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BEST PRACTICES

AWARDS

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2020 BEST PRACTICES AWARD



**2020 NORTH AMERICAN POWERED AIR PURIFYING
RESPIRATORY PROTECTION EQUIPMENT
NEW PRODUCT INNOVATION AWARD**

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Background and Company Performance

Industry Challenges

The North American respiratory protection market is known for its competitive nature, stringent OSHA regulations, and NIOSH testing (e.g., the assessment of airflow and operation flow rates) requirements. Silica dust loading tests are also performed in industrial environments such as mining, foundries, smelter plants, pharmaceutical manufacturing, transportation equipment manufacturing, and nuclear power plants.

Powered air purifying respirators (PAPRs) utilize a battery-operated blower to offer the user filtered air through a tight or loose-fitting respirator together with a loose-fitting hood, face seal, or helmet. PAPR manufacturers have the challenge of designing products that not only offer adequate protection against hazardous airborne contaminants but also provide comfort and ergonomics.

In healthcare settings, PAPRs protect against aerosol-transmissible diseases, blood-borne pathogens, and chemical exposure. However, wearers face challenges during surgeries as the device's hoses, cords, and filters may become dislodged in congested operating rooms or emergency department environments where many people may be moving quickly. Vendors' ability to address concerns related to PAPRs' efficacy in different work environments are critical factors in the decision-making process. The ability to disinfect the device's external working parts is also taken into consideration when selecting products.

Features such as lightweight head tops, compact design, hose-less or beltless features, an ergonomic fit, strong battery performance, ventilation, defogging, and low-cost ownership are key unmet needs for end users in the North American respiratory protection market. Original equipment manufacturers (OEMs) are hence striving to incorporate such features into their products without compromising safety.

New Product Attributes and Customer Impact

Match to Needs

Gentex Corporation (Gentex) is a global leader in personal protection and situational awareness solutions for defense forces, aircrew, emergency responders and industrial personnel with a history that spans over 125 years. As a leading respiratory protection equipment manufacturer, the company launched its innovative PureFlo 3000 PAPR series in 2019 to enhance workplace safety by integrating protection with an unrivaled level of comfort. The product features were configured after closely examining the requirements in industries such as construction, food processing, light manufacturing, pharmaceutical manufacturing, welding, and healthcare. The device is also optimized for settings such as smelters and nuclear power plants.

The product series was launched at a meeting of the National Safety Council after carefully evaluating customer feedback regarding the need for solutions that maximize mobility with high efficiency, durability, compatibility, improved safety, and offer a lower total cost of ownership. Attributes such as increased comfort and the ease of maintenance further



Source: Gentex

allow manufacturers to cater to different end-use application segments in high-performance environments.

Frost and Sullivan market analysis shows that the PureFlo 3000 PPR series is a product offering a high degree of protection along with better comfort. As an all-in-one device optimized for maximum mobility, the solution combines respiratory with head, face, eye, and optional hearing protection for use in a range of light-to-medium duty environments. Moreover, the product series meets and even exceeds customer expectations by eliminating snag hazards as there are no belts, hoses, or cables attached. The device is configurable and can be used with respiratory hoods, face seals, bump caps, hardhats, welding shields, and ear

defenders to provide enhanced protection.

Due to its loose-fitting design, the product can be safely used by individuals with beards or prescription eyeglasses without the need for extensive fit testing.

Reliability

As experts in developing innovative respiratory protection, PureFlo is committed to driving superior safety standards. The company strives to advance respiratory protection by focusing on comfort and reliability.

- **Safety and Mobility.** In comparison to similar PAPR devices being offered by competitors, the PureFlo 3000 series offers a higher level of mobility as there are no belts or belt-mounted blower units that can interfere with tools, machinery, or other PPE in confined spaces. The product also has an adjustable, loose-fitting hood that can be added for higher levels of protection, and better overall ventilation. Moreover, the product has no issues related to fogging as, unlike with other branded PAPRs, heat dissipates quickly.
- **Battery Performance and Backup.** The PureFlo 3000 PAPR series features a miniaturized, fast-charging lithium-ion battery which offers 4 to 5 hours of run time in high-performance environments. The battery is durable and has a fast-charging feature that provides a recharge time of two hours. To ensure continuous operation all PureFlo 3000 series PAPRs are supplied with a second battery that can be easily swapped out.

Quality

Gentex's newly launched PureFlo 3000 series demonstrates superior protection against respiratory hazards in the form of dust, fibers, fumes, and biological hazards. For the welding, pharmaceutical, and healthcare industries, it offers an Assigned Protection Factor (APF) level of 25 and 1000. In settings such as nuclear power plants, the company offers an APF of 25 and 1000, which meets OSHA specifications.

As per OSHA, the APF level corresponds to the level of respiratory protection that a respirator or a class of respirators is expected to provide to employees. Such regulations are necessary to protect employees using respirators to protect them from airborne contaminants.

Design and Positioning

Incremental improvements in design and technology are critical to ensure regulatory compliance in intense industrial environments. The PureFlo 3000 series is an optimal solution as it replaces traditional and uncomfortable belt-mounted PAPR, especially in restricted workspaces. The product's compact shape and placement of the motor, filter, and battery in the head top offer ease in donning and doffing.

Gentex's head-mounted PureFlo 3000 PAPR series enables operational efficiencies and provides other unique benefits to wearers that set it apart from the competition. Key comparative attributes which have enabled the product to be well-positioned in the market include:



Source: Gentex

- **Work Efficiency and Effectiveness.** The need to decontaminate head tops due to improper ventilation is a major challenge as it hampers the work efficiency level in industrial environments such as smelter plants and nuclear power plant sites. Most PAPR manufacturers experience this issue as a major hurdle in achieving optimum efficiency for their product. Gentex has overcome this challenge by manufacturing the protective hoods for the PureFlo 3000 series product from a range of disposable materials to suit different industries and applications. Ease in donning and doffing of the hood also enables the wearer to save a significant part of his or her work time.
- **Cost of Ownership.** In comparison to the waist-mounted PAPRs offered by competitors, the PureFlo 3000 series has been designed and developed using a lower total cost of ownership model. For example, it offers a pre-filter and spark arrestor to reduce hazards and extend the filter life. It also has low maintenance costs and fewer breakable and replaceable parts. Frost & Sullivan notes the replacement cost of HEPA filters is high, thus serving as a major PAPR growth restraint. However, PureFlo 3000 PAPRs drastically reduce filter replacement costs due to the use of low-cost pre-filters, thereby reducing overall operational costs.
- **Pricing.** In comparison to peers offering similar types of respirators, Gentex's PureFlo 3000 series is competitively priced (i.e., \$1,200 to \$1,400 USD, depending upon the nature of use).

Customer Value/Purchase Experience

Ownership and accountability are the key values of the Gentex Corporation. The company follows a customer-centric approach where all team members, from customer service representatives to technical staff, are accountable for an exceptional customer experience.

The company's close relationship with its premium customers further increases its industry knowledge and ability to address the practical challenges of site managers and procurement teams. As a result, PureFlo uniquely offers integrated head, face, eye, and hearing protection solutions along with respiratory protection in a single device.

Gentex continues to differentiate itself from the competition through an outstanding value proposition which enables the company to lead with innovative products, be solutions-driven, and ultimately be recognized as a trusted vendor. PureFlo's successful performance highlights the company's ability to leverage customer engagement to achieve greater penetration in industrial sectors such as healthcare, pharmaceutical, welding and fabrication, nuclear power. The company's business development team strongly focuses on customer feedback and works to meet needs accordingly. Gentex also carefully examines market reviews concerning its head top design, weight, quality, battery run time, and the level of protection it offers, and then work as a team to continually provide a better version of its products.

Brand Equity

Headquartered in Pennsylvania, Gentex Corporation and its PureFlo brand, is a leading US manufacturer and provider of PAPRs in the personal protective equipment market. The brand equity generated by Gentex's flagship PureFlo-branded products is likely to result in safety professionals embracing new product innovations such as the company's all-in-one respirators. To promote its PureFlo3000 PAPER series and create brand awareness, Gentex created collateral to educate and inform the industrial community of its benefits. These include readily available instructional videos on YouTube, guides, and datasheets.

Conclusion

Due to challenges related to ergonomics and the high replacement cost of HEPA filters, the powered air purifying respirators (PAPR) market has not attained significant growth in high-performance sectors such as mining, welding, pharmaceutical and lab manufacturing, healthcare, foundries, and nuclear power. Gentex Corporation (Gentex) leverages 125 years of personal protection expertise to provide innovative respiratory protection solutions. With its unique all-in-one approach, total cost of ownership, effectiveness, and strategy of focusing on the customer experience, Gentex's PureFlo 3000 series meets demand and reaches beyond customer expectation levels. Through robust research and forward-thinking product development, Gentex is making a positive impact on the personal protective equipment market and supply chain.

With its strong overall performance, Gentex earns Frost & Sullivan's 2020 New Product Innovation Award in the North American powered air purifying respiratory protection market.

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

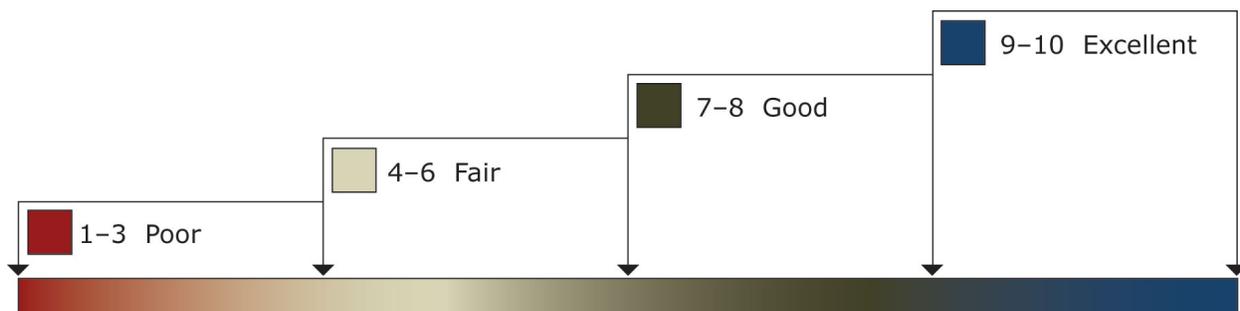
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practices Award Analysis for Gentex Corporation

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 1 and Competitor 2.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
New Product Innovation	New Product Attributes	Customer Impact	Average Rating
Gentex Corporation	9.5	8	8.75
Competitor 1	8	7.5	7.75
Competitor 2	7	6.5	6.75

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.

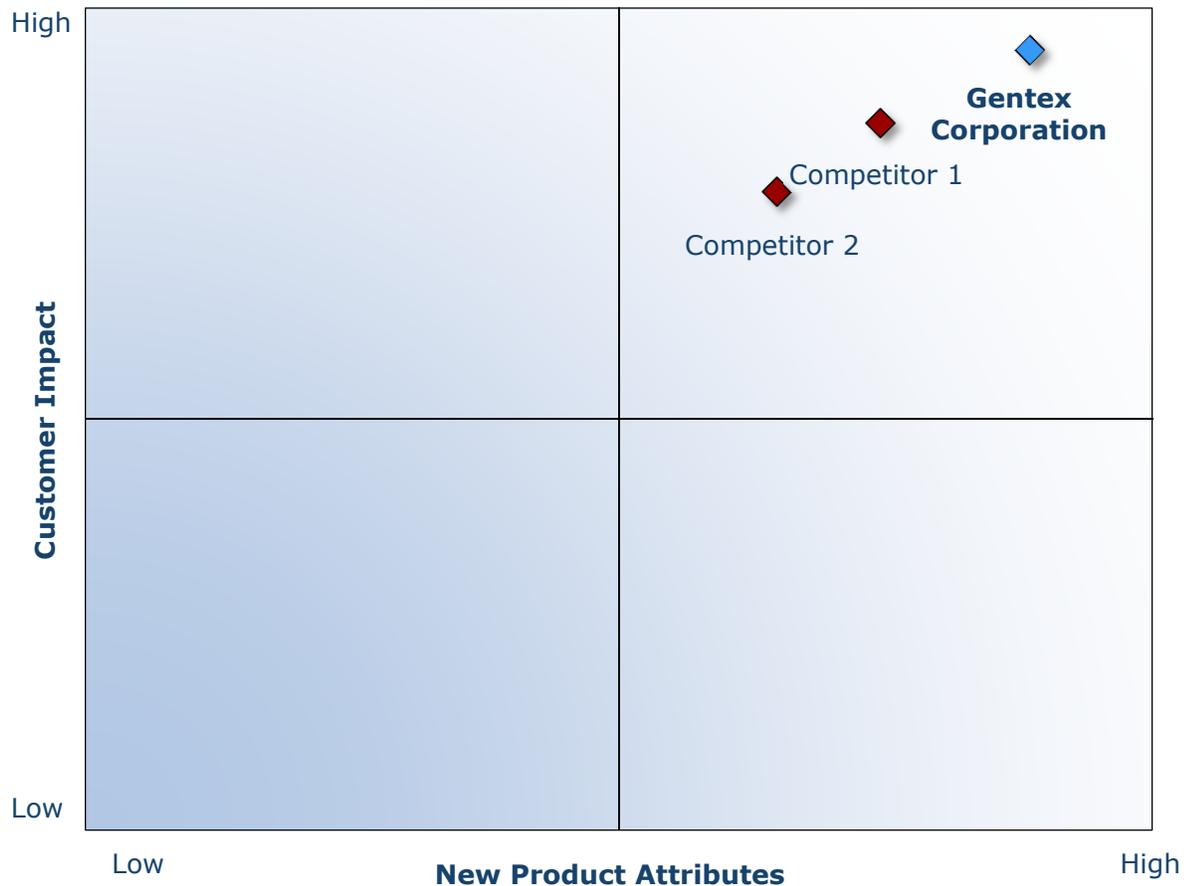
Criterion 5: Brand Equity

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.

DECISION SUPPORT MATRIX FOR NEW PRODUCT INNOVATION AWARD



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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice 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-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	<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-practice 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-practice 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-practice criteria
9 Communicate recognition	Inform Award recipient of Award 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 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 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.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



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>.