FROST & SULLIVAN

BEST PRACTICES

AWARDS

FROST & SULLIVAN

2020 BEST PRACTICES AWARD

callsign®

2020 GLOBAL
ADVANCED IDENTITY AUTHENTICATION
TECHNOLOGY INNOVATION LEADERSHIP AWARD

Contents

Background and Company Performance

Industry Challenges

In the wake of increased data breaches, Signaling System 7 attacks, and Authorized Push Payment fraud, authentication credentials remain a culprit of low fidelity, resulting in insufficient identification. While observing the staggering increase of the world "going digital," individual identity itself lags and becomes less personable for a device's end user. More than ever before, hackers are taking over log-in information to gain access to private information instantly as the entrance to endpoints become more vulnerable, negatively affecting the overall user experience. The increase in cybercrime is a result of attackers becoming smarter about their tactics. Unfortunately, companies continue to remain under immense pressure as they strategize how to implement higher security authentication measures without negatively impacting the user experience. Inconsistent customer experiences, in the long run, will leave the attackers room to manipulate security channels. Ensuring a frictionless user experience will result in fewer drop-offs and higher retention rates toward continued services use.

For example, with online banking, consumers face the problem of verifying their true identity during high-risk transactions and other online activities. With the rise of mobile device usage, consumers are at an even more vulnerable state than usual. Cybercriminals can hack multi-factor authentication, biometrics, and standard user protection tools such as passwords, personal identification numbers (PINs), and secret questions, which remain susceptible to next-generation threats. Failed password attempts are not only burdensome to the end user but costly to the organization being that they are required to pay for the short messaging services (SMS) either directly or via an authentication company.

Enterprises realize the impact that internal information technology (IT) teams are experiencing with the challenge to manage and secure connected mobility devices. Remote networks and cloud-based apps are prone to higher impact from cyber-attacks. Enabling an authentication service with a solution that offers complete flexibility will reduce the number of authentication steps overall. Delivering a proactive solution that equips enterprises with the right tools to allow end users to regain total control of the specifications and data collected during the log-in phase during transactions will lead to a more personable and user-friendly customer experience.

Technology Attributes and Future Business Value

Founded in 2012, London-based Callsign provides a level of security that is reshaping the market for authentication solutions. With a mission to enable digital identification and increase the authentication process' accuracy, the company's platform reduces authentication steps toward a better user experience and decreases labor costs related to IT and customer service teams unlocking accounts due to failed password attempts and sending SMSs, both typical practices of traditional mobile device authentication. Callsign delivers the first identification platform that uses deep learning intelligence backed by artificial intelligence (AI) capabilities to construct a personalized digital identification formula to secure and recognize a person's true identity.

Delivering a Simple and Secure Digital Identity—Simplifying the User Experience Journey

Callsign's Intelligence Driven Authentication Solution provides a secure and seamless authentication experience for enterprise users and their customers with a strong potential to become an industry standard. The company's solution serves many types of organizations, such as governments, consultancy firms, telecommunications, and retail merchants. Currently, Callsign's solution excels in the banking sector, given businesses and consumers conduct such high-risk transactions more frequently. With banking, money is stored in different places other than the banks themselves, an example being with mobile payment services. Another example is loyalty cards, run by specialist loyalty vendors or enterprises such as hotel chains, airlines, and merchants. The need for making people's money safer is vital by having a platform capable of identifying an end user's true self. The identity solution is fully modular and integrates easily with existing architectures and addresses the cybersecurity industry's software authentication concerns. With more adaptability to access control decisions, Callsign's platform gives the end user more authority during the authentication process. Eliminating the multiple layers needed to recognize a person is who they say they are, Callsign identifies through deep-learning-based characteristics that include location, behavior, the device used, and biometrics. In addition, Callsign also uses data from its mobile network operator partners to counter subscriber identification module (SIM) swap, call divert, and social engineering attacks. This is a capability that none of Callsign's competitors deploy. Focusing on these deep learning algorithms adjusts the authentication process in real-time. These key capabilities initiate the balance that allows enterprises and their end users to maintain an effective authentication process by lowering fraud rates and operational costs, prioritizing the customer experience, and maintaining privacy and compliance for all users.

The platform decreases the impact that compromised credentials can have on organizations, eliminating the flaws of multi-factor authentication processes, such as multiple security questions, passwords, and PINs, providing an unflustered user journey. With Callsign, authentication steps drop by 90%, delivering a contextualized and personalized journey, thus minimizing end user drops offs due to failed passwords or other troublesome verification steps, reducing financial costs by 70%. Having the ability to prioritize user experience will impact fraud rates as well. In general, low-fraud tolerance leads to a challenging user experience; Callsign's authentication platform allows enterprises to reduce fraud by 83% with real-time AI and deep learning analytics. The solution allows organizations to amend policies based on compliance, fraud risk, or user experience in real-time, without the need for specialist coding expertise.

How the Solution Works—Simplifying the User Experience

The fully modular identity platform learns a user's behavior with three interactions through its intelligence engine, continuously analyzing thousands of inputs. These interactions are device, location, and behavior. Device identification allows for recognizing malware and bot threats, cross-browsing tracking, and device identification fingerprinting; location delivers geolocation services along with location clustering for virtual private

networks, proxies, and anonymity networks; and behavior recognizes the user by their past activities. Behavior capabilities, alongside keystroke and mouse dynamics include mobile swipe, touch dynamics, and credential input analysis to give Callsign's solution a unique offering to the end user experience. By analyzing the user's swipe behavior on the mobile device, the solution matches it with every swipe thereafter to assure access in the future. This capability increases accuracy and precision while mitigating threats from fraudulent activity.

Callsign's solution offers greater assurance of the end user's identity by first analyzing each of these interactions individually against previous transactions, before fusing them together to provide one overall risk or confidence score. By taking this approach, Callsign is able to more accurately determine the genuine identity of the user and that of a fraudulent transaction. This approach also helps reduce false positives as nuances within the user's behavior such as a new device, location or slight change in behavior can be detected,

Customer Acquisition and Licensing

Callsign's method of customer acquisition is traditional but also unconventional in many circumstances. Aside from attending trade shows and exhibiting live demonstrations, which has accumulated an increasing customer base, word-of-mouth and internal networking between current and potential clients have provided the company with a wide range of growth opportunities. Rather than acquisition teams going out into the field, many prospects come to Callsign. The company is keen on performing live demonstrations firsthand to establish proof-of-concept (POC) trials with clients. During POC demonstrations, Callsign rectifies the number of fraudulent attempts that potential clients did not see before using their current authentication methods. Due to the solutions modularity, organizations can easily integrate Callsign into their existing stack, as well as using existing data sources to feed into policy decisions. Callsign also allows organizations to test and learn from these policies in real-time. Trial periods are all dependent on the type of enterprise seeking Callsign's platform; the company licenses through a per-transaction basis. As of 2020, the company's customer base extends evenly throughout the United States and the United Kingdom in addition to Germany and Ireland. Live trials are currently underway in the Asia-Pacific region, with great potential to expand even further into South America.

Customer Focus and Brand Loyalty

Callsign's business strategy focuses on three parts that continue to steer the company on the right path to success; technology, market penetration, and establishing a reputable brand. The company invests early with the International Organization for Standardization (ISO) qualifications to maintain good AI practices by taking the minimal amount of data necessary from customers and their end users. The company has an ISO 27001 certification for information security management. Callsign invested in ensuring it maintains excellence in AI practices. Furthermore, the company became part of the larger

Model AI Governance Framework and its companion documents developed by Singapore's Infocomm Media Development Authority.[1] Additional involvements include the Personal Data Protection Commission and the World Economic Forum Centre for the Fourth Industrial Revolution, which provides detailed guidance for organizations to address key ethical governance issues when deploying AI solutions.[2] Continuing its growth strategy and increasing the brand, Callsign works with disadvantaged youth to teach best practices toward identity authentication, the responsibility associated with money and banking practices, and protecting identities in the digital world. Callsign's customer-focused culture drives the company's branding by having a team with years of banking experience. Callsign's research and development team understands the need for not only a solution's capability but its applicability as well.

Conclusion

Increasing the level of authentication in today's digital age has enterprises scrambling to a find solution that offers the best protection for both its customers and their end users. While the focus on preventing cyber threats and fraud is of the utmost importance, using passwords, PINs, and other multi-factor authentication processes cannot identify if the user behind the device is who they say they are. Single-focus solutions end up driving business imbalance that results in poor user experience with little control over their access points, increased fraud rates, and operational costs. Callsign's Intelligence Driven Authentication platform uses deep learning and artificial intelligence (AI) to mitigate threats in real-time. The company's solution also provides end users with effective control over how they decide to access their essential information, allowing enterprises to increase customer and workforce experience within their business. Callsign serves governments, banks, consultancy firms, telecommunications, and retail merchants— enabling authentication applications across various industries. Utilizing multi-factor authentication in conjunction with behavioral, AI analytics and deep-learning technology, Callsign changes the way enterprises maintain their internal practices for keeping customers and workforces safe from fraud, at the same time, allowing end users to regain control of their user journey.

For its strong overall performance and unique identity authentication capabilities, Callsign is recognized with Frost & Sullivan's 2020 Global Technology Innovation Leadership Award for the advanced identity authentication market.

---

[1] https://www.imda.gov.sg/AI , Accessed July 2020
[2] https://www.callsign.com/ , Accessed July 2020

Significance of Technology Innovation Leadership

Ultimately, growth in any organization depends on finding new ways to excite the market and maintaining a long-term commitment to innovation. At its core, technology innovation, or any other type of innovation, can only be sustained with leadership in 3 key areas: understanding demand, nurturing the brand, and differentiating from the competition.

Understanding Technology Innovation Leadership

Technology innovation begins with a spark of creativity that is systematically pursued, developed, and commercialized. That spark can result from a successful partnership, a productive in-house innovation group, or a bright-minded individual. Regardless of the source, the success of any new technology is ultimately determined by its innovativeness and its impact on the business as a whole.

Key Benchmarking Criteria

For the Technology Innovation Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Attributes and Future Business Value—according to the criteria identified below.

Technology Attributes

Criterion 1: Industry Impact

Requirement: Technology enables the pursuit of groundbreaking ideas, contributing to the betterment of the entire industry.

Criterion 2: Product Impact

Requirement: Specific technology helps enhance features and functionalities of the entire product line for the company.

Criterion 3: Scalability

Requirement: Technology is scalable, enabling new generations of products over time, with increasing levels of quality and functionality.

Criterion 4: Visionary Innovation

Requirement: Specific new technology represents true innovation based on a deep understanding of future needs and applications.

Criterion 5: Application Diversity

Requirement: New technology serves multiple products, multiple applications, and multiple user environments.

Future Business Value

Criterion 1: Financial Performance

Requirement: Potential is high for strong financial performance in terms of revenue, operating margins, and other relevant financial metrics.

Criterion 2: Customer Acquisition

Requirement: Specific technology enables acquisition of new customers, even as it enhances value to current customers.

Criterion 3: Technology Licensing

Requirement: New technology displays great potential to be licensed across many verticals and applications, thereby driving incremental revenue streams.

Criterion 4: Brand Loyalty

Requirement: New technology enhances the company's brand, creating and/or nurturing brand loyalty.

Criterion 5: Human Capital

Requirement: Customer impact is enhanced through the leverage of specific technology, translating into positive impact on employee morale and retention.

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	• 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 of 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 recipient	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**	Upon licensing, company is able to 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

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 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, 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 more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.