access the service; so, the location of 20,000 bicycles must be precise and cost effective. This cellular-based solution manages the bikes, and also offers a mobile app that refers end-users to other transportation modes when bikes are either not available or the user's destination is not close to a bike sharing station.

- In Europe and the US, trucking companies engage a global tire manufacturer for "tires by the mile." Telemetry is transmitted to the cloud across a mobile network, often in real time, concerning temperature, inflation pressure, moisture conditions of the driving environment, and tire tread thickness. The manufacturer uses this insight to proactively resolve emerging problems before a harmful situation develops. The trucking companies benefit from consistent tire cost management and reduced liability from the avoidance of accidents caused by worn tires.

- An Eastern European bank created a mobile ATM service that is both unique and innovative. Customers using the bank's mobile app can request a car containing an ATM machine to arrive at a designated time and location for depositing cash. This Uber-like experience, for cash deposits and withdrawals, has increased communication between the bank and its customers, thereby reducing churn and creating better opportunities for the bank to sell other services.

- RFID baggage tags have been in operation at Delta Airlines since late 2016. Scanners, at nearly all airports Delta flies to, indicate when baggage is loaded and unloaded from the aircraft. Customers can track their bags from check-in, to loading on the plane, to unloading through Delta's mobile app. This process, versus the more traditional bar code hand-scanning method used globally since the 1990's, enables Delta to maintain a 99.9+% success rate in routing bags to their final destination.

- Certain food crops edible from the field, such as spinach or tomatoes, can now be tested in the field for major pathogens. These tests are done in as little as 15 minutes. With mobile broadband access, test results can stop a harvest within a certain sector of a farming operation when pathogens are detected, to prohibit contamination of a full harvest. Results are continuously documented, with shipped food containers now bearing the harvest time, location, and other relevant indicators within a bar code or QR code. In some cases, RFID tags are also used to track the food delivery process

from origination to store front, which is very important in the sale of fresh seafood.

- A municipal transportation operator in Europe created a solution that is now a forerunner to a country-wide digital fare collection system. Connected transportation services, using a common payment method, offer urban commuters a seamless way to travel when involving services from both public and private outlets. This "smart transportation" solution involves approximately ten local and national transport operators participating in an e-ticketing system that provides an interconnected, interrelated service. Passengers pay for travel on metros, trams, buses, and trains using a common payment card or interactive app.

The Future of the Customer Experience: Device-Based Solutions

Figure 1 is a categorization of the industry-specific IoT solutions that now deliver customer value. Several of these categories are evolving faster than others, especially pertaining to the connected car, shipping and logistics, smart utilities, vehicle fleet management and industrial automation.[2]

Figure 1: IoT Solution Value Chain

Source: Stratecast

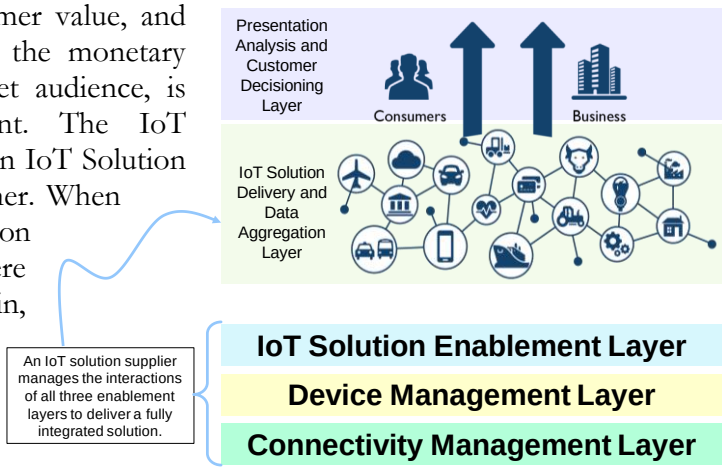
Stratecast believes that approximately 70% – 80% of the connected solutions that will be customer service offerings by 2022 are either early-stage concepts today or are at the initial-design prototype stage. But, why are full-fledged IoT solutions not advancing faster? Customer demand is certainly here. What, then, is prohibiting rapid IoT solution creation and delivery?

While compelling IoT-based solutions are easily conceptualized, implementation is sometimes frustrating and expensive. Given this reality, there are several key questions to be considered:

[2] See Frost & Sullivan report 9838-67, *IoT Security Market Watch – Key Market Needs and Solution Providers in the IoT Landscape*, June 2017.

- **What is the common link that defines an IoT-based business solution?** It is the enablement of connected devices that provide customer value through sophisticated business models working differently from the way things are traditionally delivered for mobile voice and data services.
- **What drives these alternative ways to do business?** The key business enablers of IoT-based services, especially those deployed globally, include partner ecosystems involving IoT device suppliers; cloud-based digital businesses; and various types of connectivity providers, such as CSPs, to deliver the right kind of connectivitiy for the right business purpose.
- **What makes these new ways to do business successful?** Flexibility within an IoT Solution Provider's business processes, especially with regard to its order management, monetization and partner management systems. These systems must be capable of supporting new business and revenue models, rather than redefining the business around what the software can support.
- **What solution deployment factors are commonly overlooked or downplayed?** There are several overlooked factors including: business domain understanding, orchestration of partner-provided components for end-to-end solution delivery, customer identity and access management, device security, partner relationship management, network connectivity (local or global), retail customer billing, and wholesale partner revenue management.

The enabling mechanism for delivering customer value, and for an organization in any industry to reap the monetary benefits from providing solutions to its target audience, is partner-level orchestration and management. The IoT component orchestration role, also known as an IoT Solution Provider, is often ill-defined or absent altogether. When this role is recognized, it comes with a realization that the IoT Solution Provider understands there are different roles within the partner value chain, and that these roles must be coordinated by someone—either the IoT Solution Provider or a trusted partner. This role is strategic for moving an IoT solution from the proof-of-concept stage to a full-borne offering.



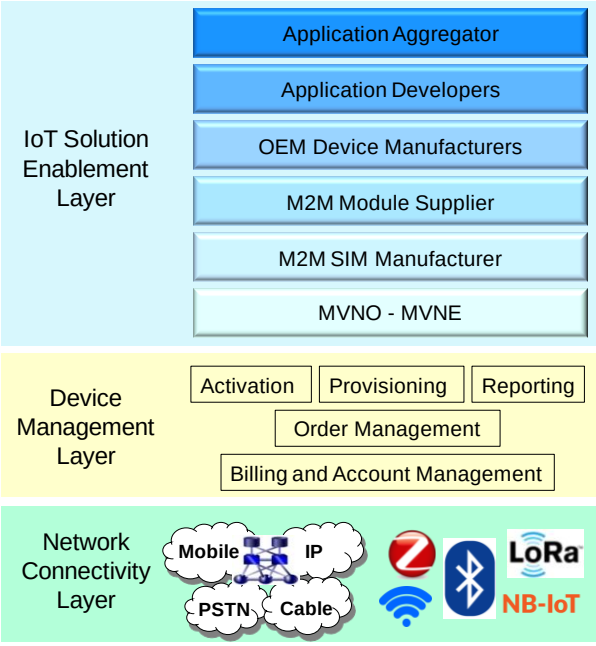
The Secret to Successful IoT Solutions: A Multi-Layer Partner Ecosystem

For cellular-based IoT connectivity, smart devices utilize the communications capabilities enabled by the subscriber identification module (SIM). As part of the IoT 1.0 device assembly process, a SIM—from the mobile carrier the device manufacturer partners with for connectivity at the place where the device will be used—is inserted into the device during the manufacturing process. This process not only means "locking in" to the associated carrier's network but also "locking in" with its partner ecosystem and regulatory definitions. Together, there are at least three layers of partners, suppliers and connectivity providers. They are:

- **IoT Solution Enablement Layer** – The solution enablement layer addresses the common IoT functions, and administers the flow of information through application programming

interfaces (APIs) between the device and the applications that ultimately deliver value to the end customer. To enable these functions, a business process engine is needed to invoke rules that are specific to the conditions and usage situations under which the device must perform. To enable communication between the device and any application, all needed protocol translations are also performed within the IoT solution enablement layer.

For example, the General Motors On-Star emergency services and entertainment system is automatically activated when motion sensors in an automobile identify an abrupt stop or radical change in a vehicle's direction due to the possibility of an accident. This information is communicated to the On-Star application, which then implements business rules that drive certain actions based on the sensor readings and interactive communication between the driver and the On-Star call center agent. Additional examples include residential or business environmental control and intrusion monitoring designed to make heating, cooling and lighting adjustments according to user-defined conditions. These can be based on time-of-day settings, changes initiated through a smartphone app, or automatically when unauthorized access through a door or window is detected.



- **Device Management Layer** – The device management layer contains a network operator's IoT service enablement platform, and specifically addresses the operations and monetization functions pertaining to an IoT-enabled service. The platform is responsible for: service and device provisioning on a network; enablement of customer management functionality when human involvement is needed; revenue management calculations and partner compensation tallies; device administration; device status reporting; and usage pattern analysis. In some solutions, this layer also addresses the need for SIM redefinition through a remote subscriber management function.

- **Connectivity Management Layer** – The connectivity management layer provides network connectivity as part of the IoT service provisioning and activation step. This is done through the associated carrier's network, as defined by the embedded SIM; or, if the device is outside the carrier's coverage area, through a partner of the network operator as a roamer. Connectivity can be supplied in a number of ways—for example, through a cellular network, or Wi-Fi network, or LP-WAN, or an NB-IoT network, and even a combination of these networks. In some solutions, when a roaming condition is detected, the SIM card is redefined through a remote subscriber management function.

Many IoT suppliers do not address all of the functions described within the solution layers just described. However, these functions are essential for IoT operations to successfully meet customer hopes and to satisfy partner expectations.

The Other Secret: Using the Right Network

Certain IoT use cases require different network resources. For instance, will the solution involve a stationary connected device, such as a road sensor, traffic signal, pressure valve, or flow meter? Will the connected device need mobile network capabilities such as a connected automobile, wellness tracking monitor, or consumer wearable? Will the solution need both types of network delivery options? Matching needs to network capabilities is critical for optimizing costs through the best use of resources for maximizing solution performance and to meet customer expectations. For example, using an LP-WAN or NB-IoT network is good for small bursts of data, while 3G and 4G networks are better for continuous data streams. Satellite is an alternative, but a combination of cost, coverage, and propagation delay can sometimes render this option less practical from an implementation perspective. Matching solution needs to network capabilities is a must.

Many of the presently deployed IoT 1.0 solutions require a mobility option capable of addressing continuous data streams. Most of these solutions are manufactured with a carrier-specific SIM. If the device is manufactured for sale in multiple countries—for operational issues beyond the scope of this report—different versions of the device with different SIMs are created according to the country or location in which it will be used. With inventory defined in this manner, all other points of difference ignored, each configured SIM-based device is marked with a unique "stock keeping unit" (SKU).[3] The SKU is used to help the manufacturer keep track of what inventory is designed for sale in which markets, which communications carriers will supply connectivity to what devices, and to note which customers have these devices for any needed support when necessary. **This multi-SIM approach is both cost-intensive and troublesome to manage in the manufacturing process, especially if the device is of a high value such as an automobile, or requires a significant amount of time to manufacture.**

Additionally, with IoT 1.0 solutions, the manufacturer cannot get a full perspective on how its devices are working or a full understanding on the status of a device model across the global marketplace it serves. Doing so requires an extensive information collection and integration effort involving data from each of the network carriers supporting its business. An added problem occurs when a SIM-based IoT 1.0 device, such as an automobile, is manufactured with a SIM designated to operate within the home location of one carrier, but is sold later into a region addressed by a different network carrier. Such a scenario can be burdensome to the manufacturer and even the originally designated network operator, with the potential of data communication addressed at the car's new location, and at the carrier's roaming rate for its partner's network.

Enter IoT 2.0. This evolution of the connectivity SIM incorporates programmable embedded SIM capability, or eSIM technology, which eliminates the need for IoT solutions to be designed using multiple SKUs. An eSIM enables a device manufacturer to switch between network operators domestically and internationally, thereby eliminating the need to personalize the SIM in the factory. This makes it possible for devices to work on any cellular network as a local device, to avoid the premium of roaming charges and to be remotely provisioned by IoT device manufacturers using a single cloud-based operations platform. While a detailed discussion of eSIM operability is beyond the scope of this paper, **eSIM technology is changing the face of global IoT solution offerings, by bringing flexibility in terms of activation and reconfiguration.**

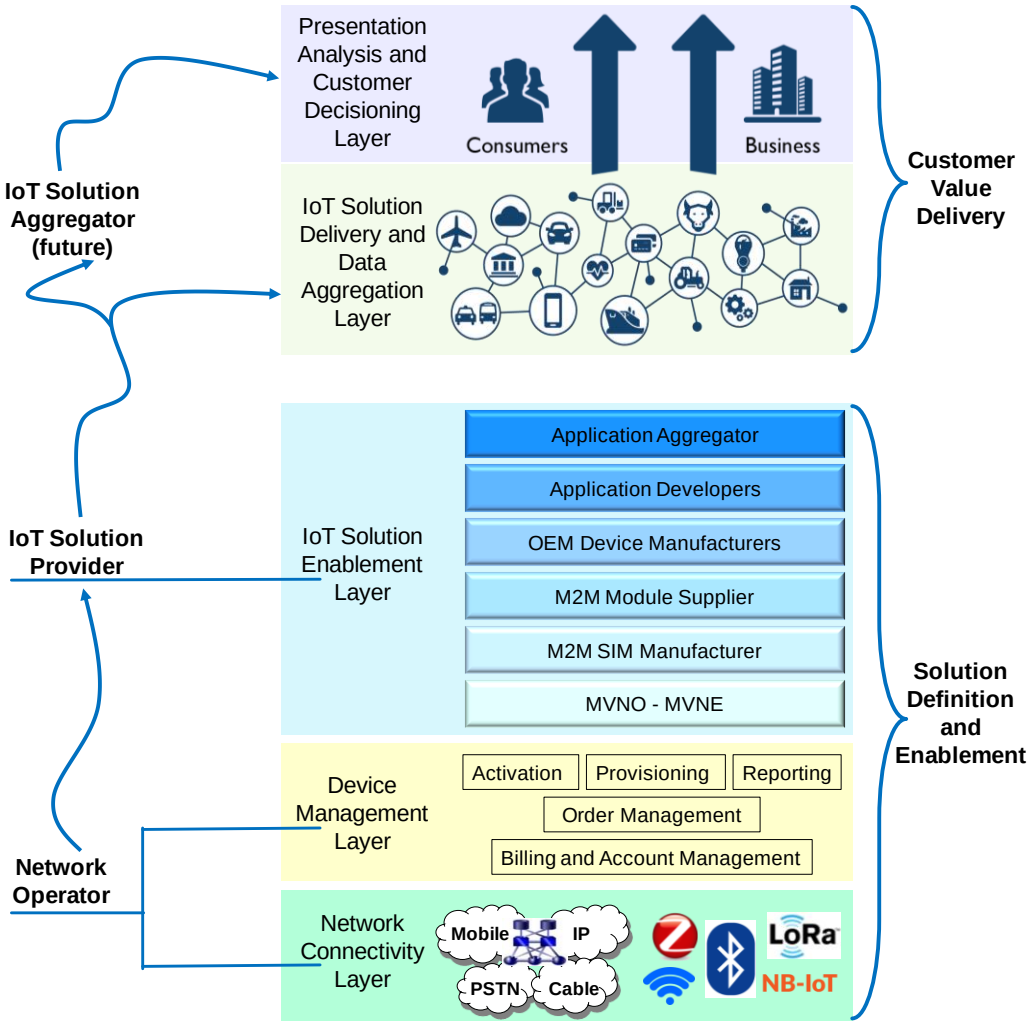
[3] An SKU is a number or string of alpha and numeric characters that uniquely identify a product. SKUs are often called part numbers, product numbers, and product identifiers. SKUs are used by various organizations to keep track of the unique characteristics associated with a particular device and its operational functionality.

Establishing a Profitable IoT Solution Business

In the haste to get an IoT solution operational, some IoT providers could overlook important parts of the IoT implementation opportunity. For example, they could ignore revenue that can come from addressing the needs of each part of the solution and/or miss expected revenue projections because key factors were not fully addressed. Satisfying these needs requires the role of an IoT Solution Provider, as noted in Figure 2.

Whether the recipient organization of an IoT solution assumes the role of end-to-end "IoT solution provider," or works with a trusted partner, this function is extremely important. The IoT Solution Provider orchestrates the necessary piece parts that define an IoT solution, including the right type of network connectivity; and follows through with the implementation of that solution within the customer's business environment. In the near future, Stratecast believes this role will expand to include aggregation of several related and unrelated IoT solution results that now individually drive to the customer presentation and decision layer.

Figure 2: Role of the IoT Solution Provider within the IoT Partner Ecosystem



Source: Stratecast

A successful IoT strategy should involve the following:

- **Focus on the End Customer** – A typical IoT solution will involve multiple partners. It is very likely that a critical sensor unit for a particular use case will have a manufacturing step that requires several weeks, or possibly months, to complete. In this case, the IoT solution must be timely for meeting the needs of the target beneficiary, have a useful enough lifecycle to profitably recover solution costs, and be able to meet future growth opportunities with minimal upgrades. In addition, some IoT offerings could start off small and grow exponentially; or be expected to grow exponentially, yet show only moderate expansion.

  It is imperative to understand what the needs of the target beneficiary are for each IoT use case during the conceptualization stage of the development process. If business plans and supporting functions fail to consider all of the needs and potential revenue associated with a solution, business outcomes will fall short of expectations. An IoT Solution Provider can add valuable insight and understanding to any IoT use case team, to help guide them through these key decision steps.

- **Clearly Define Outcome Expectations** – Meeting timing and functionality demands requires precise understanding of solution delivery expectations. All "what if" scenario planning should be considered so that no matter what outcome the IoT solution yields, all possible options are well understood. Too often, solution expectations, before delivery of actual results, are envisioned to be more positive than actual delivery. An IoT Solution Provider should offer critical assistance in matching expectations with business realities.

- **Develop Compelling Products** – Time to market is dependent on the industry and the customers involved. For example, micro-chip manufacturers typically follow an 18-24 month lifecycle before introducing a new chip to the market; although this cycle has accelerated somewhat over the past 2-3 years. To address the needs associated with a particular IoT use case, look for opportunities to leverage what is already in place, as a way to decrease time to market and help to improve the rate of solution adoption. Some IoT use cases may be less dependent on technology change, and more focused on increasing sensor coverage, or expanding analysis of collected data to provide more in-depth perspectives.

  Many IoT use cases often start off at small scale and expand through either the number of deployed devices or type of data analysis created. For example, as an add-on to basic solution functionality, other compelling factors can include analytics and business insight or comparative analysis. Data collection and transport requirements are identical in each case; but with each new data analysis scenario, a new revenue stream can be created.

- **Establish a Simple End-User Interface for Receiving Data and Solution Value** – Whether through a platform or customer portal approach, data must be easily available. In the case of automobiles equipped with a traditional SIM, car manufacturers in the past needed to consult with each network operator partner and its respective IoT platform to obtain a complete picture concerning the make and model of a car from its global production chain. Using the programmable eSIM, it is now possible for a global automobile manufacturer to work with a single network operator to get the same results.

  Beyond the challenges involving global connectivity, customer value must be easily obtainable and data always accessible for IoT-based solutions to expand with new

capabilities beyond the initial offering stage. Direct and easy to understand data analysis is a key component in any new IoT solution definition process.

- **Build a Revenue Strategy from the Start** – There are many examples of IoT-based solutions with large numbers of devices at play, which often contribute very small amounts of data, but do so regularly. Defining the right monetization strategy for each service offering is a must. Failing to set expectations will severely impact the ongoing success of related services that are likely to come after initial implementation.
- **Create an Effective Partner Onboarding Process** – Where multiple partners are involved, it is essential that a simple-to-engage partner process be part of any IoT deployment strategy. This is needed for working with digital content partners or partners that provide fully-assembled IoT solution modules requiring network connectivity. Onboarding should also define business expectations, and the IoT solution platform should account for all wholesale partner transactions.
- **Choose the Right Partners** – IoT-based solutions are rarely, if ever, addressed by a single supplier. In fact, there are several categories of ecosystem partners that an IoT Solution Provider must consider when addressing the needs of a use case with its customer—the IoT use case development team. Some categories may be fully addressed by the IoT Solution Provider, while others will involve the expertise of partners. The various partner categories likely to be engaged depends on the type of use case to be implemented, and may include:
    - **Business Consulting** – An IoT Solution Provider, such as a communication services provider, may or may not have all of the expertise needed to define the business problem and to interpret the associated outcomes for major IoT use cases within a specific industry. It is very likely that a solution supplier will reach out to industry domains it has expertise in, likely through implemented examples.

      Within this position, a trusted consulting partner with the right credentials can add significant value. Key questions that a business consulting partner can address are variable but should include many of the following. What is the nature and purpose of the IoT business solution? Are there alternatives? What are the industry needs that are not met today? What is the business case analysis for the beneficiary of the outcomes from this and related use cases? What is the payback lifecycle? What strategic pricing model should be followed? What are the right device connectivity options to consider according to expected business outcomes?
    - **Cloud Services** – The key questions to ask a cloud services partner include: what is needed by way of data center support? What approach is taken to secure data in the cloud? How will data be transported to the data center location? What level of billing services will be required? Are additional back-haul networks or other new infrastructure necessary, or will current connectivity services suffice?
    - **End-User Smart Devices** – What end-user devices will be needed; e.g., sensors, box-level products, display solutions, or industrial tablets? And, how will they be procured?
    - **Software Solutions** – What application stacks need to be deployed for data collection? For solution activation and control? For aggregation of the data produced by a remote sensor? Will the data be processed at an off-site data center, or near the

data generation point? What types of data reports and, hence, report generation tools will be required? What is the billing stack pricing strategy; e.g., is the cost of remote sensing an embedded equipment solution cost, an ongoing cost or both, according to business definition?

- **Hardware solutions** – What type of network technology is needed or is available for transporting data from a device to the data processing site? Will 2G work, or is 3G or 4G coverage more cost beneficial? Can near-field connectivity such as Bluetooth be deployed? Can other unlicensed spectrum options provide enough coverage, or will the solution depend on technologies such as satellite access, GPS, Wi-Fi, or some other type of network?
- **Security** – What hardware and software security solutions are needed so that devices remain in place and continue to perform their intended functions? Is an embedded client or enterprise security capability necessary? Should a separate security strategy be implemented to avoid hardware theft or illicit access at the point of data collection?
- **Process Standardization and Regulatory Conformance** – For a global solution, how can processes be standardized to accommodate different implementation suppliers in different regional sectors? How will data be managed between cloud centers to address regulatory needs? Are there environmental issues at stake? If applicable, how will compliance definitions be monitored and reported to involved municipalities? Are there local labor requirements or ordinances that must be addressed where automation replaces manual methods?
- **Technology and Solution Implementation Support** – What level of device testing services are needed? What about solution interaction certifications? Is there a need for solution design, data analytics or application development services, initially, and as on-going support?

Tata Communications[4] MOVE™ – API Enabled Mobile IoT Connectivity

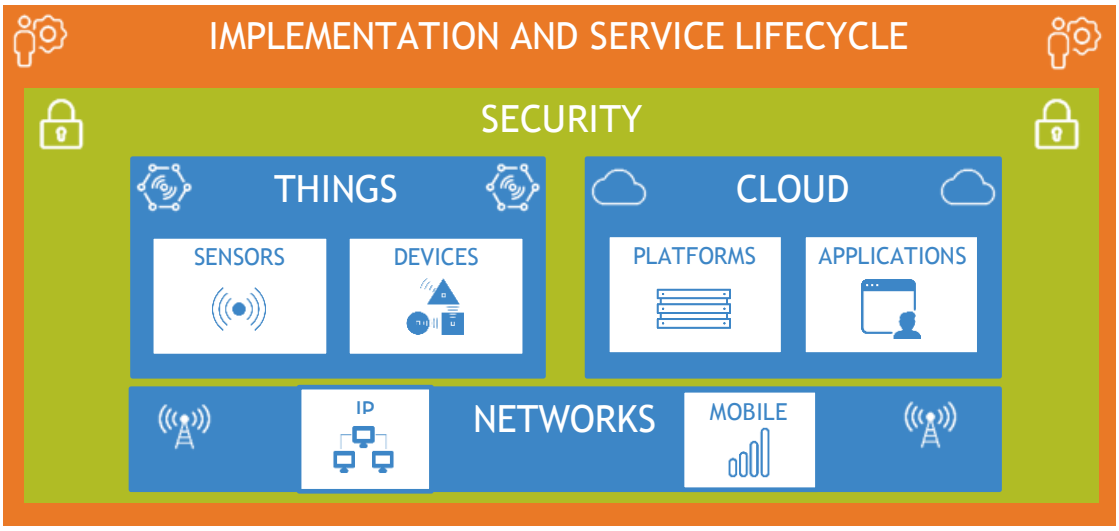
In the IoT partner ecosystem defined in Figure 2, above, the IoT Solution Provider plays a critical part. This role orchestrates the necessary piece parts that define a solution, including the right type of network connectivity, and follows through with the implementation of that solution within the customer's business environment. Whether improving the efficiency of dispatching company vehicles dedicated to a particular business purpose, or tracking the migratory habits of marine life, the end-to-end follow-through provided by the IoT Solution Provider should be the same.

Additionally, companies often run into connectivity issues when an IoT-based solution requires access across multiple regions or even globally. In this case, a company must negotiate with more than one mobile network operator to obtain the desired coverage. Obtaining a macro view of mobile IoT device behavior means that a significant data collection and management process must be enacted, often involving multiple IoT platforms.

[4] Tata Communications is a global provider of a new world of network connectivity, with its roots in the emerging markets. Headquartered in Mumbai and Singapore, it has approximately 8,000 employees across 38 countries. The $2.9 billion company is listed on the Mumbai Stock Exchange and the National Stock Exchange of India. It is the flagship telecoms arm of the $103.3 billion Tata group.

Shown in Figure 3, Tata Communications MOVE brings a multiplicity of IoT Solution Provider capabilities to light, relative to global "Thing-to-Cloud" connectivity, data access, security, and simplified API-based service integration.

Figure 3: Tata Communications MOVE – Securely Connecting "Things" to the Cloud



Source: Tata Communications

Tata Communications MOVE delivers:

- Global mobile data connectivity across 200 countries and territories to provide network independent access through a global virtual mobile network. This eliminates network operator lock-in; and the globally distributed network and infrastructure ensures that QoS levels and service continuity are maintained.
- Connectivity to the private or public cloud, via dedicated APN and VPN-to-cloud services, leveraging Tata Communications IZO™ cloud connectivity service that is linked to multiple cloud service providers.
- API integration supporting new application development. MOVE's large API suite enables connectivity to Open IoT ecosystems such as Dell or PTC Thingworx.
- Over the Air (OTA) eSIM provisioning—an increasingly important requirement for IoT services—enables an original equipment manufacturer (OEM) to gain better control over a connection. Tata Communications MOVE eliminates the complexity associated with managing multiple eSIM providers and mobile network operator profiles.
- A multi-layered approach to security encompassing SIM, Network and Cloud security, supported by comprehensive managed security services.
- Customer portals for ensuring policy enforcement, security and visibility. Custom network level access policies, together with granular levels of access, provide additional security.

Stratecast
The Last Word

As companies begin to offer what they used to produce as products, but now as services, there is much more going on behind the scenes than just a device connection to the internet. Implemented solutions are everywhere; however, achieving prolonged success with an IoT solution is challenging, especially as business and technological complexity increase in the race to provide greater customer value and simplicity of operation.

Although IoT solutions take on many forms, the majority of them share several points in common. First, defining what the solution will do in providing value to a selected customer market. Second, mapping out how best to connect a device to other devices or systems. Third, collecting information from a meshed device ecosystem, though this often means interacting with multiple connectivity providers and transport technologies. Lastly, collecting, processing and providing information (not just data) through a single aggregation portal for all points that define the solution.

A central part of any IoT strategy is the IoT Solution Provider. This role serves as an orchestrator and logistics supplier for the components that characterize a connected device. The IoT Solution Provider is also an enabler of data capture, transporter of this data often on a global scale, and purveyor of ongoing device management capabilities for creating customer-approved solutions.

Some IoT Solution Providers, possessing the right technology options as virtualized network functions, can even enable an enterprise to deploy IoT solutions as global services when necessary, thereby eliminating the rigid start and end points defined by a single operator's network. This virtual global network option can provide an enterprise with full global operator control over the service activation, policy, monetization, and data analysis processes. In such an environment, enterprises now have a consolidated view of the performance of their service offerings—regional or global.

Although IoT solutions appear to be taking off everywhere, many have failed in the past; and it is likely that many more will not be sustainable or expandable, as customer needs grow. There are many reasons for this, but chief among them are implementation plans that do not account for the critical success factors discussed by this report. IoT solutions are complex, are slow to deliver desired results, and often provide value differently than initially expected. Engaging with an IoT Solution Provider such as Tata Communications can provide a much higher chance of business success than a go-it-alone approach.

Connected devices are here to stay. Connecting them and profitably delivering customer value is heavily dependent on accurate and reliable components from a growing ecosystem of partners, within any industry, and then combining those components with the right type of connectivity. The challenge today is keeping each partner aligned with the goals and schedules that customers require. That is the role of an IoT Solution Provider, first and foremost. How is your IoT strategy working?

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About ODAM

The processes and tools that communications service providers (CSPs) have utilized to run their businesses have changed over time. More than a half-century ago, CSP network and business management processes were manual (OAM&P). As CSPs evolved over the years, so did the operations support systems (OSS) and business support systems (BSS) that address CSP business and network management needs. In recent years, the lines between OSS and BSS have become less clear, with much overlap. In addition, the roles in which OSS and BSS operate have expanded beyond traditional boundaries. As such, Stratecast now uses the term Operations, Orchestration, Data Analytics & Monetization (ODAM) to encompass both the traditional OSS and BSS functions and the new areas in which business and operations management must now work together, including virtualized networks and telecom data analysis.

About Stratecast

Stratecast collaborates with our clients to reach smart business decisions in the rapidly evolving and hyper-competitive Information and Communications Technology markets. Leveraging a mix of action-oriented subscription research and customized consulting engagements, Stratecast delivers knowledge and perspective that is only attainable through years of real-world experience in an industry where customers are collaborators; today's partners are tomorrow's competitors; and agility and innovation are essential elements for success. Contact your Stratecast Account Executive to engage our experience to assist you in attaining your growth objectives.

About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the Global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies? For more information about Frost & Sullivan's Growth Partnership Services, visit http://www.frost.com.

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