

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

FROST & SULLIVAN BEST PRACTICES AWARD

DIGITAL FORENSICS - NORTH AMERICA

New Product Innovation 2019

FROST & SULLIVAN

2019

BEST
PRACTICES
AWARD



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Background and Company Performance

Industry Challenges

Digital forensics experts collect and analyze evidence from computers and mobile devices during criminal or counterintelligence investigations. As crooks and terrorists become increasingly sophisticated in the use of smartphones, networks, and drones to carry out their plots, investigators' work has become more challenging. Traditional forensics tools can extract data from a single source; today, however, data may be stored in multiple locations—on a device, a remote server, and in the cloud. Encryption is making it more difficult to access devices, let alone creating a forensic layout of all relevant data. Legal hurdles related to unlocking Apple, Android, or Motorola devices, or obtaining data from a distant holder, are further complications in investigations where time is of the essence.

Businesses also are under pressure. Enterprise mobility trends including bring your own device (BYOD) policies have created the need for corporate mobile device management policies that enhance network security and prevent theft and fraud. Conventional forensic data analysis tools are prone to human error: a small IT staff that manually monitors systems may miss a problem because of a lack of industry-specific knowledge or a full understanding of an operation's intricacies. Social media sites pose an additional challenge. Social media outreach has become one of the most important marketing tools for enterprises, but security risks and user privacy regulations have made it more difficult to engage with individual users. Cyberattacks through sites such as Facebook, Twitter, and Instagram are becoming a frequent method for hacking into user data, and forensic systems are often unable to trace the source of a breach. Many apps, like devices, are encrypted for security.

Frost & Sullivan recognized that an effective, automated analytical tool for cloud services or encrypted backups has been an unmet need in investigations.

New Product Attributes and Customer Impact

Match to Needs

Alexandria, VA-based Oxygen Forensics has developed software that allows law enforcement, defense investigators, and enterprises to extract and analyze data from multiple devices and applications.

Oxygen Forensic Detective enables automated forensic acquisition and analysis by supporting mobile devices from Apple, Samsung, Motorola, and other manufacturers. It enables parsing of social networking apps such as Facebook, WhatsApp, and Instagram for data evidence analysis in a deep and structured way. The software also provides built-in cloud data extraction and recovery for mobile devices, and for data located on computers, addressing corporate BYOD and device management concerns. Frost & Sullivan believes that Oxygen Forensics can improve a client's security investigation posture through innovative recovery of data from multiple data points to safeguard their business assets. The software is scalable enough to add new tools to examine smartwatches and other new connected devices, and encrypted cloud data linked to any criminal activity.

Quality and Positioning

Oxygen Forensic Detective software makes use of proprietary low-level protocols to extract data from smartphones. The software has a complementary set of extraction, analysis, and reporting features and functionalities; it can extract data from more than 27,000 unique devices, 460 applications, and 65 cloud services—more than any competing software of its type. The software's ability to integrate all information from vast data sets gives the company a competitive advantage. The software automatically parses data from applications. It also searches for PLIST files that contain valuable information such as browser history, Wi-Fi access points, speed dials, and Bluetooth settings in Apple devices, and develops customized SQLite queries for analyzing deleted data.

The major differentiating factor is its ability to decrypt all vital application data from devices supported by iOS, Android, BlackBerry, and Windows operating systems and app databases even with secure encryption. The company also provides advanced data parsing and analysis from drones and their apps and cloud storage—a unique service. It provides forensic professionals with more sophisticated functionality of extracting data from locked devices, especially locked Motorola and Apple devices due to their additional security encryption keys.

The software suite provides the functionality to import a backup data or image file from sync software or other forensic products such as Cellebrite, Elcomsoft, XRY, iTunes, and Lantern Lite for data analysis. It also parses dozens of device backups and finds encrypted passwords for Apple iOS and Android backups and images.

Frost & Sullivan appreciates Oxygen Forensics' empowerment of law enforcement agencies with an advanced forensic tool in an increasingly connected world.

Design

Oxygen Forensics' advanced unified software architecture supports data parsing from Snapchat, Signal, Threema, WickrMe, Telegram, and other encrypted messaging apps by providing data categorization and effective analysis of user data. In May, the company introduced a KeyScout feature that can extract Web browser data including browsing history, saved bookmarks, autofill data, and cookies from Windows systems.

Oxygen Forensic Cloud Extractor is another core element of the software that acquires data from cloud systems such as iCloud and Google Drive, and even from a wide range of social media including Twitter and Instagram. The extractor examines data from accounts, trusted devices, logins, passwords, tokens, contacts, chats, and calls. The software is equipped with a geolocation detection capability that allows forensic experts to determine criminal suspects' movements through their access of Wi-Fi connections.

Customer Experience

Oxygen Forensics serves federal, state, and local law enforcement agencies; healthcare service providers; and corporate human resource departments. It provides on-demand training in the form of online courses.

Software can be installed on all workstations using a hardware dongle that plugs in to the server. The software is distributed in 5, 10, 20, or 50 concurrent connections with free 12-month updates. This solution works for organizations with multiple users and remote workstations.

A success story for the company involves a Croatian shipbuilder that wanted to investigate possible security breaches on its employees' mobile devices. It installed Oxygen Forensic Detective software, which reconstructed the unsecured wireless network connections and detected Trojan horse malware on senior decision makers' devices. The software analyzed the devices' spyware logs to provide access to additional information related to encrypted data and messages. The client was able to locate the mobile device from which the security threat was initiated.

In April, Oxygen Forensic Detective rolled out an update to support full data access to leading drone company Parrot. The update provides Parrot with an exclusive ability to extract complete flight data, including history, from the MyParrot cloud. The software is enabling drone forensics experts with the first-of-its-kind ability to import and parse data such as flight log from mobile apps and physical dumps to address the potential unmanned aerial system threats to individual privacy, public safety, and national security.

Conclusion

The exponential growth of data exchange among connected devices and cloud services makes Oxygen Forensic Detective an ideal choice for law enforcement agencies and enterprises. The unified solution accelerates data acquisition and digital forensic processing across multiple devices and workstations. Law enforcement and corporate customers gain unrivalled data extraction functionality for actionable insights to safeguard business assets or build a thorough trail of digital evidence for investigations.

For its strong overall performance, has earned Frost & Sullivan's 2019 New Product Innovation Award.

Significance of New Product Innovation

Ultimately, growth in any organization depends on continually introducing new products to the market and successfully commercializing those products. For these dual goals to occur, a company must be best in class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding New Product Innovation

Innovation is about finding a productive outlet for creativity—for consistently translating ideas into high-quality products that have a profound impact on the customer.

Key Benchmarking Criteria

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated 2 key factors—New Product Attributes and Customer Impact—according to the criteria identified below.

New Product Attributes

- Criterion 1: Match to Needs
- Criterion 2: Reliability
- Criterion 3: Quality
- Criterion 4: Positioning
- Criterion 5: Design

Customer Impact

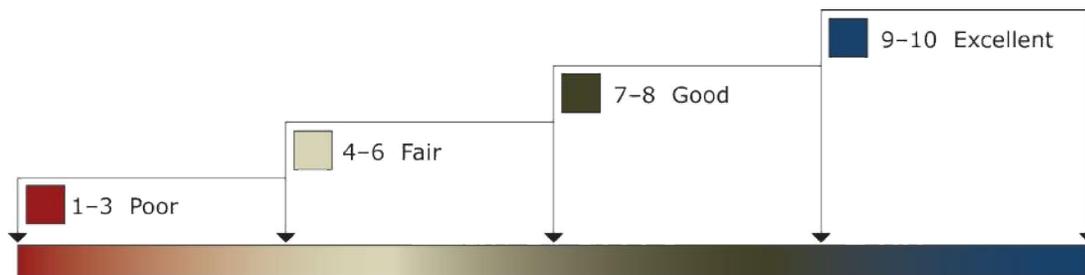
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practices Award Analysis for Oxygen Forensics

Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows research and consulting teams to objectively analyze performance according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation. Ratings guidelines are illustrated below.

RATINGS GUIDELINES



The Decision Support Scorecard considers New Product Attributes and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, Frost & Sullivan has chosen to refer to the other key participants as Competitor 2 and Competitor 3.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
New Product Innovation	New Product Attributes	Customer Impact	Average Rating
Oxygen Forensic	9.5	9.5	9.50
Competitor 2	8.5	8.0	8.25
Competitor 3	7.5	8.0	7.75

New Product Attributes

Criterion 1: Match to Needs

Requirement: Customer needs directly influence and inspire the product’s design and positioning.

Criterion 2: Reliability

Requirement: The product consistently meets or exceeds customer expectations for consistent performance during its entire life cycle.

Criterion 3: Quality

Requirement: Product offers best-in-class quality, with a full complement of features and functionalities.

Criterion 4: Positioning

Requirement: The product serves a unique, unmet need that competitors cannot easily replicate.

Criterion 5: Design

Requirement: The product features an innovative design, enhancing both visual appeal and ease of use.

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience

Requirement: Customers feel they are buying the optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company’s product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.



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	<ul style="list-style-type: none"> Conduct in-depth industry research Identify emerging industries Scan multiple regions 	Pipeline of candidates that potentially meet all best practices criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 the 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.



About Frost & Sullivan

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>.