

FROST & SULLIVAN

WILIOT

2022
CUSTOMER
VALUE
LEADER

*EUROPEAN PASSIVE
BLE-BASED IoT
SOLUTIONS INDUSTRY*

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Wiliot excels in many of the criteria in the Passive Bluetooth Low Energy (BLE)-based IoT solutions space.

AWARD CRITERIA	
<i>Business Impact</i>	<i>Customer Impact</i>
Financial Performance	Price/Performance Value
Customer Acquisition	Customer Purchase Experience
Operational Efficiency	Customer Ownership Experience
Growth Potential	Customer Service Experience
Human Capital	Brand Equity

Battery Power Remains a Challenge with Growing IoT Pervasiveness

With the increasing prominence of the internet of things (IoT) across different industries, organizations embrace technologies to continuously track and trace assets. Customers opt for RFID, UWB, or BLE depending on the use case. Despite the proliferation of devices in the Industry 4.0 era, the high cost of beacons poses a considerable challenge to adoption.

Battery life is another key hurdle considering the growing volume of IoT devices. Applications requiring batteries throughout their product lifetime will result in large form factors or higher costs due to batteries' limited energy storage capacity. Batteries require replacement, incurring manpower and additional costs. The growing volume of battery-powered IoT devices also poses a considerable environmental footprint.

Organizations strive to address these issues using measures such as downsizing, energy harvesting, and using low-power integrated circuits (ICs). However, the varying functionality, capabilities, and costs of products in the market lead to market fragmentation and difficulty in selecting the right solution. Successful vendors provide a comprehensive solution that addresses these challenges while offering value addition and scalability at optimum pricing.

Frost & Sullivan notes that artificial intelligence (AI)-enabled data capture platforms provide additional value in terms of higher efficiency in generating insights and automating provider tracking and notification than conventional data streams.

Empowering Connected Everything through a Disruptive Technology Solution

Headquartered in Caesarea, Israel, Wiliot is a startup founded in 2017 by a group of wireless engineers from Gigabit Wi-Fi pioneer, Wilocity. A semiconductor company, Wiliot is known as an IoT pioneer and innovator in the industry.

In 2019, Wiliot introduced its IoT Pixel, a battery-free Bluetooth-based sensor tag characterized by sustainability, scalability, and affordability. Unlike competing technologies, the Pixel is the industry's first-ever stamp-sized (3.92cm*2.4cm) Bluetooth-based sensor tag, which can be affixed to any asset. The Pixel houses an ARM processor powered only by recycling energy from ambient RF frequencies. Energy is likely to fluctuate and be intermittent, requiring a chip capable of sensing extremely low power.

Wiliot innovatively designed the Pixel tag based on its breakthrough in Nano-Watt Computing, which enables the chip to scavenge RF power from weak sources below -30dBm. Also, its AI-enabled sensing increases individual tag sensing accuracy from 1.5c to 0.5c, or 0.1c when positioned in a swarm of tags. By designing a product without batteries and other expensive components, Wiliot guarantees unprecedented energy efficiency and positively impacts customers' TCO, underscoring its focus on enhancing sustainability.

The Wiliot IoT Pixel tag is unique and attractive because it can be manufactured using the same process

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as the high-frequency (HF) or ultra-high frequency (UHF) RFID tags. This helps customers manufacture in volumes and eliminates additional investment toward new equipment. Wiliot has now shifted from manufacturing these tags to licensing its Pixel technology to major RFID tag vendors like Avery Dennison, Sato, Checkpoint Systems, and Identiv. Wiliot and Avery Dennison share a common vision that every item will have a unique digital identity to provide stakeholders with the necessary insights.

With Wiliot's Pixel technology complementing Avery Dennison's intelligent label business, the partnership is a win-win for both companies.

Since RFID vendors mass-manufacture these tags, the price of the Pixel tag is approximately 30 cents. With its vision to deliver low-cost tags, Wiliot is working on newer versions of the chip that will bring the cost of the tag down to less than ten cents. This low-cost and intelligent IoT Pixel tag transmits information about the asset and the environment to the Wiliot Cloud using BLE. The three-tier architecture sends information to the cloud by collating or fragmenting based on the energy source. Wiliot Cloud uses machine learning (ML) algorithms to transform sensory data into meaningful insights for customers. With customer privacy at the heart of developing these tags, Wiliot tags use AES 128 encryption technology, which can pave the way for newer applications such as automatic reordering and replacements.

Wiliot offers its Pixel tag and Cloud as one solution to its customers. Through its solution, the company provides sensing-as-a-service (SaaS) on a subscription-based business model, allowing customers to only pay for active use assets and scale based on the sensing and precision required. Frost & Sullivan recognizes that Wiliot's delivery of cost-effective, scalable, future-proof, and battery-free products targeting IoT applications allows the company to offer customers a competitive edge as they embark on their digitalization journey.

Battery-free Bluetooth Technology Attracting Investors and Vendors

Wiliot recognizes the opportunity to reduce waste and inefficiencies, which will ultimately resolve issues related to climate change. Wiliot believes lean operations and continuous improvement are vital to achieving this vision. The company's technology is based on energy harvesting and has the industry's best sensitivity. Its scalable, affordable, and flexible technology enables the company to secure partnerships with software providers, inlay/tag vendors, printer vendors, connectivity gateway vendors, and system integrators. The company's focus on simplicity combined with targeted partnerships results in industry-leading ease of use and integration. Wiliot has continuously expanded its partner network over the past two years, which currently stands at 17 partners globally.

For example, Wiliot is in partnership with EVERYTHNG to provide its battery-free Bluetooth tags to the EVERYTHNG IoT Product Cloud to digitize the brand's products and deliver enhanced consumer experience in applications such as apparel, sporting goods, and wellbeing. Through its partner ecosystem, Wiliot is looking to allow more customers to reap the maximum benefits of its platform by allowing their applications to sit on top of its platform. Wiliot also offers continuous asset monitoring and tracking, and hence its solution can be described as a distributed sensing solution.

BLE technology is gaining prominence across different applications, with Wiliot's technology offering

“BLE technology is gaining prominence across different applications with Wiliot's technology offering enhanced functionality and affordability. Such disruptive technology which enables to connect everything is attracting the attention of investors and companies operating across a diverse range of verticals.”

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both enhanced functionality and affordability. In addition to providing location data, the Wiliot solution enables customers to gain information about the asset's condition and surroundings without any external stimuli. Such “connect everything” disruptive technologies attract growing interest from investors and companies operating across a diverse range of verticals. In 2017, Wiliot raised \$14 million in Series A funding through technology investors Grove Ventures, Norwest Venture Partners, and 83North Venture

Capital. In 2020, Wiliot's focus on mass production of tags enabled it to receive Series-B funding of nearly \$70 million from Vintage Investment Partners, Verizon Ventures, Maersk Growth, PepsiCo, and NTT DOCOMO Ventures. In 2021, Wiliot received \$200 million in Series C funding led by Softbank.

With the company focused on introducing a new version of its product, the latest funding will help it grow its engineering, sales, and product teams globally. Aligned with its mission to transform supply chains and manufacturing, Wiliot recently added Tony Small and Roe Zeiler to its cross-disciplinary

team to drive growth. These individuals' breadth of experience in scaling startup growth coupled with a common vision showcases the company's commitment toward sustainability.

Conclusion

Wiliot is a fabless semiconductor company disrupting the connected ecosystem through its Pixel tag and Cloud solution that guarantees energy efficiency and delivers powerful insights to customers. Wiliot provides a distributed sensing solution through its continuous asset monitoring and tracking features. The company's powerful technology capabilities and value-added benefits continue to attract top-notch brands looking to create best-in-class intelligent labels and solutions across various verticals. Its strategic shift from manufacturing IoT tags to licensing its technology to RFID label/inlay providers strengthens its growth potential further. Through its partner ecosystem, Wiliot is looking to allow more customers to reap the maximum benefits of its platform by allowing their applications to sit on top of its platform.

For its strong overall performance, Wiliot is recognized with Frost & Sullivan's 2022 European Customer Value Leadership Award in the passive BLE-based IoT solutions industry.

What You Need to Know about the Customer Value Leadership Recognition

Frost & Sullivan's Customer Value Leadership Award recognizes the company that offers products or services customers find superior for the overall price, performance, and quality.

Best Practices Award Analysis

For the Customer Value Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

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Key Impacts:

- **Growth Pipeline:** Continuous Flow of Growth Opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

