FROST & SULLIVAN

# FROST & SULLIVAN BEST PRACTICES AWARD

## POCT CONNECTIVITY SOLUTIONS - NORTH AMERICA

## Enabling Technology Leadership 2019

ORCHARD Software

# Contents

# Background and Company Performance

## *Industry Challenges*

In North America, a rise in digital health strategies to support value-based care models spurs the increasing adoption of point-of-care testing (POCT). Currently, the POCT device market is at $6.5 billion globally, and technology advances heavily drive high-growth segments such as hemostasis, infectious diseases, cardiovascular diseases, and blood-glucose testing. Clinical Laboratory Improvement Amendments (CLIA)-waived testing introduction is another key market driver, with over 100 CLIA-waived and non-waived POC tests available in the United States (US) market alone.

Among other benefits, POCT offers rapid turnaround time (TAT)—significantly impacting downstream costs and outcomes by reducing unnecessary hospital admissions or tests. POCT typically requires minimal sample volume, important for vulnerable patient populations like neonatal or ICU patients. Frost & Sullivan notes that POCT's impact on laboratory testing procedures is profound, transferring testing from centralized hospital labs to examinations closer to the patient.

Given the decentralized nature of POCT, oversight is difficult and results in poor document control, inconsistent data quality, and incomplete competency assessment records for testing personnel. In some cases, these failures can also lead to duplicate testing—resulting in increased healthcare expenditure and reinstating the need for middleware solutions that can bridge the connection between the POC devices and the Laboratory Information System (LIS) or electronic medical records (EMRs). At the same time, rigorous POCT-related regulatory requirements make it difficult to monitor comprehensive POCT programs manually. Also, POCT device operators usually are non-specialists lacking robust lab quality control (QC) and documentation expertise, further necessitating the need for careful monitoring. Technical challenges are equally daunting; EMRs do not capture most POC test results due to low volume, remote locations, and limited connectivity while POC results that do make it to the EMR require time-consuming and error-prone manual entry.

While POCT with comprehensive data management and integration capabilities is experiencing high demand, diverse device types and their associated software, as well as POCT sites often spread across a geographic area hinder efficacy.[1] Frost & Sullivan notes that few healthcare organizations can integrate POCT successfully into their EMRs due to decentralization—in 2013, electronically integrated POCT was at only 10%.[2] Most POCT management systems connect to LIS through proprietary data management systems, thereby hindering efficacy due to interoperability issues. Thus, POCT system integration remains a key factor to optimizing the potential of digital health initiatives such as telemedicine.

[1] Lewandrowski, K., Gregory, K., & Macmillan, D. (2011). Assuring quality in point-of-care testing: Evolution of technologies, informatics, and program management. Archives of Pathology & Laboratory Medicine, 135(11), 1405-1414. Retrieved from http://dx.doi. org/10.5858/arpa.2011-0157-RA

[2] Blick, K. E. (2001). The essential role of information management in point-of-care/critical care testing. Clinica Chimica Acta, 307(1-2), 159-168. Retrieved from http://dx.doi.org10.1016/S0009-8981(01)00460-0

Achieving immediate EMR-ready result integration allows for increased provider efficiency, analytics-driven business decisions, and improved patient outcomes.[3] Consequently, successful vendors will provide updated and vendor-agnostic connectivity and informatics solutions that encompass all aspects of laboratory information management.[4] POCT management solutions that can capture critical testing data and manage regulatory compliance from a remote location will also experience rapid adoption. High-demand capabilities include POCT operator competency assessment and certification tracking, QC monitoring, and calibration verification to meet the regulatory requirements. Additionally, POCT management solutions that can reduce manual processes and subsequent errors and inefficiencies—e.g., sub-optimal POCT billing capture that lead to substantial revenue losses—offer an important added value for market consideration.

## *Orchard Software's Technology Leverage and Customer Impact*

Founded in 1993 and headquartered in Carmel, Indiana, Orchard Software Corporation's (Orchard Software) award-winning software solutions help over 1,600 laboratories across the US, Canada, and the Caribbean to improve efficiency, reduce errors, increase reimbursements, and enhance integration of their LIS.

Frost & Sullivan notes the company's solutions offer customers industry-leading flexibility, ease of use, and proven ability to support varied workflows. Orchard Software leverages 25 years of laboratory experience to provide exceptional instrumentation integration, e.g., bi-directional interfaces with reference labs as well as ancillary and host systems such as billing, practice management, EMRs, and hospital information systems. As a result, the company can readily absorb and transmit data from a plethora of decentralized POC analyzers.

Orchard Software's vast insights into LIS and lab workflows—e.g., knowledge of hundreds of different instrumentations and rules-based systems—uniquely allows the company to meet specialized POCT requirements. The company's Trellis™ provides an advanced enterprise solution to consolidate POC test results through superior EMR connectivity and remote access. For example, Orchard's software solutions vendor-agnostic capability further helps connect multiple devices from varied manufacturers, thus, providing a connective environment.

The platform addresses long-standing concerns over POCT quality and data integrity through features such as tracking when POCT operators are due for certification, scanning completed competency assessments, and remote QC monitoring. Frost & Sullivan appreciates that Orchard Software's rules-based logic and use of Levey-Jennings graphs ensure qualitative and quantitative QC through reliably flagging abnormal and critical data. Nationally-recognized customer support excellence differentiates it further, and the

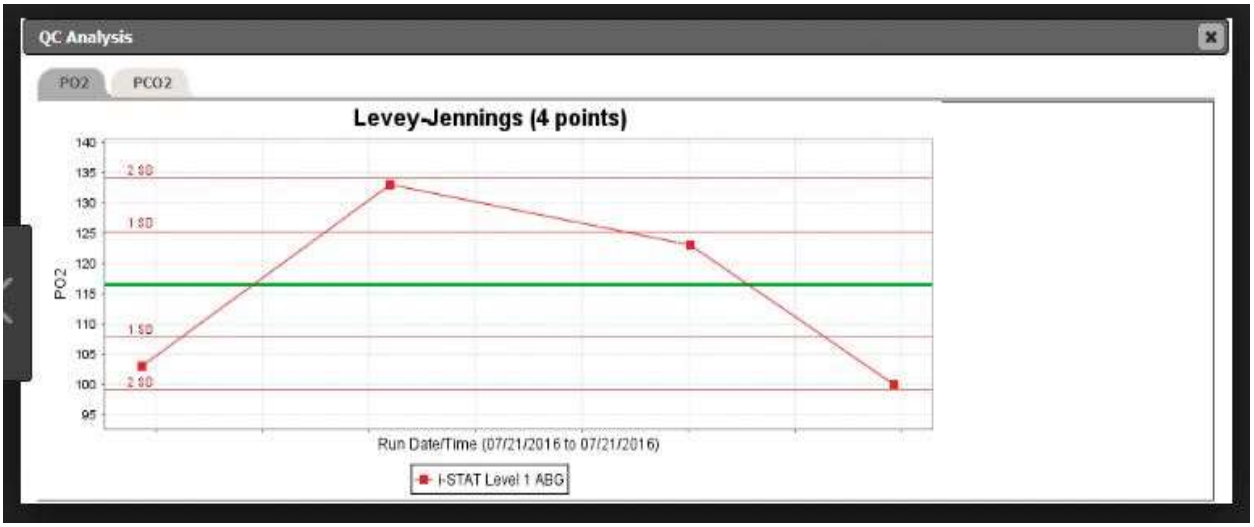
[3] Park, K. S., Heo, H., & Choi, Y. K. (2013). Design and realization of integrated management system for data interoperability between point-of-care testing equipment and hospital information system. Healthcare Informatics Research, 19(3), 222–228. Retrieved from http://doi.org.proxy.cc.uic.edu/10.4258/hir.2013.19.3.222

[4] Nichols, J. H. (2015). Point-of-care testing: Past experience and future challenges. Point of Care: The Journal of Near-Patient Testing & Technology, 14(4), 103-105. Retrieved from http://dx.doi.org10.1097/POC.0000000000000079

company offers 24/7 general support, in-house training with field implementation analysts, and access to subject matter experts and dedicated solution architects.

Orchard Software's commitment to continuous product development and enhancement is another key differentiator, and the company averages one major upgrade annually—allowing it to navigate a competitive and rapidly changing market effectively.

**Sample of Orchard Trellis'™ Quality Control (QC) Analysis**




*Source: Orchard Software*

**Best-in-Class POCT Support through Orchard Trellis™**

Frost & Sullivan research reveals that the company's Orchard Device Engine (ODE) is key to Trellis'™ unique approach to POCT consolidation. By leveraging cloud connectivity between lab instruments combined with LIS connecting disparate devices, ODE facilitates exceptional integration alongside secure and rapid development. As a result, Orchard Software allows users to include POCT data in analytics projects and population health management initiatives.

Trellis™ can also manage high-demand capabilities such as onboard calibration, certification management for all users, and tracking the location and status of analyzers through the use of triggered rules, delta flags, and instrument flags. Consequently, providers can quickly review data-driven results and identify optimal interventions within a continuous episode of care. Other best practices include the accommodation for various POCT scenarios; for example, Trellis™ is highly scalable, automates remote QC management and billing, and can integrate with Orchard Harvest™ LIS or with a legacy LIS linking POC testing directly to the EHR.

Frost & Sullivan appreciates that Orchard Software seeks to create the most cost-effective offering possible via web services and HL7 messaging to transmit orders and results electronically. ODE's ability to automate POCT billing capture helps maximize reimbursements, a significant value-add for providers. Furthermore, Trellis™ supports

automated POCT billing and helps close care gaps using CPT II Codes—valuable for both fee-for-service reimbursement models as well as value- or performance-based contracts. The use of CPT II Codes is particularly critical in light of decreasing reimbursement payments due to the Protecting Access for Medicare Act.

Ease-of-use is a major strength for Orchard Software; using web services assures streamlined software installation, maintenance, and upgrades, and a real-time visual dashboard displays key data such as pending orders, instrument status, and QC statistics. Users can directly place orders or, if they choose, employ computerized provider order entry. Trellis™ also supports standard bar code label printing for positive sample identification.

Frost & Sullivan research reveals that while POC testing is unlocking new markets for in-vitro diagnostics, reaching new customers is challenging. Unlike competitors, the company leverages over two decades of laboratory expertise to create software offerings based on clinical need. As a result, Orchard Software is one of the most recognized and highly-rated brands in the LIS sector—providing a great segue for the adoption of the Trellis™ POCT management solution. The company is a thought leader in the POCT management space and regularly meets with industry leaders to re-evaluate user expectations, offering software upgrades accordingly. Orchard software's customers have strongly vouched for the platform's distinguishing technology traits, such as its vendor-neutral open architecture, wide connectivity, and superior customer support, thus enhancing the company's competitive edge.

## *Conclusion*

Point-of-care testing (POCT) requires robust laboratory management to ensure regulatory compliance. Orchard Software's industry-leading Trellis™ POCT management software cost-effectively connects remote testing sites with electronic medical records, allowing for exceptional flexibility and functionality. Trellis™ leverages decades of in-house expertise to provide superior data connectivity and integration capabilities such as real-time results verification, calibration review, and quality control. Other features such as automated billing capture and personnel oversight maximize revenue while ensuring compliance. With its proven technology, thought leadership, and profoundly client-centric and user-friendly offerings, Orchard Software earns Frost & Sullivan's 2019 North America Enabling Technology Leadership Award in the POCT connectivity solutions market.

## Significance of Enabling Technology Leadership

Ultimately, growth in any organization depends upon customers purchasing from a company and then making the decision to return time and again. In a sense, then, everything is truly about the customer—and making those customers happy is the cornerstone of any long-term successful growth strategy. To achieve these goals through enabling technology leadership, an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.


## Understanding Enabling Technology Leadership

Product quality (driven by innovative technology) is the foundation of delivering customer value. When complemented by an equally rigorous focus on the customer, companies can begin to differentiate themselves from the competition. From awareness, to consideration, to purchase, to follow-up support, best-practice organizations deliver a unique and enjoyable experience that gives customers confidence in the company, its products, and its integrity.

## *Key Benchmarking Criteria*

For the Enabling Technology Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Leverage and Customer Impact—according to the criteria identified below.

### Technology Leverage

Criterion 1: Commitment to Innovation
Criterion 2: Commitment to Creativity
Criterion 3: Stage Gate Efficiency
Criterion 4: Commercialization Success
Criterion 5: Application Diversity

### Customer Impact

Criterion 1: Price/Performance Value
Criterion 2: Customer Purchase Experience
Criterion 3: Customer Ownership Experience
Criterion 4: Customer Service Experience
Criterion 5: Brand Equity

# 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 practice 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 globe | • Conduct in-depth industry research<br>• Identify emerging sectors<br>• Scan multiple geographies | Pipeline of candidates who 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<br>• Assess candidates' fit with best-practice criteria<br>• 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-practice criteria<br>• Examine eligibility of all candidates<br>• 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<br>• Invite multiple perspectives on candidates' performance<br>• Update candidate profiles | Final prioritization of all eligible candidates and companion best-practice positioning paper |
| 5 | **Assemble panel of industry experts** | Present findings to an expert panel of industry thought leaders | • Share findings<br>• Strengthen cases for candidate eligibility<br>• 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<br>• Pressure-test fit with criteria<br>• 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<br>• Write nominations<br>• 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-practice Award recipient | • Review analysis with panel<br>• Build consensus<br>• Select recipient | Decision on which company performs best against all best-practice criteria |
| 9 | **Communicate recognition** | Inform Award recipient of Award recognition | • Inspire the organization for continued success<br>• 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<br>• Design a marketing plan<br>• Assess Award's role in future 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, leading to 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


## About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to 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 practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.