



Artiza Recognized for

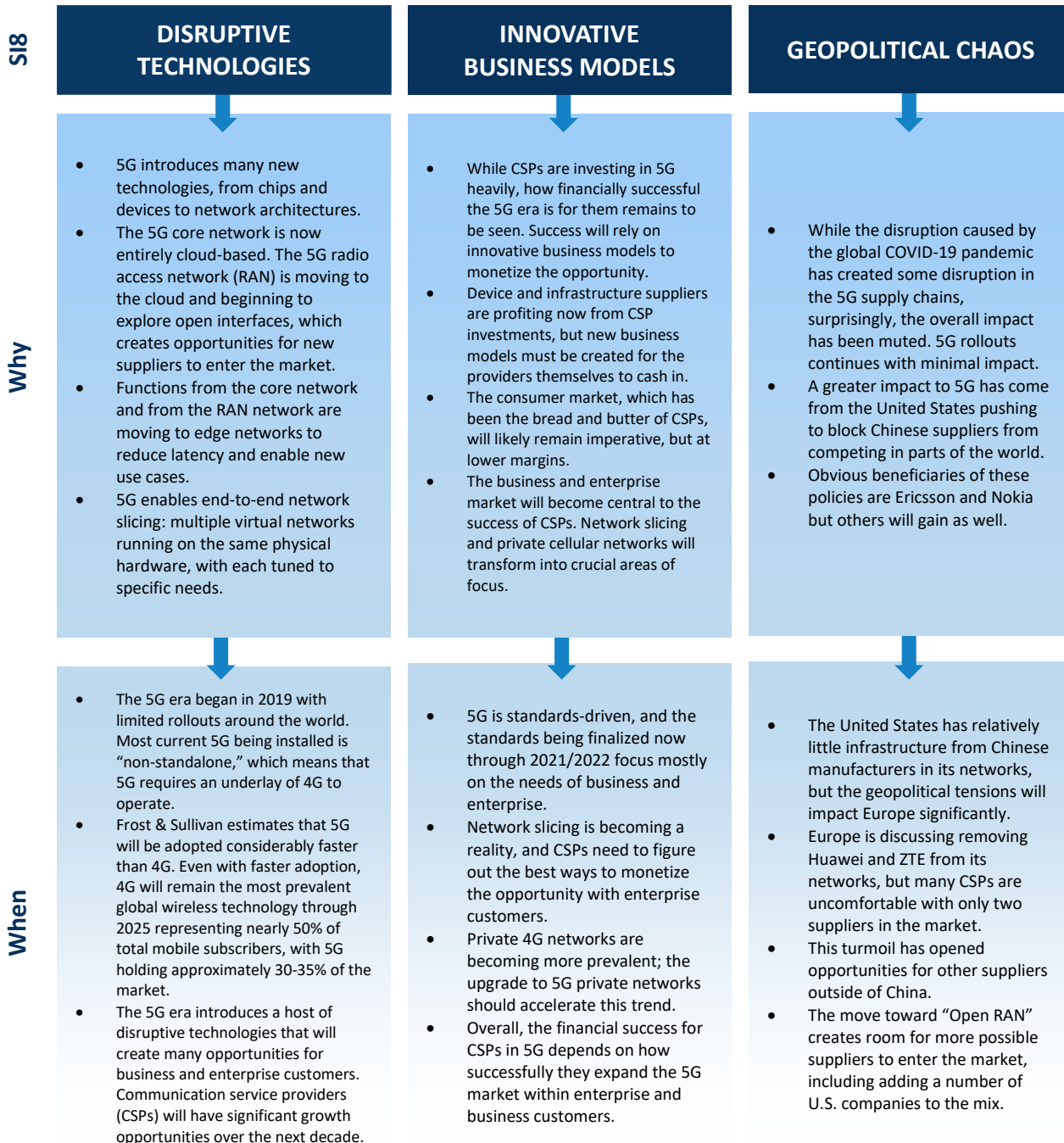
2021

Enabling Technology Leadership

2021 Global 5G Network
Equipment Testing Industry
Excellence in Best Practices

Strategic Imperatives

Frost & Sullivan identifies three key strategic imperatives that impact the 5G infrastructure industry: disruptive technologies, innovative business models, and geopolitical chaos. Every company that is competing in the 5G infrastructure space is obligated to address these imperatives proactively; failing to do so will almost certainly lead to stagnation or decline. Successful companies overcome the challenges posed by these imperatives and leverage them to drive innovation and growth. Frost & Sullivan’s recognition of Artiza Networks is a reflection of how well it is performing against the backdrop of these imperatives.



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. Artiza Networks excels in many of the criteria in the 5G network equipment testing space.

| AWARD CRITERIA | |
|----------------------------|-------------------------------|
| <i>Technology Leverage</i> | <i>Customer Impact</i> |
| Commitment to Innovation | Price/Performance Value |
| Commitment to Creativity | Customer Purchase Experience |
| Stage Gate Efficiency | Customer Ownership Experience |
| Commercialization Success | Customer Service Experience |
| Application Diversity | Brand Equity |

Keen Innovative and Creative Technology

Established in 1990, Tachikawa, Tokyo-headquartered Artiza Networks (Artiza), is a leader in radio access network (RAN) testing for 3G, 4G LTE/LTE-A, and 5G networks. Since its inception, Artiza continues to focus on niche high-performance market segments, designing and deploying technology with high-capacity testing capabilities right out of the gate. This key performance metric is a critical differentiator, since 5G deployment roadmaps are different around the world, and many competitors cannot achieve the same performance without compromising space and cost. Despite the high visibility and push for 5G, persistent challenges, such as infrastructure complexity and cost, inhibit network testing. Frost & Sullivan finds that through the transition from 4G to 5G, LTE and LTE-A network operators and equipment vendors hold a clear advantage. This is where Artiza stakes its claim when compared to existing competition. The company continues to consolidate its leadership position, gaining significant traction in the market through the introduction of its best-in-class DuoSIM-5G to test effectively the most demanding features to implement 5G networks.

Built on Artiza’s in-house modular field programmable gate array and server hardware, as well as the company’s proven Advanced Telecommunications Computing Architecture, DuoSIM-5G is a combined testing solution for gNodeBs (gNb) and eNodeBs. Through the research and development (R&D) process, the company identified scalability as a critical metric for high-end, high capacity testing. The DuoSIM-5G’s modular architecture enables system customization for different front haul interfaces, meaning the company builds the system modularly for various testing requirement. As a result, DuoSIM-5G offers

unlimited scalability coupled with low-power usages per connected user equipment (UE), translating to a significant reduction in capital and operational expenses. This high-capacity dual connectivity transcends the original supported cell count of 48 LTE, as the company currently supports 96 cells in LTE.

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**- Samantha Fisher, Best Practices
Research Analyst**

On the 5G front, the company initially started at 24; however, as of 2021, the standalone release offers 72 cells. These specifications combined with DuoSIM-5G’s high-capacity dual connectivity (New Radio [NR] and LTE) simulates up to 3,000 active LTE-A UEs/cells and up to 1,500 active 5G UEs per cell. It also offers six gigabits per second, per UE and cell. These specifications result from a differentiating technology known as mixed traffic generation. This key technology enables Artiza’s DuoSIM-5G to generate the amount of traffic and connections required for real overload testing on high capacity for gNb. Frost & Sullivan lauds Artiza’s strong performance in the 5G network testing space and believes its DuoSIM-5G stands apart as one of few high-capacity 5G network equipment testing solutions available on the market.

Success on All Fronts

Artiza stands on a foundation of reputation and relationships, both of which it cultivated since its founding. For example, the company has a long, close relationship with Nokia, which the company started supporting in 2013 for 4G base stations. With many customers located in the Asia-Pacific region, Artiza held two separate launches for the DuoSIM-5G, one for the Japanese market and one for the global market. Since then, the company continues to experience positive commercialization of the DuoSIM-5G, with other top companies, such as Fujitsu Limited, NEC Corporation, and NTT Docomo, leveraging Artiza’s flagship product for 5G testing. As of April 2021, the company reported 260 NR cells of DuoSIM-5G installed (442 hardware cells installed total), with more upcoming installations and ongoing projects in Japan, East Asia, and Europe. Key application test areas include C-Plane overload testing, U-Plane throughput performance testing, and multi-vendor O-RAN evaluation.

The company sees key traction in additional areas such as South Korea, China, and North America where performance and high capacity for 5G network is desirable. Thus far, Artiza reports a positive customer response to the DuoSIM-5G, as it is one of few systems on the market that tests at the performance level required by the niche markets. The company also reports that while several of its competitors attempt to scale their products to reach Artiza’s metrics and specifications, their attempts often result in high instability and costs, as well as a large technology footprint. By building the DuoSIM-5G from high-capacity, high-performance hardware, Artiza offers low cost per unit and UE, and differentiates on the commercialization and application diversity standpoint. The company also complies with the International Organization for Standardization for quality management (9001), Occupational Health and Safety Management (45001), and environmental management system (14001).

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**- Samantha Fisher, Best Practices
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Artiza continues to stay abreast of new specifications for open wireless access networks. To this end, the company became a member of the Open RAN (O-RAN) Alliance in April 2021. Founded in Germany, the group seeks to define the O-RAN architecture and interfaces between devices with the goal of creating an open and interoperable ecosystem. Artiza has long supported the O-RAN specification since its 2018 release of the DuoSIM-5G. O-RAN benefits include increased market

competition and customer choice, low equipment costs, and improvements in network performance. By joining the O-RAN Alliance, Artiza increases its visibility in the market, well-positioning it for future success.

Ensuring Ongoing Satisfaction

Artiza ensures purchase quality through its optional subscription models, which it launched with one of the first DuoSIM iterations. The high success earned from this approach influenced the company to upgrade its purchase model for the DuoSIM-5G. Given the investment challenges associated with 5G network testing, Artiza decided to provide an optimal financial solution for its customers. To this end, Artiza offers various business models and pricing, with the goal of providing the right financial solution to customers. The company offers hardware/software pricing models, which include fronthaul options. The company customizes the various specifications, such as O-RAN and NR. Moreover, the company offers licenses based on monthly, yearly, or a one-time-sale model. Artiza predicts its DuoSIM-5G will work until the beginning of the sixth generation, 6G. Naturally, the subscription pricing depends on the customer and how long they intend to use the DuoSIM-5G.

Artiza also differentiates in the purchase and ownership experience through its innovative lab-as-a-service (LaaS) option. In 2018, the company announced the decision to build a new development center and testing lab in Northern Japan, which also houses the company’s main lab. As of 2021, it has added the Takizawa Telecom Test Center, now fully operational as a full-service testing facility. Recently, Artiza added the LaaS to its service portfolio, enabling customers to test their base stations with Artiza’s hardware, delivering proven results to customers. Moreover, the company built the R&D center next to a university with the hopes of drawing in new talent from the engineering department. This move not only supports students looking to work with 5G technology, with Japan’s low unemployment rate, it makes sense fiscally to acquire new talent from the source. The test lab was also a silver lining for Artiza during the pandemic, as it enabled customers to maintain safe distances while ensuring their base stations received proper testing. Thus far, Artiza reports it has several customers signed up to participate in the LaaS with more interest on the horizon. Frost & Sullivan finds Artiza’s LaaS model supports advanced network development and improvement, which results in ongoing customer satisfaction in key areas such as quality, technology, and creativity. Furthermore, the company is building and expanding software R&D capabilities to support increasing needs of global network testing outside Japan. In a market filled with accelerated innovation and competition, Artiza maintains top-line growth, achieving strong double-digit growth of its mobile network solutions.

Conclusion

Despite the high visibility of fifth generation (5G) technology, persistent challenges, such as high infrastructure cost and complexity, restrict 5G network testing market growth. Leveraging its experience and expertise in high-performance, high-capacity testing, Artiza Networks (Artiza) built on its existing DuoSIM technology to design and deliver the DuoSIM-5G, a 5G network testing solution. Artiza's 5G testing product offers unlimited scalability and customizable options, enabling it to supersede its competitors. With additional features such as mixed traffic generation, high-level architecture based on tried-and-true technology, and the company's Lab-as-a-Service offering, Artiza continues to raise the bar on 5G testing across various markets. With proven success across numerous metrics, including quality, scalability, and price, Artiza is well-positioned for continued success implementing 5G networks.

For its innovative and creative foundation, best-in-class product portfolio, solid market position, and strong overall performance, Artiza is recognized with Frost & Sullivan's 2021 Global Enabling Technology Leadership Award in the 5G network equipment testing market.

What You Need to Know about the Enabling Technology Leadership Recognition

Frost & Sullivan's Enabling Technology Leadership Award recognizes the company that applies its technology in new ways to improve existing products and services and elevate the customer experience.

Best Practices Award Analysis

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

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

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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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)**

