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HUAWEI

2018 Global End-to-End Enterprise IoT Platform Growth Excellence Leadership Award

FROST & SULLIVAN

2018 BEST PRACTICES AWARD

GLOBAL
END-TO-END ENTERPRISE IOT PLATFORM
GROWTH EXCELLENCE LEADERSHIP AWARD

2018
BEST PRACTICES
AWARDS

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Industry Challenges

The broad range of variables that need to be considered when choosing an Internet of Things (IoT) platform make vendor selection challenging for enterprises. The combination of software and hardware – which include the cloud, an operating environment, storage, computing power, micro-services, security and development tools – require decisions on multiple parameters. Each one of these components is individually a major consideration, and they also need to integrate with each other to ensure successful implementation.

In addition to meeting existing requirements, IoT platforms must complement an enterprise's growth strategy in a secure environment. These future development plans may cut across areas such as global expansion plans, addition of new products and services, efficiency improvements, innovation and integration of advanced technologies.

Enterprise IoT platform providers are increasingly focusing on creating a complete ecosystem that makes it easier for enterprises to execute current and future IoT adoption plans. In order to deliver this flexibility, the ability to customize and create partnerships with others in the ecosystem is one of the key aspects that providers must consider. Additionally, access to in-house components such as cloud and integrated services can help to create a seamless experience for customers.

Given the fast commoditization of the IoT market, Frost & Sullivan has identified the strength of IoT ecosystem as one of the key competitive differentiators; this sentiment was underlined in a report titled "Global IoT Platforms Trends". Huawei OceanConnect is an IoT platform that is harnessing a strong foundation developed in Asia to grow globally with its comprehensive IoT ecosystem.

Growth Performance and Customer Impact

End-to-end IoT Offerings

Working with multiple vendors to cater for different IoT requirements can be challenging. Companies are at varying levels of maturity when it comes to IoT adoption. Those that have already started to develop and deploy solutions may seek a provider that can meet all of their needs going forward. Others that are only just starting their IoT journey may need a partner that can support gradual build-up towards complete implementation. In both cases companies need a provider that is flexible enough to integrate with their existing systems and different levels of adoption.

The Huawei OceanConnect architecture provides three layers of working components. These include connectivity management, device management and application enablement. Connectivity options include 2G/3G/4G, Narrow band IoT (NB-IoT), Machine Type

Communications (MTC), Long-Term Evolution (LTE), Zigbee, Z-Wave, Wi-Fi and fixed access. With more than 200 Application Programing Interface (APIs), access to third party capabilities is streamlined. Similarly, more than 40 existing integrated use cases vastly reduces time-to-market and builds a strong foundation for further innovation. The platform also enables data consolidation across different vertical and services.

Huawei cloud is an integral part of the end-to-end full stack IoT platform that the company is able to offer globally, enabling its customers to expand rapidly worldwide. IoT cloud services enable access to different kinds of IoT products such as vertical suites and data analytics on the platform. The benefits experienced by companies include the ability to offer new solutions and enhance revenues in an efficient manner. Additionally, consumers receive benefits in the form of improved experience and potential cost savings. For instance, Groupe PSA (France), the second largest car manufacturer in Europe with a presence across 160 countries, has recently launched its DS 7 CROSSBACK; this is equipped with the PSA IoT Connected Vehicle Modular Platform (CVMP), which is based on Huawei's OceanConnect IoT Platform. OceanConnect will power Groupe PSA's connected vehicles in all regions where these vehicles are marketed. Similarly, the company is co-operating with China Telecom to offer an open platform to deliver services such as smart metering, shared bicycle, smart white goods, smart lighting.

Use-cases Across Verticals

Given the importance of telecom companies in the IoT ecosystem, Huawei has partnered with multiple global providers such as Vodafone, Deutsche Telekom and AT&T. With its data consolidation capabilities across different verticals and services, the company is able to cater to a diverse range of requirements. Huawei has identified three top priorities for service innovation – smart city, smart industry (public utilities and connected cars, in particular) and smart life/home. It has multiple use cases across each segment. For instance, the company is working with city governments to create smarter cities. As part of a collaborative pilot project with Munich Airport and Telefónica Germany, a smart meter proof of concept (POC) was launched. NB-IoT will be used to digitally transform the analogue and manual readings of electricity meters, and will allow the airport IT department to access meter data for faster analysis. Similarly, the company has developed a smart parking solution with Shanghai Unicom and SureKAM that collects parking information and queries, lowers manpower costs, increases utilization of parking spaces, and increases parking revenues. Huawei launched a 'demo smart city' in Weifang, China, enabled with its NB-IoT smart city applications and OceanConnect IoT platform. The platform addresses issues of fragmentation and provides support for comprehensive decision making by aggregating real time data. Some of the benefits include a 25% reduction in illegal parking, 30% energy savings with smart street lamps, and a 30% reduction in water, gas and electricity meter failures.

Another part of its growth diversification strategy has largely relied on the use of partnerships and in-house capabilities to expand the OceanConnect Platform; acquisitions are not a significant part of the plan since the existing model is working well.

Focus on Eco-system and New Verticals to Sustain Growth

Huawei works very closely with other eco-system participants; it is cognizant that it can be difficult for one provider to cater to the entire value chain of IoT. With co-operation across the eco-system as one of its key success parameters, and to sustain the growth and enhance future prospects, the company plans to continue with its 'Glocal' philosophy. By working with local and global providers, a burgeoning developer community, technical partners, and offering different certifications to their partners, the company is constantly building on this model. The capabilities of the leading local partners are integrated into the platform through open labs and can be rapidly introduced to customers globally using various Huawei channels.

In addition to its own cloud, Huawei also works with leading telecom cloud providers such as Orange (France) and Deutsche Telekom (Germany). The cloud platform enables telecom companies and their partners to quickly deploy their services on the Huawei IoT platform.

As Huawei increases the number of partnerships across the ecosystem, it is also focusing on increasing its range of connectivity options. The company is exploring new verticals to increase its reach. For instance, personal health is one such rapidly growing segment. This is due to the ability of Huawei to harness existing capabilities in Machine Learning (ML) and Artificial Intelligence (AI) to cater to the personal health industry and improve insights for users. The company invests in research and development (R&D) so that it can understand the potential of new verticals and keep track of requirements. Some of the steps include a $1billion investment in 2015 to support developers, and 14 OpenLabs across the world, of which 8 are in partnership with operators such as Vodafone. Some of its other initiatives include the smart home project with Telefonica in Peru, connected car project with TRUE Thailand, and a joint innovation program in 2017 with MTN SA to research innovative technologies.

Experience and Expertise Enhance Customer Satisfaction

When interacting with the Chief Information Officers (CIOs) and Chief Technology Officers (CTOs) of enterprises looking to integrate Huawei OceanConnect, the company relies on decades of experience as a telecom vendor. The company uses a team of experts to understand the requirements of a potential client. The solutions are mapped to customer profiles and pain-points and corresponding best options are suggested. An agile and comprehensive R&D team caters to the stated customer expectations. Within 2-3 weeks, a proof of concept (PoC) and virtual and visual solutions are shared with the client. The R&D teams are located globally, and solutions can be customized. Huawei offers different

business and pricing models, allowing the customer to select the one that fits best with their needs. An internal mechanism led by a project leader analyses and provides feedback on how customer requirements were handled.

With an end-to-end IoT platform that includes a global cloud and 'Glocal' format of partnerships, Huawei can deliver rapidly for global projects. The quick time to market enhances value for customers.

One of the key pain-points for customers when they are adopting an IoT platform is cybersecurity. Huawei OceanConnect uses a security framework coined the 3T+1M framework. 3T stands for 3 technologies – of which one resides on the device, one is for the pipe and one is on the cloud – to guarantee security. 1M stands for management method, where procedures and tools are shared with customers to guarantee the overall security of the IoT communities. Additionally, partnerships help to further strengthen security – a good example in this regard is Huawei's Memorandum of Understanding (MoU) with Gemalto, a leading provider in digital security. Gemalto's award-winning LinqUs On-Demand Connectivity (ODC) solution is integrated with the OceanConnect IoT platform to enable seamless connectivity. This allows Huawei's customers and partners to connect to any mobile operator globally.

Exceeding Customer Expectations

The key elements needed to ensure a good customer service experience include delivery of products and services beyond customer expectations, both for quality and after sales services. Some of the aspects that add value include on-time delivery and creation of a joint delivery team, which involves key customer stakeholders. Routine team meetings help to ensure that the delivery is on schedule. Dedicated experts and teams shares roadmaps with customers, while client concerns are discussed regularly and comments are included in the process. For instance, since the IoT solutions are on cloud, maintenance can be a concern for many clients who are unfamiliar with the processes. The centralized maintenance team helps clients to understand the process better. Given its global footprint, Huawei is also able to provide local customer care.

The company continuously invests in R&D to improve customer experience. The dashboard offered to customers is customizable, allowing customers to organize the interface how they like to create a unique and completely tailored solution.

Customer Reliance on Strong Brand and Global Presence

Huawei's global presence and broad product/solution scope has helped it grow into a large globally renowned telecommunications company. Given its strong background of offering Huawei OceanConnect to multiple industries and clients in China, it has been able to grow steadily in Europe, and exhibits capabilities to grow globally. Companies rely on its global presence, expertise and long history to chart out their own global plans. The company has

~3,300 IoT R&D experts, of which ~600 are dedicated to development of the OceanConnect IoT platform. Huawei has also set up IoT work-groups worldwide. These are localized incubators for IoT solution; the company currently has 2 in Europe (Munich, Germany and London, UK), 1 in the US and 5 in China. Huawei actively participates in and leads many international IoT associations, further enhancing its brand. As part of its global expansion strategy, Fibaro, a smart home device products and service provider in Poland, partnered with Huawei to leverage its global brand name and image. Fibaro is looking to benefit from the versatile Huawei cloud and platform that enables integration, is highly secure, and enables many business applications.

Conclusion

Huawei's OceanConnect Platform has registered steady growth over the last few years. With a strong ecosystem that relies on its own end-to-end capabilities including cloud and integrated services, it offers companies the opportunity to expand globally in a short period of time. Huawei's continuous efforts to work with the best third party providers allow customers the benefits of additional capabilities and enhanced solutions. The company plans to continue with its 'Glocal' strategy and exploration of new verticals to sustain growth in the coming years. With its strong overall performance, Huawei OceanConnect IoT Platform has earned Frost & Sullivan's Global 2018 Growth Excellence Leadership Award.

Significance of Growth Excellence Leadership

Growth Excellence Leadership is about inspiring customers to purchase from your company, and then to return time and again. In a sense, then, everything is truly about the customer, and making those customers happy is the cornerstone of any long-term successful growth strategy. Companies that excel in driving growth strive to be best-in-class in three key areas: meeting customer demand, fostering brand loyalty, and carving out a unique, sustainable market niche.

Understanding Growth Excellence Leadership

Companies that creatively and profitably deliver value to customers ultimately set up their businesses for long-term, rapid growth. This is what Growth Excellence Leadership is all about: growth through customer focus, fostering a virtuous cycle of improvement and success

Key Benchmarking Criteria

For the Growth Excellence Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Growth Performance and Customer Impact—according to the criteria identified below.

Growth Performance

      Criterion 1: Growth Strategy
      Criterion 2: Above-market Growth
      Criterion 3: Share of Wallet
      Criterion 4: Growth Diversification
      Criterion 5: Growth Sustainability

Customer Impact

      Criterion 1: Price/Performance Value
      Criterion 2: Customer Purchase Experience
      Criterion 3: Customer Ownership Experience
      Criterion 4: Customer Service Experience
      Criterion 5: Brand Equity

Growth Performance

Criterion 1: Growth Strategy

Requirement: Executive team has a shared vision for the organization's future growth and has created and implemented a strategy that is consistent with that vision.

Criterion 2: Above-market Growth

Requirement: Company's growth rate exceeds the industry's year-over-year growth rate.

Criterion 3: Share of Wallet

Requirement: Customers allocate a greater percentage of their total spend to purchasing products or services produced by the company.

Criterion 4: Growth Diversification

Requirements: Company is equally able to pursue organic (e.g., distribution channel optimization, new product innovation) or inorganic (e.g., acquisitions, partnerships) growth opportunities consistent with the long-term objectives of the organization.

Criterion 5: Growth Sustainability

Requirement: Company has consistently sought out opportunities for new growth, enabling the organization to build on its base and sustain growth over the long-term.

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience

Requirement: Customers feel they are buying the most optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP		OBJECTIVE	KEY ACTIVITIES	OUTPUT
1	Monitor, target, and screen	Identify Award recipient candidates from around the globe	• Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies	Pipeline of candidates who potentially meet all best-practice criteria
2	Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	• Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates	Matrix positioning of all candidates' performance relative to one another
3	Invite thought leadership in best practices	Perform in-depth examination of all candidates	• Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps	Detailed profiles of all ranked candidates
4	Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	• Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles	Final prioritization of all eligible candidates and companion best-practice positioning paper
5	Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	• Share findings • Strengthen cases for candidate eligibility • Prioritize candidates	Refined list of prioritized Award candidates
6	Conduct global industry review	Build consensus on Award candidates' eligibility	• Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates	Final list of eligible Award candidates, representing success stories worldwide
7	Perform quality check	Develop official Award consideration materials	• Perform final performance benchmarking activities • Write nominations • Perform quality review	High-quality, accurate, and creative presentation of nominees' successes
8	Reconnect with panel of industry experts	Finalize the selection of the best-practice Award recipient	• Review analysis with panel • Build consensus • Select recipient	Decision on which company performs best against all best-practice criteria
9	Communicate recognition	Inform Award recipient of Award recognition	• Present Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10	Take strategic action	Upon licensing, company is able to share Award news with stakeholders and customers	• Coordinate media outreach • Design a marketing plan • Assess Award's role in future strategic planning	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.