FROST & SULLIVAN

BEST PRACTICES AWARDS

Averna

2020 NORTH AMERICAN AUTOMATED TEST EQUIPMENT SYSTEMS INTEGRATORS PRODUCT LEADERSHIP AWARD

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Industry Challenges

The electronic test and measurement (T&M) is a developed market, generating $11.26 billion globally in 2017 with an expected compound annual growth rate of 4.1% from 2017 to 2022 driven by demand from fifth-generation technology, new standards, growth in data centers, and digital transformation.[1] Moreover, T&M equipment are critical elements for the development, manufacture, repair, and maintenance of products and services across industries, such as aerospace and defense, automotive, medical devices, and consumer electronics. However, Frost & Sullivan notes that several T&M equipment vendors focus on developing only individual equipment – meaning that test applications require additional customization, integration, and automation — services which many companies do not provide.

Data Analytics Reliability

Unfortunately, there is a lack of strategy and transformation program alignment between engineering and information technology (IT) teams that combine methods to optimize data analytics and enhanced security. As a result, existing concerns involve the need for IT architecture and security to support the required functions. Sensitive test data information that requires processing impedes the growth of data analytics services, as users prefer to analyze test data in-house. Some newer requirements focus on providing true external access to a variety of information (such as calibration and status) through a user e-procurement centralized portal with mobile technology under access security.

Interoperability and Integration Issues Paired with Price Issues

There are also key concerns in the T&M market regarding data ownership and test data access that create difficulties to design new innovative service-based business models. Users are quite reluctant to provide the required test data to service providers unless the superior value of the business model is proven first. Still, one of the most significant challenges threatening the implementation of test-data service solutions is the need to integrate test data from multiple sources portrayed in various formats.

Frost & Sullivan analysts observe how a key driver for the T&M market is the continuous evolution of technologies across end-user industries, such as wireless communications. However, customers are unwilling or cannot afford to buy new instruments for each new technology launch. This pricing pressure clearly tempers market growth, as customers require upgrades that are less expensive than purchasing new instruments. This restraint leads to an increase in rentals.

Low Awareness and Adoption for a Broad Set of Use Cases and Applications

Frost & Sullivan points out that another challenge involves the low awareness of advanced services benefits in the T&M market. While educational programs and campaigns about service initiatives help educate the market, the more advanced data analytics are difficult to interpret, especially in large volumes. Several original equipment manufacturers (OEMs) and suppliers do not realize the enormous potential in analytics for testing data

[1] *Electronic Test and Measurement Market, Forecast to 2022. (Frost & Sullivan August 2018)*

purposes. Frost & Sullivan recognizes how this lack of awareness critically impacts the market.

Product Family Attributes and Business Impact

Founded in 1999 and headquartered in Montreal, Canada, Averna is a system integrator for automated test systems for industries such as aerospace, automotive, consumer electronics, energy, life sciences, semiconductor, & telecom. For the last 20 years, the company has worked and grown into a leader in test engineering with global operations. Operating on four clear values (innovation, teamwork, client focus, and performance), Averna ensures that its solutions fully align with its customers' requirements and goals, which include technical, financial, and commercial. Frost & Sullivan marvels at the company's achievements, having awarded it several times in the past with honors such as the 2016 Customer Value Leadership Award in the global radio-frequency signal record and playback solutions market.

Innovation for All

Frost & Sullivan finds that Averna's symbiotic internal structure serves as a key differentiator, as each part of the company communicates and collaborates, avoiding siloed processes in favor of transparency. Thus, during the innovation process, Averna's research and development team maintains ongoing communication with its customer solutions group, which is responsible for regular client engagement. By creating and maintaining longstanding relationships with its clients, Averna possesses a direct lifeline to its customers and the market's existing and emerging needs. This strategy ideally positions the company as it stays abreast of all issues and pain points, enabling it to alter its solutions to suit changing customer targets.

As data grows into the "new oil,"[2] Frost & Sullivan notes that several manufacturing enterprises lack a clear understanding of Industry 4.0 and its benefits, especially those enterprises with test data disseminated across several test stations at different locations. Frost & Sullivan analyst feel that Averna truly proves its thought-leadership by leveraging its market knowledge in the creation of its comprehensive product portfolio. Successful product testing is a critical element of quality, involving several factors, three of the most vital being test automation, test data management, and digital transformation. These elements significantly impact a company's bottom-line, which enterprises must consider carefully. Averna properly rises to meet the challenge through test-data management and business intelligence technology that transforms complex data.

Averna's commitment to addressing its customers' needs has increased in the wake of the COVID-19 pandemic, achieving "essential supplier" approval by its customers in the medical, critical infrastructure, supply chain, and military industries. For example, Averna works with a medical device company running functional test solutions for ventilator testing, which is currently a high priority. This customer is ramping up capacity to meet the medical industry's need for ventilators, and Averna is matching the customer's speed to accelerate time-to-market for operational devices. In addition, Averna is manufacturing

[2] *The Economist. "The world's most valuable resource is no longer oil, but data." Article. May 6, 2017. Accessed April 2020. https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data*

some of its projects in areas with a quicker COVID-19 recovery rate, which means that the country's population can return to work sooner. Moreover, the company meets daily with its customers and internal employees to assess critical needs and pathways to addressing them. An agile company, Averna has moved much of its work to the cloud and prepared contingency plans - all without slowing down the company's velocity.

An additional example of Averna's targeted attention to customer and market needs is its Averna Launch (Launch), a high-level unified test executive for organizing, deploying, executing, and reporting automated tests. Launch is entirely homegrown, originating from around 10 years of feedback from multiple projects, and is now Averna's de-facto standard. Launch consolidates the test data from smart factories and delivers results in both real-time and user-friendly reports. By automatically detecting the unit under test, Launch runs all required test sequences predetermined by the user. By leveraging Launch, users ensure that their test stations update easily and offer wider usage by more personnel, without cryptic code and custom interfaces, which slow down tests. Launch opens up further possibilities across several manufacturing use cases.

A Valuable Analysis

Building on its commitment to meet its customers' critical needs, Averna developed a test-ready, rack-mountable application with full redundancy. Proligent Analytics is customizable to a customer's data needs, offering key savings in operations and delivering a robust value proposition through its diverse feature set. The solution automatically captures and combines test results with business and supply chain data, strengthening engineering, operations, and quality assurance with a central decision-support system. Furthermore, Proligent Analytics' online analytical processing cube provides 360° visibility for manufacturing results and the supply chain through multidimensional perspective on performance.

Moreover, Proligent Analytics works with any customer, regardless of how many sites they have. Proligent Analytics solves single test station test-data management needs through regular consolidated test results that deliver actionable opportunities in standard manufacturing reports and charts, improving decision-making, and product quality. For OEMs with remote test stations, the system offers high value and scalability, as customers quickly populate the central data warehouse with near real-time consolidated test results, resulting in daily listing reports.

With its best-in-class reporting, the software also offers:

- **Yields:** Proligent Analytics provides necessary information with first pass, last pass, and cumulative yield reports, which help decision-making
- **Key performance indicators (KPI):** The system provides instant KPI access for reports such as process capacity index, and thought cycle time, bone pile, and utilization
- **Shareable dashboards:** Proligent Analytics also offers web dashboards that provide more than 50 standard manufacturing reports and charts to guide users in improving quality and accelerating results

Frost & Sullivan recognizes the way that this impressive feature set delivers best-in-class operational insights, ensuring that enterprises know what happens with its data. Furthermore, Averna clearly understands that not all customers possess the same technology; regardless, it works within its customers' comfort levels, changing its approach, if necessary, and keeping it at a level that focuses on integrating into well-known standards. Thus far, the company has not encountered any interoperability issues and it has prepared tactical approaches in the event any arise.

Reliable and High-quality Performance

Frost & Sullivan finds part of Averna's strength lies in its robust portfolio of solutions tailored toward exceeding customer expectations and delivering ongoing reliability through software installed on its systems in smart facilities. With one of its recent product launches, Averna Deploy, an off-the-shelf simple-to-use tool, is used to update software revisions automatically to every test station and asset throughout production plants. Furthermore, Averna designed intelligent Deploy software to prevent users from running tests on outdated machines, which translates to accurate and consistent data. With an easy-to-use interface, Deploy also incorporates into every project through an intuitive executable. Its application programming interface (API) configures the command default flow to fit in a customer's test process ideally. From there, the user-defined test code deploys automatically to stations and assets, remaining traceable for auditing and follow-ups through automatic logging.

Averna builds out its reliability and quality further with its signal generator product line, which helps the company penetrate multiple markets, such as automotive. For example, the software-defined AST-1000(an all-in-one infotainment RF signal source) is a one-stop-shop, delivering additional value to customers as well as helping Averna's engineering team to be more efficient.

The flexible AST-1000 solution also offers:

- Support for all common broadcast radio, video, navigation and connectivity protocols
- Multi-constellation and multi-frequency global navigation satellite system simulator
- A software-defined framework, resulting in instrument cost savings
- The simple-to-use APIs and interface offer efficient signal generation and test setups
- Flexible peripheral component interconnect express extensions for instrumentation architecture, enabling integration of other applications
- Successfully handles lab validation and end-of-line testing
- Seamless upgrades

Moreover, Averna's software-defined universal receiver tester toolkits generate perfect analog and digital signals for the most common worldwide standards, such as Sirius, satellite radio & XM, amplitude/frequency modulated, HD Radio™, and global positioning system. The company works with various industry leaders, including Xperi Corporation and

Sirius XM, achieving protocol certifications and remaining in sync with standards bodies to ensure its toolkits cover the latest versions and revisions.

On the smart manufacturing front, Averna also offers the ConnexThing Toolkit, which combines industry-leading test sequencers and the ThingWorx platform to simplify application implementation and management. Further highlights include the acceleration of ThingWorx integration in TestStand; simple monitoring of test stations and management of assets using a customization ThingWorx dashboard tool; and facilitated bi-directional communications and user guidance, resulting in clean code and architecture. As of 2020, the company also achieved an additional specialty focus for the new SystemLink™ software suite from National Instruments, further strengthening its position, particularly in the smart factory space. Frost & Sullivan independent analysis confirms that Averna's comprehensive toolkits and product lines deliver high quality and reliability, stemming from the company's inherent expertise in all aspects of the manufacturing cycle.

Designed to Endure

Frost & Sullivan finds that the proper design for software or hardware is critical element to product success. If a vendor fails to execute a comprehensive design approach, it risks losing reputation and market share. On the design front, Averna nicely differentiates itself in the competitive landscape, as its products and services do not fit into a single box, empowering customers with one-of-a-kind customized solutions. The company raises the bar even further by designing its solutions to evolve through regular updates.

An example of this evolution as a design element is Averna's industry-standard Jupiter 310 design verification system (Jupiter). This product delivers the most comprehensive test coverage and accurate results on the market for Data Over Cable Service Interface Specification (DOCSIS) 3.1 devices, as it is the only solution that offers 100% coverage for all ATP-PHYs with mixed-mode test points. Furthermore, Jupiter features a vector signal generator that generates impairments and a multi-functional dashboard that consists of vector signal analyzer, management information base browser, and radiofrequency interface unit control, which makes cable modem debugging activities easier.

With their continuous dedication to product evolution, Averna consistently provides software updates at no cost to customers with a valid Jupiter 310 maintenance and support agreement. These releases expand both the technical capabilities and functionalities of the product. As an example, the latest release provides the ability to run in standby mode, which transforms Jupiter into a powerful troubleshooting tool that assists design test engineers with quick device validation and comprehensive understanding of the nature of failures.

A Strong Approach to the Future

In September 2019, Averna celebrated its 20th anniversary. Over the last two decades, the company experienced impressive growth, partly attributed to its business alliances. The company's founders believe combining over 100 years of test and quality experience would only benefit their customers and the industry. As a result, each acquisition brought targeted expertise to the forefront. Averna continues to identify different technologies to gain a broader range of clients internationally. Now in 2020, the company focuses on

delivering substantial value and differentiating from much of its competition through its size, breadth of expertise and geographical coverage. The company's size and range of technical expertise enables it to position dedicated groups in areas that serve as central services, which only large companies can accomplish. Averna prides itself on working with customers on a large and complex solution, which strengthens its positioning while simultaneously offering value. Moreover, its global presence enables it to work with many customers on-site, particularly in Asia.

For future growth, Averna enhances its brand equity in the test engineering space through the sheer quality of its solutions and its ability to deliver value to customers. The company provides successful solutions for reputed companies in different industries, such as aerospace and defense, automotive, consumer electronics, energy, life sciences semiconductors and Telecom. Averna understands the complex needs of the various sectors and works toward expanding its technology portfolio, thus increasing its brand equity and positioning itself for future growth. Moreover, Averna distributes bi-monthly informational materials (e.g., trend reports and white papers) to customers and potential clients. The company also shared a series of best practices in the automated test industry through an eLearning platform, Test Guru, to educate its customers and market vendors, further increasing their engagement. Averna also actively participates in all major test and measurement trade shows and conferences to consolidate its position as a leading test engineering solution provider.

Conclusion

As more and more companies and enterprises move toward robust test and measurement (T&M) solutions, challenges such as interoperability issues, market unawareness, and a lack of reliability, stifle market adoption.

As a 20-year veteran in the test & measurement space, Averna takes a holistic approach to its internal processes, from research and development to the chief executive officer to the sales team. Each division works cooperatively, consulting one another to ensure Averna's customers receive the best service and value on the market. This approach, combined with its expertise, has delivered industry-leading solutions, such as Proligent Analytics, Averna Launch, Averna Deploy, ConnexThing Toolkit, Jupiter 310, DP-1000 AST-1000, and the URT series. More importantly, in response to the COVID-19 crisis, Averna received approval as an essential supplier, ensuring that the company continues to work with its immediate need-based customers, such as the medical industry, as well as ramping up production in its facilities to meet its customers rising challenges.

For its flexibility and adaptability, robust product portfolio, symbiotic internal structure, and its strong overall performance, Averna earns the 2020 Frost & Sullivan Product Leadership Award.

Significance of Product Leadership

Ultimately, growth in any organization depends on customers purchasing from a company and then making the decision to return time and again. A comprehensive product line filled with high-quality, value-driven options is the key to building an engaged customer base. To achieve and maintain product excellence, an organization must strive to be best in class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.

Understanding Product Leadership

Demand forecasting, branding, and differentiating all play critical roles in finding growth opportunities for a leading product line. This three-fold focus, however, must be complemented by an equally rigorous focus on pursuing those opportunities to a best-in-class standard. Customer communication, customer feedback, pricing, and competitor actions must all be managed and monitored for ongoing success. If an organization can successfully parlay product excellence into positive business impact, market share will inevitably increase.

Key Benchmarking Criteria

For the Product Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Product Family Attributes and Business Impact—according to the criteria identified below.

Product Family Attributes

Criterion 1: Match to Needs
Criterion 2: Reliability and Quality
Criterion 3: Product/Service Value
Criterion 4: Positioning
Criterion 5: Design

Business Impact

Criterion 1: Financial Performance
Criterion 2: Customer Acquisition
Criterion 3: Operational Efficiency
Criterion 4: Growth Potential
Criterion 5: Human Capital

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 practices 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 world	• Conduct in-depth industry research • Identify emerging industries • Scan multiple regions	Pipeline of candidates that 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 practices 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 practices 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 practices 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 practices Award recipient	• Review analysis with panel • Build consensus • Select recipient	Decision on which company performs best against all best practices criteria
9	**Communicate recognition**	Inform Award recipient of recognition	• Announce 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 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, resulting in 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

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Frost & Sullivan, the Growth Partnership Company, helps clients 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 practices models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages nearly 60 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on 6 continents. To join Frost & Sullivan's Growth Partnership, visit http://www.frost.com.