2015 Global Fingerprint Biometrics for Mobile Devices
Customer Value Leadership Award
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Background and Company Performance

Industry Challenges

The continued rise in identity theft and fraudulent activities has resulted in the growing demand for a stricter authentication process for mobile devices. While one’s personal identification number (PIN) and password can easily be forgotten, the fingerprint technology provides an enhanced verification mechanism while guaranteeing greater convenience of use. This has led to staggering growth in the demand for fingerprint authentication capability among customers. However, with the advanced capabilities of smartphones and tablets, the need for small hardware components is on the rise. Mobile manufacturers and original equipment manufacturers (OEMs) not only require a high-precision authentication technology, but they also require a solution that can easily fit into the mobile environment.

Also, the boom in the e-commerce sector has accelerated the demand for an efficient authentication mechanism, which guarantees a secured payment process, protecting customers from fraud and identity theft. Furthermore, given strict industry guidelines, biometrics companies also need to focus on complying with industry regulations.

To be in the best position to grow in today's market, Frost & Sullivan's research suggests that companies should design solutions that are highly accurate, easy to use, and fast compared to existing solutions.

Customer Impact and Business Impact

Price/Performance Value

Based in Sweden, Precise Biometrics’ fingerprint technology is critical for mobile device manufactures to ensure the transition to the new authentication paradigm. The company engineered Precise BioMatch Mobile, Precise BioMatch Embedded, and Precise Match-on-Card based on its powerful technology. While Precise BioMatch Mobile has been designed for identity authentication in smartphones and tablets, Precise BioMatch Embedded is ideal for use on any hardware platform. The company’s Precise Match-on-Card is proficient in accurately authenticating identity on smart cards with its fingerprint algorithm.

The company’s BioMatch Mobile guarantees easy integration of fingerprint sensors on any smartphone or tablet. While designed ideally for Android, it can also be customized for use across different operating platforms. With easy integration into smartphones and tablets and designed optimally for small sensors in mobile environments, the company’s fingerprint biometrics offer fast, accurate, and secure verification of the user’s identity with image extraction in less than 22 microseconds and image matching in 11 microseconds. The solution’s distinct 360-degree identification mechanism allows the user...
to unlock the device by touching it at any finger position and provides faster unlocking of the device as compared to a swipe sensor.

Furthermore, Precise Biometrics’ smart card reader Tactivo, designed specifically for Apple devices, ensures easy and secure access to restricted information from smartphones and tablets. With the robust fingerprint authentication mechanism, Tactivo offers secured web browsing, safe emailing, and protected document signing.

**Customer Ownership Experience**

In addition to offering a robust solution portfolio, Precise Biometrics places significant emphasis on ensuring a fulfilling ownership experience. One of the primary benefits enjoyed by Precise Biometrics' customers is high accuracy complemented by ease-of-use. Precise BioMatch Mobile’s distinct design allows it to be efficiently implemented in the small sensors designed for mobile environments. This provides OEMs and mobile manufacturers easy integration of the sensor into the mobile environment. The solution, although engineered primarily for Android, can be customized for other operating platforms. This can be achieved with its modular architecture, which ensures excellent flexibility. While the company’s fingerprint biometrics are easy to use and guarantee enhanced performance, the solutions are accompanied by a variety of tools such as a performance evaluation suite, image quality assessment module, API sample code, and a guide for easy installation, which further enhances user experience.

In addition, the company being ISO/International Electro-technical Commission (IEC) 19794-2 and American National Standards Institute (ANSI)/International Committee for Information Technology Standards (INCITS 378) compliant ensures strict adherence to guidelines and provides greater value.

**Customer Service Experience**

Precise Biometrics offers best-in-class service support to its customers to ensure a proficient service experience. The company has an efficient channel partner network including value-added resellers, technology vendors, system integrators, sensor manufacturers and distributors who provide a seamless experience to customers. The company has representatives in the US, Europe, and Asia to make purchasing of Precise Biometrics’ solutions easy and convenient for customers. While support for products and solutions purchased from resellers and distributors are provided by the company’s channel partners, Precise Biometrics is responsible for offering support for solutions sold directly from the company. The company assists customers in integrating, designing, optimizing, validating, and in application development processes.
To further improve the overall user experience, the company hosts drivers for download on its website. It also has a dedicated portal for support issues where customers can submit as well as track support issues.

Hence, with an extensive network of channel partners coupled with its seamless support service, Precise Biometrics significantly enhances customer experience.

**Customer Acquisition**

With an innovative solution portfolio developed through years of research and development (R&D) and backed by rich expertise in fingerprint technology, Precise Biometrics boasts a customer list with some of the most prominent names in the industry. Huawei has integrated Precise BioMatch Mobile to launch the world’s first touch fingerprint sensor unlocking capability in mobile phones based on Android OS. Recently, in the fourth quarter of 2014, Oppo, a Chinese smartphone manufacturer leveraged Precise BioMatch Mobile for its N3 model to offer its customers a convenient unlock functionality. The technology ensures easy control of the movable camera and protects the photo album by providing a high precision authentication paradigm. Precise Biometric also entered into a licensing agreement in the fourth quarter of 2014 with Synaptics, one of the leading sensor manufacturers. The agreement will allow Synaptics to leverage Precise Biometrics’ fingerprint technology in engineering its fingerprint sensors. The company also boasts a strong client list for its Tactivo solutions. A leading global energy company implemented Precise Biometrics’ Tactivo solution in providing its executives with an easy option to work remotely without exposing sensitive corporate information. Also, National Health Service Trusts leveraged Tactivo to offer better service to patients by ensuring easy access to patient information by authorized staffs through a highly secured authentication mechanism. Furthermore, Precise Biometrics’ association with Defense Logistics Agency, a part of the US Department of Defense, and a South American insurance company as their Tactivo solutions provider is highly commendable in increasing company sales.

**Operational Efficiency**

Founded in 1997, Precise Biometrics has acutely focused on designing fingerprint authentication mechanisms that are convenient, secure, and fast. This has been made possible by the company’s veteran team and its ability to innovate to meet unique customer needs. The company also promotes a work culture that nurtures innovation, focuses on product quality, and looks to customer feedback to ensure that it can tailor its solutions to their ever-evolving needs.

Precise Biometrics holds a strong portfolio of Intellectual Property rights, having been granted 77 patents with another 17 patent applications pending. Among those patents, the company holds a strong patent for fingerprint recognition on small touch sensors that provides the company a competitive edge. The registered patent claim is for a system
checking fingerprints to collect images of partial fingerprints, comparing a digital representation of the partial fingerprints with different parts of a prerecorded reference fingerprint that represents a larger finger than the partial fingerprint.

Along with ensuring efficient authentication with high accuracy, the extractor and matcher technology, which forms the core of the fingerprinting technology, is ISO compliant. Also, the technology has attained top results in the Ongoing Minutia Exchange (MINEX) and MINEX II evaluations conducted by the US National Institute for Standards and Technology (NIST). The company’s solutions are designed with specifications defined by ISO, IEC, ANSI, and INCITS that enhance user experience while complying with the industry regulations.

**Growth Potential**

Precise Biometrics boasts 160 million users worldwide. The company recorded net sales of Swedish Krona (SEK) 31.4 million in 2014 with an increase of 6% in sales of fingerprint technology.

The company has taken the right strategic initiatives in enhancing its growth potential by focusing primarily on fingerprint technology, strongly leveraging its extensive channel partner network for sales, and reducing its operating expenses. Precise Biometrics has a wide geographic presence with representatives in Europe, the US, and Asia, with customers across varied industry verticals including the US government, international enterprises, healthcare providers, and leading smartphone manufacturers. With a comprehensive product offering in fingerprint technology, the company is concentrating on further expanding its market presence in Asian markets, with a primary focus on mobile phone manufacturers.

With its effective strategy implementation, complemented by a comprehensive product portfolio and an extensive channel partner network, Frost & Sullivan fully expects Precise Biometrics to continue to grow in the coming years.

**Conclusion**

Precise Biometrics is a leader in fingerprint biometrics for the global mobile device market. This can be attributed to the company’s highly efficient Precise BioMatch Mobile solution, which provides superior fingerprint authentication for smartphones and tablets. The solution ensures easy unlocking of mobile devices while delivering enhanced security. Furthermore, Precise Biometrics’ Tactivo, designed primarily for Apple devices, ensures safe web browsing, e-mailing, and document signing. Because of its strong overall performance, Precise Biometrics is recognized with Frost & Sullivan’s 2015 Global Customer Value Leadership Award.
Significance of Customer Value Leadership

Ultimately, growth in any organization depends upon customers purchasing from your company, and then making the decision to return time and again. Delighting customers is therefore the cornerstone of any successful growth strategy. To achieve these dual goals (growth and customer delight), an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, differentiating from the competition. This three-fold approach to delivering customer value is explored further below.

Understanding Customer Value Leadership

Customer Value Leadership is defined and measured by two macro-level categories: customer impact and business impact. These two sides work together to make customers feel valued, and confident in their products’ quality and long shelf life. This dual satisfaction translates into repeat purchases and a high lifetime customer value.
Key Benchmarking Criteria

For the Customer Value Leadership Award, we evaluated two key factors—Customer Impact and Business Impact—according to the criteria identified below.

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

Business Impact

- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Operational Efficiency
- Criterion 4: Growth Potential
- Criterion 5: Human Capital

Best Practice Award Analysis for Precise Biometrics

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 Customer Impact and Business 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, we have chosen to refer to the other key players in as Competitor 2 and Competitor 3.

<table>
<thead>
<tr>
<th></th>
<th>Customer Impact</th>
<th>Business Impact</th>
<th>Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Value Leadership</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precise Biometrics</td>
<td>9.7</td>
<td>9.5</td>
<td>9.6</td>
</tr>
<tr>
<td>Competitor 2</td>
<td>9.2</td>
<td>9.0</td>
<td>9.1</td>
</tr>
<tr>
<td>Competitor 3</td>
<td>8.4</td>
<td>8.8</td>
<td>8.6</td>
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</tbody>
</table>

**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

**Business Impact**

**Criterion 1: Financial Performance**
Requirement: Strong overall financial performance in terms of revenues, revenue growth, operating margin and other key financial metrics

**Criterion 2: Customer Acquisition**
Requirement: Customer facing processes support the efficient and consistent acquisition of new customers, even as it enhances retention of current customers

**Criterion 3: Operational Efficiency**
Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard
Criterion 4: Growth Potential
Requirements: Customer focus strengthens brand, reinforces customer loyalty and enhances growth potential

Criterion 5: Human Capital
Requirement: Company culture is characterized by a strong commitment to quality and customers, which in turn enhances employee morale and retention

Decision Support Matrix
Once all companies have been evaluated according to the Decision Support Scorecard, analysts can 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.
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.
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate Award candidates and assess their fit to best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

<table>
<thead>
<tr>
<th>STEP</th>
<th>OBJECTIVE</th>
<th>KEY ACTIVITIES</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monitor, target, and screen</td>
<td>Identify award recipient candidates from around the globe</td>
<td>Conduct in-depth industry research, Identify emerging sectors, Scan multiple geographies</td>
</tr>
<tr>
<td>2</td>
<td>Perform 360-degree research</td>
<td>Perform comprehensive, 360-degree research on all candidates in the pipeline</td>
<td>Interview thought leaders and industry practitioners, Assess candidates’ fit with best-practice criteria, Rank all candidates</td>
</tr>
<tr>
<td>3</td>
<td>Invite thought leadership in best practices</td>
<td>Perform in-depth examination of all candidates</td>
<td>Confirm best-practice criteria, Examine eligibility of all candidates, Identify any information gaps</td>
</tr>
<tr>
<td>4</td>
<td>Initiate research director review</td>
<td>Conduct an unbiased evaluation of all candidate profiles</td>
<td>Brainstorm ranking options, Invite multiple perspectives on candidates’ performance, Update candidate profiles</td>
</tr>
<tr>
<td>5</td>
<td>Assemble panel of industry experts</td>
<td>Present findings to an expert panel of industry thought leaders</td>
<td>Share findings, Strengthen cases for candidate eligibility, Prioritize candidates</td>
</tr>
<tr>
<td>6</td>
<td>Conduct global industry review</td>
<td>Build consensus on award candidates’ eligibility</td>
<td>Hold global team meeting to review all candidates, Pressure-test fit with criteria, Confirm inclusion of all eligible candidates</td>
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<tr>
<td>7</td>
<td>Perform quality check</td>
<td>Develop official award consideration materials</td>
<td>Perform final performance benchmarking activities, Write nominations, Perform quality review</td>
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<tr>
<td>8</td>
<td>Reconnect with panel of industry experts</td>
<td>Finalize the selection of the best-practice award recipient</td>
<td>Review analysis with panel, Build consensus, Select winner</td>
</tr>
<tr>
<td>9</td>
<td>Communicate recognition</td>
<td>Inform award recipient of award recognition</td>
<td>Present award to the CEO, Inspire the organization for continued success, Celebrate the recipient’s performance</td>
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<tr>
<td>10</td>
<td>Take strategic action</td>
<td>The award recipient may license the award for use in external communication and outreach to stakeholders and customers</td>
<td>Coordinate media outreach, Design a marketing plan, Assess award’s role in future strategic planning</td>
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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 over 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 40 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.