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BEST PRACTICES

AWARDS

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2020 BEST PRACTICES AWARD

INVIXIUM



**2020 GLOBAL BIOMETRIC
ACCESS CONTROL ENTREPRENEURIAL
COMPANY OF THE YEAR AWARD**

Contents

Background and Company Performance	3
<i>Industry Challenges</i>	3
<i>Entrepreneurial Innovation and Customer Impact</i>	3
<i>Conclusion</i>	7
Significance of Entrepreneurial Leadership	8
Understanding Entrepreneurial Leadership	8
<i>Key Benchmarking Criteria</i>	9
Best Practices Award Analysis for Invixium	9
<i>Decision Support Scorecard</i>	9
<i>Entrepreneurial Innovation</i>	10
<i>Customer Impact</i>	10
<i>Decision Support Matrix</i>	11
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices.....	12
The Intersection between 360-Degree Research and Best Practices Awards.....	13
<i>Research Methodology</i>	13
About Frost & Sullivan	13

Background and Company Performance

Industry Challenges

From sprawling construction sites to sensitive pharmaceutical labs, access control and time and attendance management are integral resources to businesses and governments worldwide, many of which are becoming increasingly wary of unauthorized access and security breaches. In response, adoption of access control systems is on the rise. However, numerous organizations still rely on smartcards and PIN-based access control systems, but these solutions are not foolproof and leave a gaping security threat.

Biometric devices, especially fingerprint access control systems, are being used in many government and commercial applications. While biometric tools drastically boost security, most available devices are not equipped to function well in outdoor environments and need frequent repair and maintenance. Also, in the current COVID-19 pandemic, end users are increasingly becoming cautious about touching shared devices and want to avoid using fingerprint scanners in public places because of the fear of infection. This situation has given rise to a demand for touchless technologies and devices that offer a hygienic solution without compromising on security.

In today's scenario, a company able to develop devices that offer high performance in indoor and outdoor environments, promote touchless and multimodal biometrics, and are easy to use will attract customers and enjoy a competitive edge in the global biometric access control market.

Entrepreneurial Innovation and Customer Impact

Invixium is a manufacturer of touchless biometric access control products and solutions for time and attendance and workforce management, as well as for building automation applications. Founded in 2012, the company is headquartered in Toronto, Canada and has presence in the United States, the United Kingdom, the Middle East, Africa, and India.

Range of High-performance Products and Solutions with Competitive Differentiation

Invixium manufactures a range of integrated hardware and software solutions based on face recognition, fingerprint and finger vein biometric technology. The range of flexible and smart engineering hardware devices includes IXM MERGE 2, IXM MYCRO, IXM SENSE 2, IXM TOUCH 2, and IXM TITAN. These products come with capacitive touchscreen sizes from 2" to 5", high resolution cameras, high intensity LED flash, and mics and speakers. Primarily run on proprietary face recognition biometric technology, the company also incorporates some of the industry's best technologies including Qualcomm processors, Sony cameras, Corning® Gorilla® Glass, HID and NXP card readers, Hitachi finger vein, and Lumidigm multispectral imaging sensors within its range of terminals. These add-ons drastically improve the quality and performance of Invixium's products and solutions, which are equipped with peripherals such as inbuilt cameras and access card readers to provide a consolidated solution for biometric access, time tracking, video surveillance, and video intercom capabilities. Invixium products are manufactured at its assembly plant in

Canada under strict quality standards for precision and are rigorously tested before shipping.

Also, Invixium provides enterprise-class software, IXM WEB. This software makes the configuration and management of their biometric system easy for site administrators and also provides interactive dashboards, reporting, and analytics to help management teams make better decisions.

IXM TITAN, the most advanced product offering by Invixium, is a next-generation access control and workforce management solution. This product utilizes a powerful face recognition processing technology and ensures superior connectivity, usability, reliability, and battery efficiency. TITAN allows up to four factors of authentication. For touchless applications, customers have access to its one-to-many matching capabilities using just face recognition, or they can scale up with dual-factor touchless authentication that employs smartcard and face recognition as credentials.

Sleek, aesthetically pleasing hardware, superior engineering, powerful algorithms, and high-end user interface technology position Invixium products to address the needs of customers across a wide range of industries. Frost & Sullivan recognizes these products deliver high-quality and superior performance value; touchless authentication via face recognition and accurate time and attendance recording place Invixium ahead of its peers who continue to deliver card- and PIN-based time and attendance solutions. Of particular note, Invixium has garnered significant attention in this market for its attractive yet rugged product design, which places it a step ahead of the competition. As a result, the company has been able to create competitive differentiation and is highly sought by its partners and customers in the security industry.

Customer Ownership Experience

Invixium has sold over 20,000 units to a broad spectrum of customers in sectors including government, corporate, healthcare, pharmaceutical, refineries, seaports, mining, and higher education. Its customer base registers over 300 clients in the Middle East, North America, Africa, Europe, and parts of Asia-Pacific.

Some of the biggest and most esteemed customers include National Bank of Egypt, Kotak Mahindra Bank, and Deloitte from the financial industry; Shell Refinery, APM Terminals Shipping Port, Adani Ports, and Jordanian Mining Company from the industrial sector; Egypt Post and Ministries of Interior and Defense in Saudi Arabia from the government sector; Baxter and Absolute Health Regenerative Clinic in the healthcare industry; Transguard Group (a subsidiary of Emirates Group), Fine Hygienic Holdings, and many data centers in the US enterprise space; Taif University (Saudi Arabia), and many universities in the United States in the education sector; and high-end residential buildings such as Panorama Towers in Las Vegas and Volante Tower in Dubai.

Transguard Group, a subsidiary of the Emirates Group, has deployed over 400 Invixium biometric devices at construction sites across the United Arab Emirates for the purposes of workforce management of its 65,000+ contract workers. The Invixium solution includes IXM TITAN devices and customized software. TITAN's high throughput face recognition

capabilities and rugged construction can successfully withstand the harsh environment at various remote sites. Invoxium's solution helped Transguard replace its tedious and error-prone manual process of employee tracking with a digital tracking process that guarantees extreme accuracy and visibility, enabling quick decisions related to resource allocation and client billing. Automation of the customer's employee tracking system has reduced the check-in/check-out waiting time of contractors by 70%. It has also helped reduce the mental stress of construction workers who previously had to wait in line for about 2.5 hours daily to register their attendance, which is now completed within 45 minutes. Also, Transguard has significantly improved its financial savings by reducing the invoice-to-cash time by 80%.

A Shell refinery in Nigeria was looking to replace its existing card-based access control system with biometrics for increased security, due to the vulnerability of access cards being shared, stolen, or lost. The challenge was to identify a biometric solution that could support over 100,000 users and operate in the highly industrial oil refinery environment, and the company found its match in Invoxium solutions. The oil refinery was dealing with a unique human resource (HR) problem of unintentionally rehiring previously terminated employees. By implementing the "duplicate check" feature, the refinery's HR team has significantly streamlined the hiring process and increased efficiency. Also, the refinery saved time and money it previously spent on frequent service, maintenance, and replacement of its hardware because the Invoxium biometric devices are rugged and offer great longevity.

Panorama Towers, A \$600 million award-winning luxury high-rise condominium complex in Las Vegas had decided to install a biometric system for access control throughout its 2 towers for the convenience of its residents and to attract new buyers. The initial system installed did not perform well in outdoor environments, especially when the user had wet or moist fingerprints. Also, the overall architecture of this particular biometric installation was overly complex and needed frequent repairs. Finally, the organization replaced the problematic solution with Invoxium's high-performance outdoor solutions, and now Panorama Towers has been able to achieve financial savings by greatly reducing ongoing maintenance costs.

Frost & Sullivan believes that Invoxium has demonstrated its superior quality engineering, system architecture, and robust biometric capabilities with successful deployment in various businesses across industry sectors, helping its customers save time and money while enhancing the end-user experience.

Blue Ocean Strategy

Invoxium's strategic decision to design enhanced products that operate on a range of biometric modalities, as well as card-based authentication, and ensure high-quality performance in various extreme outdoor environments led it to create a space for itself in the already crowded access control, time and attendance, and biometrics markets. By perfecting various desirable features in its products, such as aesthetically designed sleek terminals, simplified interactive user interfaces, multiple technology support, and ruggedness, Invoxium's product line distinguishes itself from competing products and

solutions available in the market. The success of these solutions positioned the company to grow at a fast rate in a very short period. Invixium achieved 143% year-over-year (YoY) growth in 2019, and a 40% CAGR over the last 4 years in an industry that has an average growth of 15%. Also, the company has increased its customer base by 51% in the last 3 years.

Frost & Sullivan recognizes that the touchless design of Invixium products is a key differentiator in the current COVID-19 global pandemic. As leaders are encouraging social distancing and avoiding unnecessary contact with objects in public spaces, hygiene is top-of-mind among those who are looking for contactless options for completing day-to-day essential tasks. In this scenario, people will continue to avoid using biometric scanners and readers that are touched by others.

To help its customers respond to the COVID-19 pandemic, Invixium has recently developed an Enhancement Kit solution for TITAN that can detect elevated body temperature (EBT) in a person from a certain distance and deny access if the reading is found above a predefined temperature threshold. The dual-camera system could also raise an alarm for management intervention, or display a popup message on TITAN's large screen to provide next steps such as "report to security station for further screening". Without a doubt, this type of next-generation access control device would be highly beneficial for large organizations and become a game-changer in the biometric access control industry.

Frost & Sullivan expects the COVID-19 pandemic will cause a temporary setback for fingerprint biometric technology providers yet boost uptake of contactless biometric technologies. Invixium, with its touchless authentication devices, is expecting double-digit growth in 2020.

Passionate Persistence

Invixium was founded by CEO Shiraz Kapadia and his team of experts who provide significant industry experience and absolute clarity about the kind of products and solutions they wanted to develop. Some of the biggest challenges they faced were customers' privacy concerns about using biometrics (most end users remained dedicated to using card-based access control solutions, despite the security flaws that come with them) and a competitive biometric market for access control in government and commercial businesses. The Invixium team was confident that with the right focus on providing customer-specific education about biometrics as well as designing solutions that hit the mark aesthetically and offer customization options, the industry could turn around. Essentially, the team wanted to develop a product portfolio that solves the major problems of integrators, installers, as well as end users.

The development phase started with three big agendas. First and foremost, the products had to look beautiful. Secondly, the products had to be extremely easy to use for integrators, installers, and end users. Last but not the least, the product must be designed for both indoor and outdoor conditions, support multimodal biometrics for a variety of applications, and include time-tracking with touchscreen Gorilla Glass by Corning®.

After the product design was finalized, Invixium started addressing the issue of lack of awareness in the market. Even while the products were in the development phase, the Invixium team was actively educating people about the importance of a biometric-based access control solution and its benefits over a card- or PIN-based system.

The vision and passionate persistence of the company's founder and his team have been major contributors to Invixium's success in such a short span of time.

Conclusion

Biometric devices, especially face recognition access control systems, have experienced an uptick in adoption among organizations across sectors. Although biometric solutions offer greater security than card- or PIN-based systems, most devices in the market do not function well outdoors, which does not bode well for customers in sectors such as construction, seaports, and mining. Moreover, in light of the COVID-19 pandemic, most end users are wary of sharing biometric tools that must be touched by many, such as fingerprint scanners.

Invixium is a manufacturer of touchless biometric access control and time and attendance devices that stand out for their aesthetic beauty and high-class, albeit rugged engineering. The devices support multimodal biometric technology and are equipped with advanced features and sensors for greater user experience. Invixium's fully integrated hardware and software solution provides meaningful analytics to enterprises and industries in promotion of increased health, safety, productivity, and security.

For its strong overall performance, Invixium has earned Frost & Sullivan's 2020 Entrepreneurial Company of the Year Award.

Significance of Entrepreneurial Leadership

Ultimately, growth in any organization depends on 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. Making customers happy is the cornerstone of any successful long-term innovation or growth strategy. To achieve the dual goals of customer engagement and growth, an organization must be best in class in 3 key areas: understanding demand, nurturing the brand, and differentiating from competition.



Understanding Entrepreneurial Leadership

Demand forecasting, branding, and differentiation underpin an entrepreneurial company's journey toward forming deep relationships with customers and permanently altering the market with their actions. Entrepreneurial Innovation and Customer Impact are the cornerstones of this award, as discussed further in the next section.

Key Benchmarking Criteria

For the Entrepreneurial Company of the Year Award, Frost & Sullivan analysts independently evaluated Entrepreneurial Innovation and Customer Impact according to the criteria identified below.

Entrepreneurial Innovation

- Criterion 1: Market Disruption
- Criterion 2: Competitive Differentiation
- Criterion 3: Market Gaps
- Criterion 4: Blue Ocean Strategy
- Criterion 5: Passionate Persistence

Customer Impact

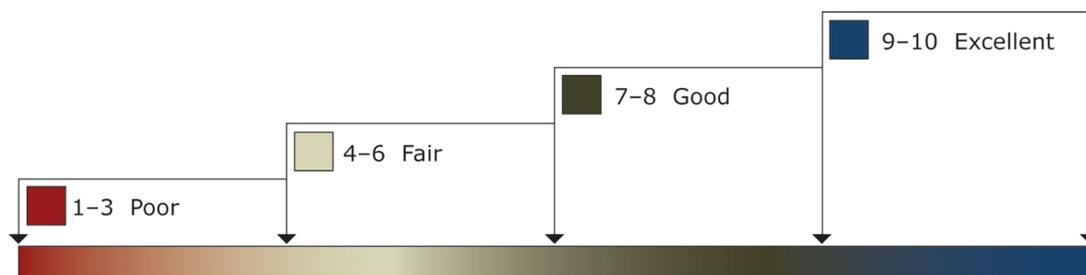
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practices Award Analysis for Invisium

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 Entrepreneurial Innovation 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>			
Entrepreneurial Company of the Year	Entrepreneurial Innovation	Customer Impact	Average Rating
Invizium	9.8	9.8	9.8
Competitor 1	9.1	9.2	9.2
Competitor 2	8.5	8.5	8.5

Entrepreneurial Innovation

Criterion 1: Market Disruption

Requirement: Innovative solutions that have genuine potential to disrupt the market, making current solutions obsolete and shaking up competition.

Criterion 2: Competitive Differentiation

Requirement: Deep understanding of both current and emerging competition to create and communicate strong competitive differentiators in the market.

Criterion 3: Market Gaps

Requirement: A clear understanding of customers’ desired outcomes, the products that currently help them achieve those outcomes, and where gaps exist.

Criterion 4: Blue Ocean Strategy

Requirement: Strategic focus on creating a leadership position in a potentially uncontested market space, manifested by stiff barriers to entry for competitors.

Criterion 5: Passionate Persistence

Requirement: A deep belief in the rightness of an idea and a commitment to pursuing it despite seemingly insurmountable obstacles.

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

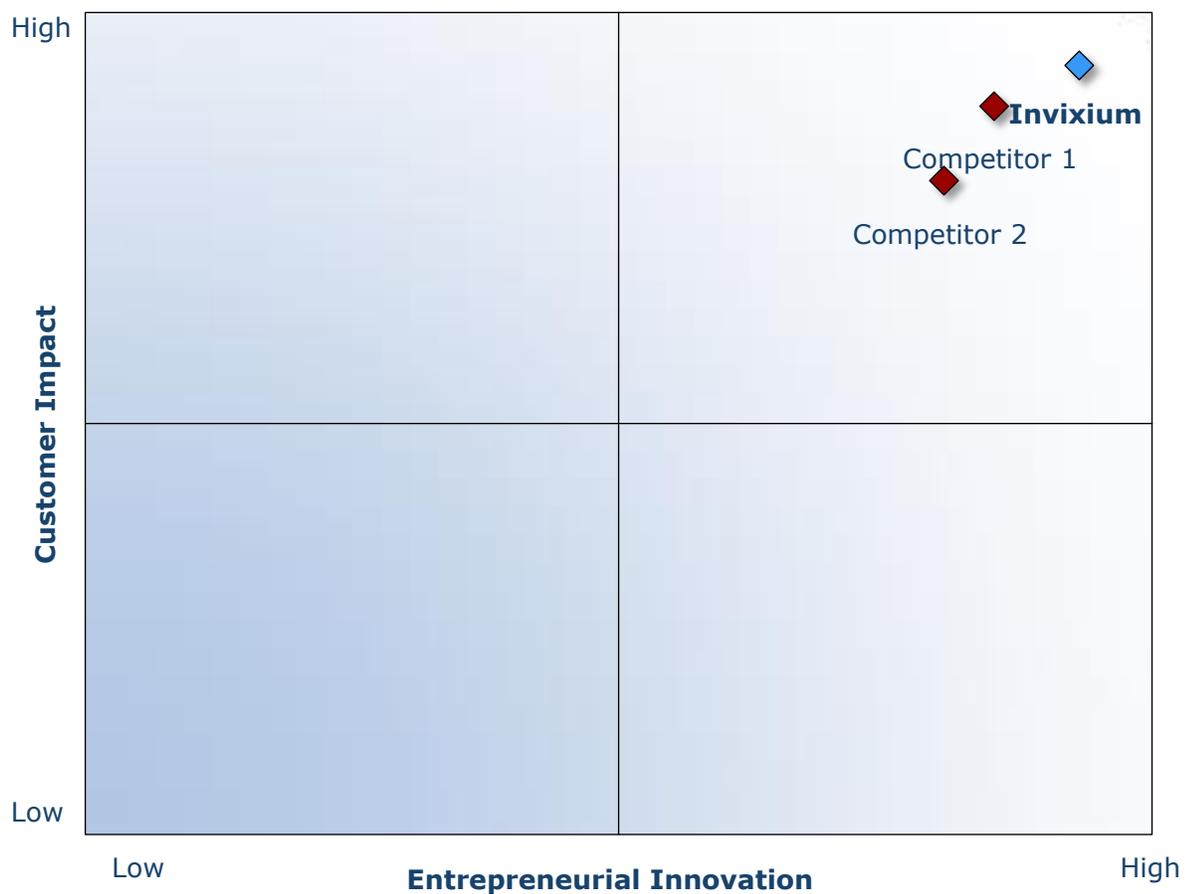
Requirement: Customer service is accessible, fast, stress-free, and of high quality.

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 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 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>.