



Infovista Recognized for

2021

Market Leadership

Global 5G New Radio

Drive Test Solutions Industry

Excellence in Best Practices

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 for each nominated company. Infovista excels in many of the criteria in the 5G new radio drive test solutions space.

| AWARD CRITERIA | |
|----------------------------|-------------------------------|
| Growth Strategy Excellence | Technology Leverage |
| Implementation Excellence | Price/Performance Value |
| Brand Strength | Customer Purchase Experience |
| Product Quality | Customer Ownership Experience |
| Product Differentiation | Customer Service Experience |

Product Quality and Differentiation

Since its inception, Infovista has received high marks for performance, functionality, and reliability at every stage of the network life cycle. Infovista is a global pioneer and renowned for producing first-in-class drive test solutions supporting networks ranging from 3G and 4G LTE/LTE-A to 5G deployments. With its longevity and expertise in drive test solutions technologies, Frost & Sullivan finds Infovista well-

“The deployment of 5G NR creates complexity, resulting in new drive testing requirements. Infovista is well-positioned to maintain its market leadership due to its innovative TEMS product portfolio. With its end-to-end network testing solutions, Infovista can support all stages of 5G NR deployments, in addition to its troubleshooting, network optimization, and monitoring capabilities.”

- Mariano Kimbara, Senior Industry Analyst

positioned to provide support as more mobile operators transition to 5G. The company’s innovative, end-to-end network testing solutions for existing and next-generation communication systems and operations span the entire network life cycle. Customers leveraging Infovista’s drive test solutions can rapidly develop commercial 5G products, shortening their time-to-market and providing a competitive advantage.

Infovista has the industry’s most comprehensive 5G NR compliant drive test solution set portfolio (TEMS Investigation, TEMS Pocket, TEMS Sense, TEMS Paragon, and TEMS Discovery) available in today’s market. The solutions can support 5G new radio (NR) deployment in

all use cases, including tuning, optimization, troubleshooting, monitoring and verification, and benchmarking. The company acts as a one-stop shop for 5G planning, geodata, and 5G NR testing. Infovista TEMS solutions' portfolio supports indoor, outdoor, and stationary applications. The solutions play an important role in multiple activities performed during the network's life cycle, from site verification and acceptance to equipment validation. The portfolio can also support applications ranging from the labor-intensive tuning and optimization phase to monitoring, allowing users to identify and eliminate problems as early as possible to minimize the impact on the customer experience. Infovista's TEMS portfolio offers superior capabilities, including automated remote data collection, a flexible real-time view, remote advanced reporting, and cost-effective cloud solutions, enabling in-depth analysis of subscribers' quality of experience (QoE) and quality of service (QoS). As a result, the solutions enable improved network investment decisions.

Introducing Best-in-Class 5G NR Drive Test Solutions

Infovista has built unmatched flexibility and ease-of-use into its TEMS Investigation offering, resulting in the market's most versatile network all-in-one testing solution. An innovative element of the TEMS Investigation tool is its simplified approach toward data collection. Subsequent data analysis can be used to monitor, troubleshoot, and optimize networks. TEMS Investigation continues to be the leading drive test solution due to its ability to provide users with simple and efficient data collection. The offering supports a range of users, from skilled engineer technicians who want to conduct analysis on the fly to non-technically skilled workers seeking to collect data via a simple user interface. Frost & Sullivan notes that its service quality testing is performed from a user's perspective and can be automated via scripts.

Moreover, TEMS Investigation can act as a true automation layer, a differentiated capability that provides multi-dimensional visibility into the underlying raw data. As a result, users can assess the true impact and actual causes of problems, resulting in a quality experience over the network. Such visibility further provides users with the analysis required to optimize the network, such as enhancing the customer experience with actionable insights in real time. TEMS Investigation's technology also has the unique ability to provide multi-device and multi-vendor support, enabling measurements with hundreds of different probes. TEMS investigation supports a wide range of commercial 5G NR devices and chipsets, including QUALCOMM x50/x55 chipsets, Samsung 5G chipsets, and Huawei HiSilicon 5G NR chipsets. Moreover, TEMS Investigation can support a multitude of scanners in the market for 5G NR deployments (e.g., PCTEL IBflex, MXflex, and HBflex scanners in 5G NR frequency bands, including 10 megahertz (MHz) to 6 gigahertz (GHz).) It can also support the PCTEL HBflex mmWave for the 24GHz to 40GHz frequency spectrum and Rohde & Schwarz's TSME6 5G NR scanners for sub-6GHz and mmWave up to 30 GHz frequency bands.

Infovista has further made significant inroads with the introduction of the TEMS Pocket, a superior portable network testing and benchmarking solution. The solution improves analytics for indoor, underground, and densely populated areas measurements, enhancing the subscriber experience. TEMS Pocket also offers superior real-time data visualization capabilities compatible with the TEMS Discovery reporting tool, enabling users to monitor and verify network and service performance with the most comprehensive set of key performance indicators. Script-based service testing specifies the actions required, including control functions to support a wide range of test cases. Automated pinpointing

functionality makes it an ideal choice for troubleshooting and site verification activities. Compared to competing offerings, TEMS Pocket is proven to reduce operational expenditure while decreasing test and data collection times up to 50% compared to conventional technologies.

TEMS Sense has been gaining traction in the market due to its superior autonomous mobile network testing capabilities. The offering allows users to perform continuous testing remotely. TEMS Sense can support network testing probes 24/7 and can be installed in company vehicles, buses, trains, ferries, or stationary locations via a web interface. TEMS Sense is suitable for test activities that must be performed continuously. Network service performance can be visualized and analyzed in real time, while log file information can be used for automatic report generation.

Technology Leverage

Infovista continues to stay abreast of the market by continually introducing new capabilities and leading-edge technologies. The company has made significant inroads in connecting its drive test solutions through the cloud, allowing for an immediate response, analysis, and remote diagnostics. The result is a fully managed cloud-based solution and real-time analytics capabilities. Infovista is in a unique position to offer fully automated remote data collection, real-time diagnosis, advanced reporting, and cost-effective cloud solutions. Moreover, the solutions include cloud-operated guided test sequences to support skilled and non-skilled technicians. Frost & Sullivan notes that a vast majority of drive test products are heading in this direction, with cloud-based analytics and orchestrated solutions gaining significant market traction.

A key initiative of Infovista is its focus on site verification. Unlike existing competitive offerings that require time-consuming labor (e.g., spending hours collecting data on a site) and highly skilled technicians, the TEMS Cloud for site verification module simplifies the process, enabling even non-technical staff to address all aspects of the centrally managed workflow, including analyzing results remotely in real time. The TEMS Cloud solution for site verification acts as an efficient collection tool with unparalleled orchestration and automation capabilities, including following pre-defined tasks and navigation. As a result, the offering reduces inconsistencies in processes, the need for retesting, and the time taken across projects.

Moreover, Infovista has developed context-sensitive testing capabilities with the application of different data sets based on the radio environment faced. Another key technology feature is its precision testing capabilities, allowing the company to identify hot spots and critical areas that need testing. Unlike most competing offerings, Infovista has added smart functionality into its data collection solutions. Machine learning (ML) algorithms enable the company to be context-sensitive, allowing it to identify what types of tests to apply depending on network parameters. The company has also been adding precision drive testing capabilities to identify the necessary tests and the best routes to take for site verification. All of the tests are automatically generated. Infovista is currently investing in research activities in all of these technology areas to support further embedded intelligence.

Instead of offering reactive measurements, Infovista is providing augmented and proactive measurements using ML and artificial intelligence algorithms. Such an approach expands its TEMS drive testing solutions and real-time predictive analytics capabilities, resulting in more accuracy, post-

processing time reductions, and less intrusive analysis to support 5G use cases, including eMBB and IoT connected cars. The company also trains its algorithms on a wide range of real-life user experiences, scored samples, and the radio environment. The result is the best test to evaluate 5G NR coverage. The company continues to develop ML and AI root cause analysis techniques. Proven benefits of this approach include reducing drive test operational costs by up to 60%.

Furthermore, Infovista is expanding its capabilities through initiatives such as developing comprehensive, drone-based solutions combined with ground-level drive testing to provide enhanced 3D accessibility with superior coverage and horizontal and vertical data. To that end, it is working in initiatives deploying its TEMS drone-based solutions for 5G NR deployments and 3D outdoor analysis in Europe. Consequently, the company is in an enviable position to respond to carrier and mobile network operator requirements (e.g., the expectation of further testing time savings from unmanned aerial vehicle network test solutions). The company is currently creating a completely managed 3D outdoor map to perform outdoor testing scenario analyses, speeding up deployment plans and allowing clients to make data-driven decisions to improve their 5G NR network operations.

Brand Strength

Leveraging the innovation of its TEMS solutions portfolio to support 5G NR test needs, Infovista has established itself as the leading vendor of mobile network drive test solutions. Infovista stands on a foundation of reputation, working with more than 250 mobile network operators globally and 60% of the top 20 mobile operators for the 5G NR market. The company's cutting-edge drive test product offerings, network lifecycle automation capabilities, and customer-centric delivery approach help customers gather and manage data to obtain real-time actionable insights that deliver maximum value. As a result, Infovista helps companies build better 5G networks.

"Infovista is equipping its TEMS probes with more machine learning and artificial intelligence to support real-time predictive analytics. The result is a more comprehensive drive test solution that performs root cause analysis."

- Mariano Kimbara, Senior Industry Analyst

Frost & Sullivan research reveals that the company holds two critical market advantages. First, the company's high technical expertise and forward focus prepare it for the shift to next-generation 5G NR standards, enabling it to meet customers' future needs. Secondly, Infovista's strong reputation, brand equity, and innovative prowess empower it to open up new drive test equipment market opportunities. By providing complete visibility and control across enhanced mobile broadband, massive machine communications, and ultra-reliable low latency

communications, the company is stimulating growth and attracting new business with 5G NR use cases.

The company's strategy of offering the industry's best value lies in providing a comprehensive line of drive test solutions under its TEMS portfolio. Its variety of indoor, outdoor, and stationary options can support even highly complex organizations throughout the network lifecycle. Infovista's predictable and transparent price packages depend on the data storage volume, project duration, and the number of gathering units and users. End users can thus enjoy easily scalable price packages with no hidden costs.

Customer Purchase and Ownership Experience

Infovista ensures purchase quality through its global license server models, which it launched with its TEMS solutions portfolio. The approach proved highly successful, resulting in the company upgrading its purchase model to enable users to share licenses and reduce costs.

Infovista's technology and purchase experience enable the acquisition of new customers focused on the future of analytics. It can support 5G NR devices built on second-generation chipsets, with close cooperation from vendors such as Qualcomm, Samsung, and Huawei.

Infovista's well-devised strategy focused on increasing predictive and ML analytics capabilities to offer customers the best value for quality data, visibility, and utility. The company's information output is unbeatable for key 5G RAN deployment challenges, including mMIMO, 3D beamforming, and cell acceptance testing. As a result, Infovista is set apart from its counterparts. Overall, the company's technology is receiving increased market acceptance due to its superior QoE analytics, including evolving ML and AI-based root cause analysis techniques for accurate network planning and efficient 5G network deployment testing.

Conclusion

Infovista's well-established and comprehensive TEMS product portfolio offers best-in-class end-to-end network testing solutions to support all stages of 5G deployments, including troubleshooting, optimizing, and monitoring RF networks. The company's technology supports automatically embedded analytics, augmented measurements, and root cause analysis, continuing to raise the bar on 5G testing across markets. Moreover, its in-depth analysis of subscribers' quality of experience and service significantly improves network investment decisions.

With its high-performance, high-capacity testing capabilities and proven success across numerous metrics, including quality, and scalability, Infovista earns Frost & Sullivan's 2021 Market Leadership Award in the global 5G new radio drive test solutions market.

What You Need to Know about the Market Leadership Recognition

Frost & Sullivan's Market Leadership Award recognizes the company that achieved the greatest market share resulting from outstanding performance, products, and services.

Best Practices Award Analysis

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

Growth Strategy Excellence: Company demonstrates an ability to consistently identify, prioritize, and pursue emerging growth opportunities

Implementation Excellence: Company processes support efficient and consistent implementation of tactics designed to support the strategy

Brand Strength: Company is respected, recognized, and remembered

Product Quality: Products or services receive high marks for performance, functionality, and reliability at every stage of the life cycle

Product Differentiation: Products or services carve out a market niche based on price, quality, or uniqueness (or some combination of the three) that other companies cannot easily replicate

Technology Leverage: Company is committed to incorporating leading-edge technologies into product offerings to enhance product performance and value

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 are proud to 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 of high quality

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™. [Learn more.](#)

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 six 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)**

