FROST & SULLIVAN

2015

UNISYS

2015 North American Encrypted Network Security Solutions New Product Innovation Award

FROST & SULLIVAN

50 Years of Growth, Innovation & Leadership

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Background and Company Performance

Industry Overview and Challenge

Industrial automation and process control equipment is often used to control extremely sensitive facilities and critical national infrastructures, such as nuclear power plants, power stations, oil and gas pipelines, and water infrastructure. In a world that's becoming defined by closer integration and connectivity through Web-based applications, increased data flow and traffic implies an increase in possible threat vectors. The concept of air gapping and assumed security measures that were used to protect these stand-alone networks are now obsolete, as these networks relay large volumes of sensitive data in real time outside industrial networks.

The increase in technology advancements such as cloud services and the Internet of Things will make it more complex to segregate networks and will increase vulnerabilities to bugs such as Heartbleed and ShellShock. As threats continuously evolve and become more sophisticated and targeted, even the use of firewalls, intrusion detection and prevention systems, means there will never be a guarantee of full protection, as all solutions are potentially penetrable and vulnerable. The convergence of information technology and operational technology--driven by the modernization of operational technology, transition to the cloud, and navigating increasingly sophisticated threats to the safety and security of critical operations—calls for advanced, innovative protection of key assets and infrastructure, reduced downtime, and ultimately ensured protection of the larger society. These are growing necessities in industrial markets and are needs where Unisys can deliver innovative protection.

New Product Attributes and Customer Impact of Unisys

Criterion 1: Match to Needs

Data intelligence is today's new growth formula across both public and private industries. Several critical infrastructure industries, such as the oil and gas industry and the power industry, are investing in development of digitized operating processes and systems. However, in a sophisticated threat environment, the traditional approach of using a firewall is no longer sufficient to protect critical and confidential data and information.

While several peer vendors are more focused on developing and implementing solutions that allow log management systems and detect and alert systems, Unisys is more focused on making information-rich targets invisible in the networks. Unisys Stealth™ not only strengthens data security but also enables effective controls for endpoint access. It does this by compartmentalizing security through the creation of virtual secure communities that connect the required endpoints, enabling a communication link that can only be

established between the two parties. The approach restricts external units/threats from entering the specified network and prevents interception of the data flow. Each of the endpoints can communicate with multiple communities, but members do not have visibility of each other's networks. **Unlike other solutions that are based on topologies, the groundbreaking innovation of Unisys Stealth is designed on the principles of authentication and authorization, ultimately concealing the networks from prying eyes.**

Best Practices Example: Understanding that digitalized ecosystems require real-time performance, the Stealth solution conforms to the National Information Assurance Partnership Common Criteria certification, which was specifically designed to secure and support data moving between networks (data in motion) across both private and public networks. In light of the trends of Software-Defined Networking (SDN) and the Internet of Things (IoT), the innovative security approach of Stealth helps clients reduce risk and reduce complexity and cost across a variety of use cases such as:

- ***Micro-segmentation***: isolating and establishing fine-grained, need-to-know access to critical assets
- ***Legacy system protection***: isolates and protects XP-based systems, Windows Server 2003, and other legacy systems, particularly those with critical applications that are unable to be migrated to other operating environments
- ***Regulatory compliance***: reduces scope of compliance audits and strengthens security
- ***Access control***: establishes need-to-know access for users, supply chain vendors, and others to specific assets based on user identity
- ***Data center consolidation***: reduces IT infrastructure complexity and cost
- ***Cloud***: strengthens the privacy and security of virtual machines in private and public cloud environments
- ***Mobile***: extends the security within the data center out to mobile applications

Criterion 2: Reliability

Mobility and on-the-go operations are trends that have taken precedence in today's manufacturing world. While BYOD and remote operations are being initiated and provide several advantages, end users are becoming more aware of the security implications that are associated with these technologies. Solution providers are faced with the challenge of developing products that can protect networks but also avoid interruptions to processes in the critical infrastructure industries.

Virtual private networks are the norm for enabling connections between a mobile device and a network. However, in most cases these networks are administered by 3rd-party vendors, and the end customers are skeptical about the reliability factor of these connections. Unisys Stealth offers a unique software-defined security solution for

industrial networks and mobile platform that focuses on securing the identity and access of network and mobile devices to the data center. The solution authorizes access only to the approved data, regardless of the device used to access the data. The Stealth solution further extends its capabilities to develop specific security policies for each mobile application. Stealth's Secure Virtual Terminal (SSVT) provides an effective remote-based secure communications link via USB (Universal Serial Bus)-based devices. **The user's encrypted identity is layered onto SSVT so that the right user gets the right access to the appropriate information.** SSVT also has a feature that can enable it to prevent data loss if the device is lost or stolen.

Best Practices Example: Unisys has collaborated with Mocana MAP, a leading application wrapping vendor, to provide Stealth solutions for mobile operations. This partnership combines the data center segmentation and communities of interest concept with Mocana's wrapping application capabilities to ensure secure mobile communications.

Criterion 3: Price/Performance Value

Critical infrastructure industries are increasingly relying on digital technologies to improve productivity and service efficiency. As devices begin to communicate directly with the corporate network, there is a growing need to ensure these systems are effectively protected from the targeted threats. Although encryption provides a viable solution to protect these devices, only a handful of devices are encrypted on networks, as end users often find these solutions to be complex and expensive.

Apart from network and mobile devices, Stealth effectively provides solutions for control networks, mobile devices and cloud environments by isolating, encrypting and cloaking procedures. The offering provides an encrypted communication link between the enterprise and the cloud that allows access only to the authorized user. The authorization is actually deployed in end users' data centers so they have full control of the encryption keys. To ensure data security, it is encrypted while moving between networks, making the connection invisible as well as the cloud virtual machines that are Stealth-enabled. While a majority of end users rely on channel partners and cloud service providers to protect their systems, **Unisys strengthens existing security in the cloud and also provides its end users with the opportunity to be in control of their security systems**.

Best Practices Example: The Unisys partnership with Amazon Web Services is aiding in the development of an enhanced security solution for customers that are moving to the cloud. Being part of the AWS partner network is enabling Unisys to help clients design, migrate, and build new public cloud applications in a secured environment.

Criterion 4: Customer Ownership Experience

Customers prefer to have solutions that can help them secure, monitor, and maintain their

networks with the utmost ease. However, most end users require additional capital to make sure their solutions are managed through frequent upgrades and patching of the software.

Stealth provides a user-friendly and easy solution to security management. Because the solution is based on identity rather than network topologies, its user administration is interlinked with the site identity management system, enabling the user to conduct regular activities as and when required. The solution can seamlessly be integrated with the existing networks and does not require expensive reengineering and application changes. While several solution providers opt for the development of VLANs as a security measure, Stealth provides a more holistic offering. VLANs are fairly disruptive and separate the network from one port to the other, whereas the Stealth solution segregates the network from endpoint to endpoint and ensures continuous availability of systems and processes as updates are made through the identity management systems.

" Unisys provides a security solution that is simple and easy to deploy and manage with limited disruptions, making it a precise fit for critical infrastructure protection."

Best Practices Example: A concern for end users in recent times has been the aging Windows XP applications, and Stealth can be used to protect these networks and systems and to block any XP-related exploits. Similarly, a growing concern for end users is the imminent end of support for Microsoft's Windows Server 2003. Using encryption techniques, XP-based systems, and Windows Server 2003 can effectively be cloaked and thus enabling unchallenged security for legacy, obsolete systems.

Criterion 5: Design

Conventional security solutions are based on complex topology-based designs that increase costs due to the physical infrastructure required from several solution providers. In most cases, end users are apprehensive toward adopting new network solutions because of the uncertainty involved in protecting mission-critical systems and data.

Unisys Stealth includes security encrypted with AES256, an advanced encryption system. These packets are then split and transported to specific communities running Stealth. The algorithm and data reconstitution program enables the cryptic message to be reassembled only by Stealth. This unique approach effectively cloaks the tunnel between the endpoints and the network, making it invisible to anyone who does not belong to the organization. The Stealth solution is deployed at the lower end of the protocol stack, on top of layer 2, and the traffic is generally routed without the requirement for any additional configurations. Because the solution is deployed between the link layers and the network layer, it does not affect the existing network or applications. **Stealth's main value proposition lies in separating the network through a virtual approach rather than**

the conventional method of physical separation.

Best Practices Example: Unisys continues to innovate and invest in developing more solutions and has 4 patents issued and 55 more pending for the Unisys Stealth solution suite. These patents are indicative of a new, advanced, and innovative path that the Stealth solution is paving for the industrial markets, particularly in light of the emerging trends and increasingly sophisticated threat landscape.

Criterion 6: Positioning

While large enterprises have strategies in place to combat security challenges, small and medium companies are often faced with challenges driven by security, budget constraints, and compliance mandates. Furthermore, as these companies begin to expand geographically, new cyber threats are introduced.

The Stealth solution can aid in securing dispersed assets (data, servers, applications, and data centers) as well as local assets to ensure regions or sites are isolated from threats and that only the selected regions/sites can communicate with the enterprise network. Particularly in public domains, the Stealth solution can help to compartmentalize data and establish need-to-know access classifications that are best suited for mission-critical data. The Stealth solution is compatible with various enterprises, both private and public, regardless of size and has complementary solutions such as network and storage architecture, design and implementation services, safeguard business continuity solutions, and security management services. **While peer vendors are restricted by domain expertise, these capabilities position Unisys as a holistic security solution provider with a broad range of solution expertise**.

Best Practices Example: Several global businesses as well as federal, state, and local government agencies utilize Unisys Stealth. Stealth's customer base ranges from Government agencies to critical infrastructure industries such as oil and gas, power/utilities, and the banking sector.

Conclusion

The Unisys Stealth suite of solutions uses identification, authentication, and encryption to provide security for endpoints, remote users, data centers, and data. The unique design of the solution enables Unisys to create undetectable authenticated user groups that appear invisible to the normal network, allowing critical information to be delivered in a secure network and enabling Unisys to effectively isolate, encrypt, and cloak networks. With its strong overall performance and demonstration of helping clients reduce risk, while also reducing complexity and cost, Unisys has earned Frost & Sullivan's 2015 New Product Innovation Award.

Significance of New Product Innovation

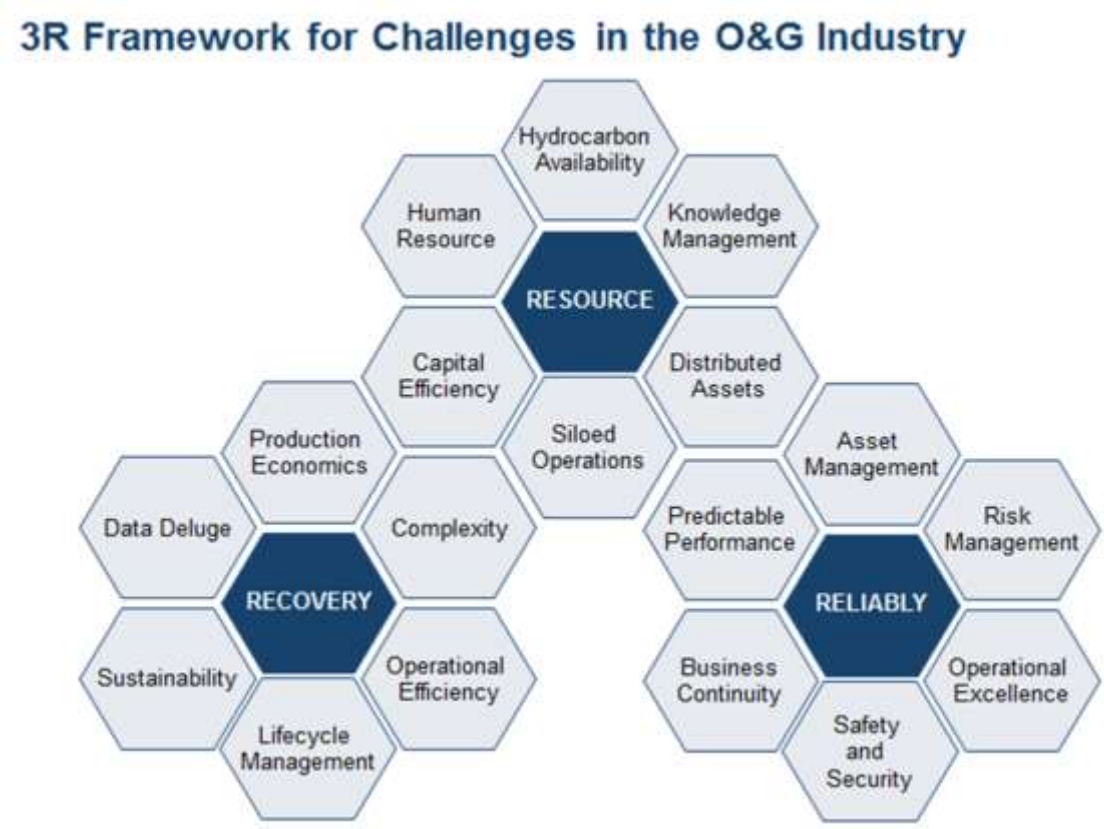
Ultimately, growth in any organization depends upon continually introducing new products to the market, and successfully commercializing those products. For these dual goals to occur, a company must be best-in-class in three key areas: understanding demand, nurturing the brand, differentiating from the competition. This three-fold approach to delivering New Product Innovation is explored further below.

Understanding New Product Innovation

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

Industry Framework

Frost & Sullivan independent research analysts developed an industry framework that outlines the most critical issues facing current operations and offers a vision toward its future transformation.



Frost & Sullivan's 3R Oil and Gas Framework encompasses three major components: resource, recovery and reliability. The first component refers to the industry gravitation toward unconventional hydrocarbon resources, which poses several challenges in terms of its dull attributes, distant location, dirty composition and dangerous operations.

The second component in the framework refers to hydrocarbon recovery. Despite advances in resource availability, costly operation costs are reducing well production. Demand for optimizing well production by extracting more from various wells and reducing surrounding costs through effective well economics is a core necessity of the industry.

The third component refers to the ability to attain sustainable production levels in order to meet future energy requirements of about 80 million barrels per day.

Digital Transformation of the Oil and Gas Industry and other Industrial Markets -- Our Vision

At the core of the oil and gas value chain are the three components mentioned above which revolve around the fact that there is a hydrocarbon resource; it needs to be recovered and it needs to be recovered reliably. However, its operational status quo of fragmented operations, siloed equipment and systems, and high human capital costs, is becoming increasingly unsustainable given the new hydrocarbon demands. Although attempts toward the automation and integration of systems and processes are beginning to occur, current operational practices restrain the momentum toward the adoption of untried technologies. Therefore, our vision for the industry on how it should approach this shift toward the digitalization of the oil field revolves around three broad ideas.

The first concept of our vision refers to the ability of changing our interaction with machines so that instead of humans adapting to machines, machines will increasingly adapt to humans. As machines become more appealing to our innate senses in terms of visualization, vocalization and more generally speaking real-time feedback, industry operators will be able to take action that will have a positive impact on the bottom line and improve risk management.

The second component of our vision revolves around the concept of the "fog." This resembles an intermediate layer where all data is analyzed through predictive analytics, including pattern recognition, and only the most valuable data sets are escalated to the next level of action, and the rest remains in the fog. As a result, raw data, which is collected with high velocity, variety and volume, will reside in the data ocean and only data with an "intelligence tag" will be processed to reach an action-driven level.

The third concept of our vison argues in favor of the continued emergence of independent data holders that will have key encryptions tagged to them that will allow data to be resident in other platforms. This will enable independent data miners to analyze data through advanced pattern recognition methods.

As we continue to develop the vision of the future and the vision of the cloud for the oil and gas industry through our panel discussion with industry stakeholders and end-users, we seek to identify key technology enablers whose value proposition targets the main industry challenges within our 3R framework of resource, recovery, and reliability and are in line with our vison of the totally integrated digital oilfield.

Based on the findings of this Best Practices research, Frost & Sullivan is proud to present Unisys with the 2015 New Product Innovation in Encrypted Network Security Solutions.

Key Benchmarking Criteria

For the New Product Innovation Award, we evaluated two 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

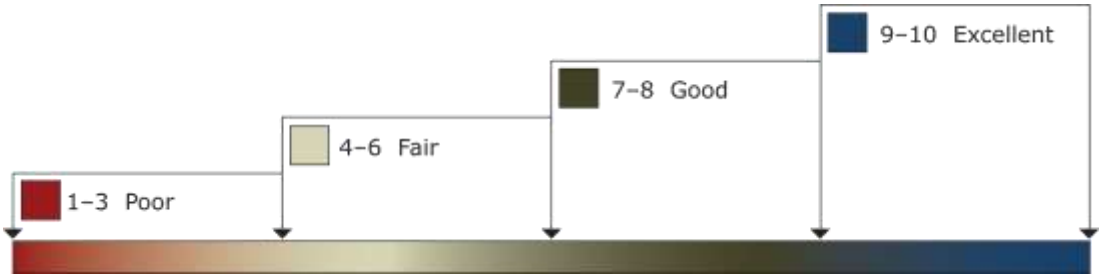
Criterion 1: Price/Performance Value
Criterion 2: Customer Purchase Experience
Criterion 3: Customer Ownership Experience
Criterion 4: Customer Service Experience
Criterion 5: Brand Equity

Best Practice Award Analysis for Unisys

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 our 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 is organized by New Product Attributes and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria 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, we have chosen to refer to the other key players in as Company 2 and Company 3.

DECISION SUPPORT SCORECARD FOR NEW PRODUCT INNOVATION AWARD (ILLUSTRATIVE)

Measurement of 1–10 (1 = poor; 10 = excellent)			
New Product Innovation	New Product Attributes	Customer Impact	**Average Rating**
Unisys	9	9	9
Competitor 2	8	7	7.5
Competitor 3	7	7	7

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 functionality

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 like they are buying the most 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

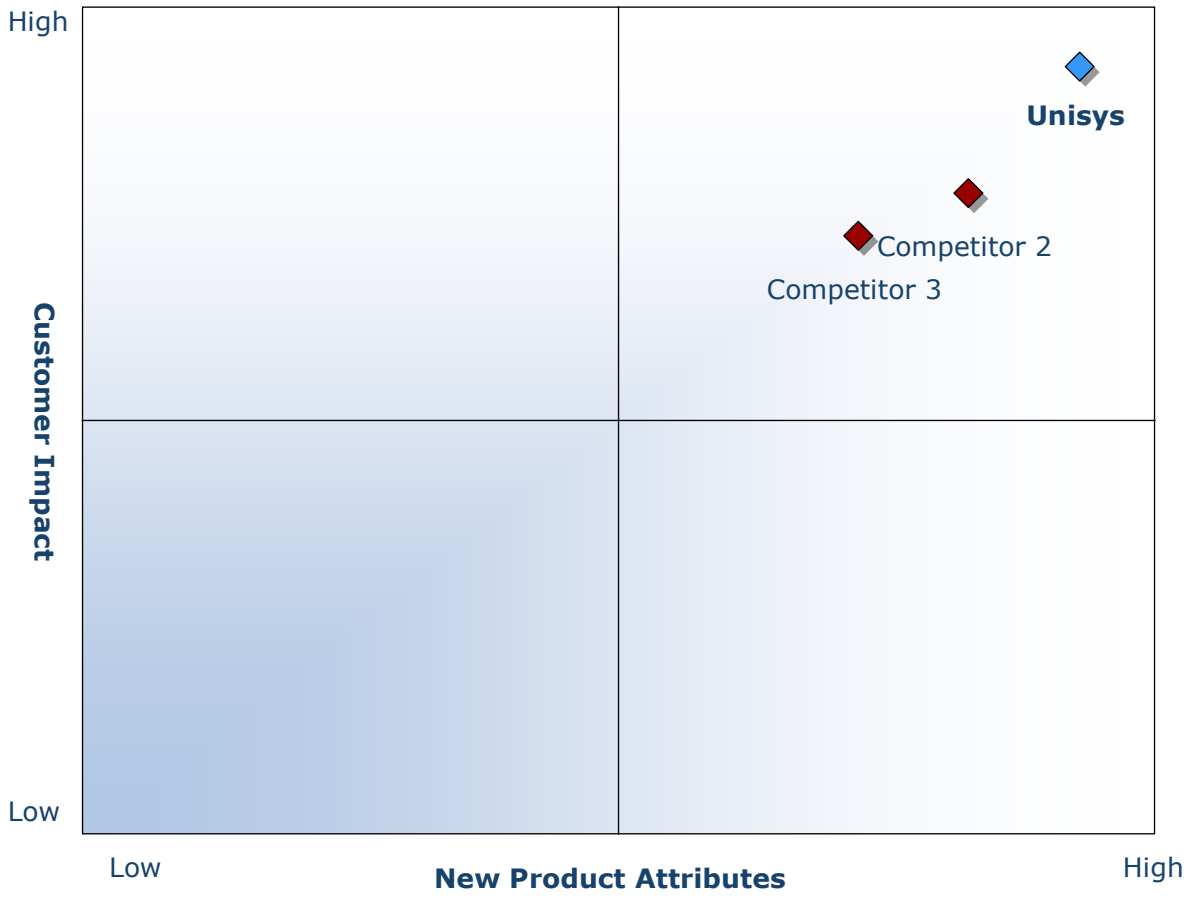
Criterion 4: Customer Service Experience
Requirement: Customer service is accessible, fast, stress-free, and of high quality

Criterion 5: Brand Equity
Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

Decision Support Matrix

The consideration landscape encompasses all companies. Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the top three 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.

DECISION SUPPORT MATRIX FOR NEW PRODUCT INNOVATION AWARD (ILLUSTRATIVE)



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 players and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Our awards team follows a 10-step process (illustrated below) to evaluate award candidates and assess their fit with our best practice criteria. The reputation and integrity of our awards process 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 • Identify emerging sectors • 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 • Assess candidates' fit with best-practice criteria • Rank all candidates	Matrix positioning 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 • 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-practice 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-practice award recipient	• Review analysis with panel • Build consensus • Select winner	Decision on which company performs best against all best-practice criteria
9	**Communicate recognition**	Inform award recipient of award recognition	• Present 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**	Share award news with stakeholders and customers	• Coordinate media outreach • Design a marketing plan • Assess award's role in future strategic planning	Widespread awareness of recipient's award status among investors, media personnel, and employees

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 almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.