

F R O S T & S U L L I V A N

FROST & SULLIVAN BEST PRACTICES AWARD

IOT PLATFORMS - GLOBAL

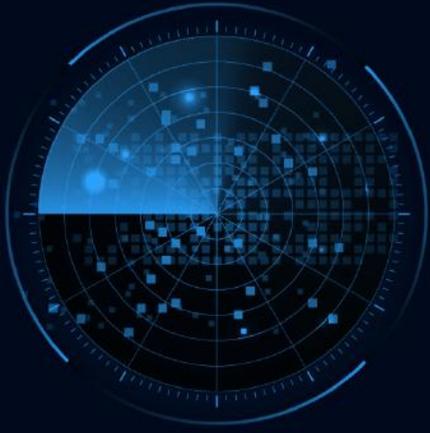
Innovation Excellence Frost Radar
2019

DELLTechnologies

FROST & SULLIVAN

2019

BEST
PRACTICES
AWARD



FROST RADAR

CONGRATULATIONS!

Frost & Sullivan is proud to present Dell Technologies with this year's Frost Radar Best Practices Award for Innovation Excellence in the Global IoT Platforms Market.

Frost & Sullivan's global team of analysts and consultants continuously research a wide range of markets across multiple sectors and geographies. As part of this ongoing research, we identify companies that consistently develop new growth strategies based on a visionary understanding of the future, and thus more effectively address new challenges and opportunities. This involves extensive primary and secondary research across the entire value chain of specific products. Against the backdrop of this research, Frost & Sullivan recognizes Dell Technologies for these valuable achievements.

The Innovation Excellence best practice award is bestowed on companies that are industry leaders reinventing themselves through R&D investments and innovation. These may be companies that are entering a new market and contend for leadership through heavy investment in R&D and innovation. Achieving Innovation Excellence is never an easy task, but it is one made even more difficult considering today's intensely competitive environment, customer volatility, economic uncertainty, and rapid technology evolution. Within this context, Dell Technologies' receipt of this Award signifies an even greater accomplishment.

Moreover, this recognition is the result of many individuals (employees, customers, and investors) making daily choices to support the organization and meaningfully contribute to its future. Frost & Sullivan enthusiastically acknowledges and celebrates these achievements. Once again, congratulations on your accomplishments and we wish you great success in the future.

Sincerely yours,

Krishna Srinivasan
Global President & Managing Partner
ksrinivasan@frost.com

Dilip Sarangan
Global Research Director, Frost Radar
dilip.sarangan@frost.com

The Frost Radar

Global IoT Platforms Market



Source: Frost & Sullivan

In a field of +400 global industry participants, Frost & Sullivan has independently ranked the top 30 companies in the above Frost Radar analysis.

The key parameters independently analyzed by Frost & Sullivan include:

- Innovation Scalability
- R&D
- Product Portfolio
- Mega Trends Leverage
- Customer Alignment
- Growth Pipeline
- Vision and Strategy
- Sales and Marketing

Frost & Sullivan studies related to this independent analysis:
Global IoT Platforms Market, 2018
Frost Radar on Global IoT Platforms, 2019

Industry Overview

Internet of Things (IoT) is a complex ecosystem that integrates information technology (IT) with operations technology (OT) to generate data that can be analyzed to increase revenues and improve business productivity. From Big Data and analytics to ubiquitous connectivity to artificial intelligence (AI) and computing, IoT touches every technology and industry. Survival and growth in this digital world is only possible with strategic partnerships and collaboration.

IoT platforms are the building blocks of IoT solutions, offering multiple services such as application enablement, device management, and connectivity management. Typically, an IoT platform serves as the bridge between IT and OT. This includes layers of software and computing capabilities across the whole IoT solution—from the edge to the cloud. This distributed architecture is essential for the successful deployment of an IoT solution in enterprises and government agencies.

DEMYSTIFYING THE DEBATE BETWEEN CLOUD VS. EDGE

Over the past few years, there has been a constant debate in the industry about edge vs. cloud-based deployment. Deploying at the edge has been touted to reduce operation costs, increase security, and provide users with the ability to gain almost real-time insights. Deploying at the cloud has been touted to aid in managing multiple locations and gain more operational insights across locations and deployment sites.

While this debate continues to rage, the reality for most enterprises is to use a hybrid approach that distributes computing capability in every layer of the IoT solution. Certain services/applications are suited to be performed at the cloud layer, such as machine learning or deep learning. Once the machine learns the process and finds ways to improve it, the insights are downloaded to the edge where they help enterprises maximize the value of their IoT deployment. To gain real-time insights, edge devices and gateways have additional processing capabilities to support these deployments.

In reality, the debate is not really cloud vs. edge—rather, it is picking the right hybrid approach that enhances security, convenience, and value to the enterprise.

THE INDUSTRY MUST ADDRESS THE CHALLENGE OF MARKET FRAGMENTATION

The IoT Platform Market is highly fragmented, with over 1,000 companies touting themselves as IoT platforms. Of these, about 400 have true platform capabilities—some are focused on managing certain IoT applications, others manage a range of devices in certain vertical markets. Choosing the right

platform for your enterprise is an essential step because an IoT solution deployment can take up to a year and this solution is likely to be deployed in the enterprise for the foreseeable future.

Filtering through a list of over 400 service providers, Frost & Sullivan has identified the Top 30 service providers in this space that:

- are constantly delivering innovative solutions for their customers
- are growing as a result of this innovation and value to enterprises
- have the ability to support their customers for the foreseeable future through investments in R&D, while they maintain their growth through sales and marketing efforts.

As with the mobile phone platform market, the IoT platform market must consolidate around a few ecosystems to simplify application development and help reduce confusion among enterprises looking to deploy IoT.

The best practice companies in this space are those that are leading the industry with growth, innovation or both.

Frost Radar Innovation Excellence Award

Dell Technologies

COMPANY DIAGNOSTIC

- VMware Pulse IoT Center is a secure IoT platform for device management and monitoring.
- With a focus on enterprise solutions, the solution enables devices to be rapidly on-boarded, managed, monitored, and secured for a wide range of IoT applications and use cases.
- With a large number of hardware products available from Dell Technologies, the company has a unique focus on enterprise applications that require edge processing and storage.

FROST RADAR POSITIONING

- Dell Technologies is positioned on the right side of the Frost Radar as one of the leading innovators in the industry.
- The company is a recent entrant into the IoT platforms space and its work on the Linux Foundation's EdgeX Foundry is revolutionizing the industry.
- Its large developer network has been enthusiastically receptive to its focus on edge computing.
- The company has a large footprint in the enterprise market with its hardware and has found a niche in developing software solutions to bundle with its hardware for a large number of use cases.

COMPANY STRENGTHS

- Dell Technologies is an emerging vendor in the IoT platforms market that has quickly gained momentum and growth because of its IoT platform.
- With device management capabilities, data analytics, and seamless integration with existing enterprise applications, Dell Technologies has quickly found its niche in enterprise IoT.
- Its security features in these building blocks for IoT solution development have made it a contender in the industry to capture market share.

COMPANY OPPORTUNITIES

- Dell Technologies is one of the leading hardware providers for enterprises. It has seen wide traction with the EdgeX Foundry and open source work with the Linux Foundation.
- This has helped the company rapidly find a niche in IoT with the support of a large number of developers and enterprises adopting its solutions.
- With a focus on edge computing, Dell Technologies is poised to make inroads into most enterprises where customers are skeptical about transmitting data offsite with a bundled approach of hardware and software solutions.

What is the Frost Radar?

A Practical, High Impact, Scalable C2A (Companies to Action) Tracking Solution

WHAT IS IT?

A robust analytical tool that benchmarks companies' innovation focus and growth performance in a given market.

HOW IS IT BUILT?

Through in-depth analysis built on our 360-degree research methodology (primary and secondary research) and objective rating of companies in any given market.

WHY DO WE NEED IT?

To understand how companies benchmark against each other in their ability to innovate and grow against a backdrop of industry transformation and evolution.

WHAT WILL IT ACCOMPLISH?

Companies will gain an objective, independent perspective of their innovation and growth strategies, including their robustness, effectiveness, relative competitive strength, and implications on their long-term success.

HOW TO USE IT?

Frost Radar is a dynamic tracking tool that offers frequent rating and positioning of companies that are leading the industry on growth, innovation or both. Due to changes in operating environment and internal changes within these organizations, their positioning in Frost Radar will change over time. It is important to leverage Frost Radar to ensure that companies are aware of changes to their ecosystem and their relative positions to it.

WHAT DOES IT MEAN TO BE ON THE FROST RADAR?

Every company that finds itself on the Radar has been chosen because they have proven themselves to be worthy by demonstrating excellence in either growth, innovation, or both, and are able to translate that into proven solutions that benefit their clients. At times, companies with high market share may not place on the Radar. Companies are chosen because they are already doing great things, or because they are poised to do great things.

Frost Radar → C2A

All companies on the Frost Radar could be C2A. Best Practice recipients are the companies that Frost & Sullivan considers the **Companies to Act On Now**.

GROWTH EXCELLENCE AWARD

The Growth Excellence best practice award is bestowed on companies that are achieving high growth in an intensely competitive industry. This includes emerging companies making great strides in market penetration or seasoned incumbents holding on to their perch at the pinnacle of the industry.

INNOVATION EXCELLENCE AWARD

The Innovation Excellence best practice award is bestowed on companies that are industry leaders reinventing themselves through R&D investments and innovation. These may be companies that are entering a new market and contend for leadership through heavy investment in R&D and innovation.

GROWTH, INNOVATION & LEADERSHIP AWARD

The Growth Innovation Leadership (GIL) best practice award is bestowed on companies that are market leaders that are at the forefront of innovation. These companies consolidate or grow their leadership position by continuously innovating and creating new products and solutions that serve the evolving needs of the customer base. These companies are also best positioned to expand the market by strategically broadening their product portfolio.

Frost Radar

2 Major Indices, 10 Analytical Ingredients, 1 Platform

VERTICAL AXIS – THE GROWTH INDEX

Growth index is a measure of a company's growth performance and track record, along with its ability to develop and execute a fully aligned growth strategy and vision; a robust growth pipeline system; and effective market-, competitor-, and end-user focused sales and marketing strategies.

- **GI1: Market Share (previous 3 years):** Market share relative to its competitors in a given market space for the previous three years.
- **GI2: Revenue Growth (previous 3 years):** Revenue growth rate for the previous three years in the market/industry/category that forms context for the given Frost Radar.
- **GI3: Growth Pipeline:** This is an evaluation of the strength and leverage of the company's growth pipeline system, to continuously capture, analyze and prioritize its universe of growth opportunities.
- **GI4: Vision and Strategy:** This is an assessment of how well a company's growth strategy is aligned with its vision. Are the investments the company is making in new products and markets consistent with the stated vision?
- **GI5: Sales and Marketing:** This is a measure of the effectiveness of a company's sales and marketing efforts in helping the company drive demand and achieve its growth objectives.

HORIZONTAL AXIS – THE INNOVATION INDEX

Innovation index is a measure of a company's ability to innovate products/services/solutions that are developed with a clear understanding of disruptive Mega Trends, are globally applicable, are able to evolve and expand to serve multiple markets, and are aligned to customers' changing needs. Key elements of this index include:

- **II1: Innovation Scalability:** This determines whether the organization's innovation(s) is/are globally scalable and applicable in both developing and mature markets, and also in adjacent and non-adjacent industry verticals.
- **II2: Research and Development:** This is a measure of the efficacy of a company's R&D strategy, as determined by the size of its R&D investment and how it feeds the innovation pipeline.
- **II3: Product Portfolio:** This is a measure of the product portfolio of the company, focusing on the relative contribution of new products to its annual revenues.
- **II4: Mega Trends Leverage:** This is an assessment of a company's proactive leverage of evolving long-term opportunities and new business models, as the foundation of its innovation pipeline.
- **II5: Customer Alignment:** This evaluates the applicability of a company's products/ services/ solutions to current and potential customers (7-year horizon), as well as how its innovation strategy is influenced by evolving customer needs.