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2021 INNOVATION AWARD IN FRAUD

NUANCE COMMUNICATIONS

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IMPACT BRIEF

NUANCE COMMUNICATIONS

Nuance Communications has been in the voice-powered security business for almost two decades and has become a trusted partner of financial services firms, telecommunications companies, healthcare systems, transportation organizations, retailers, and government entities worldwide. Currently, 85% of the U.S. Fortune 500 companies rely on Nuance's conversational artificial intelligence (AI) solutions to enhance customer and patient experiences, combat fraud, and streamline back-office tasks.

In October 2019, Nuance announced Nuance Gatekeeper, a cloud-native implementation of its established biometric security solution. Nuance Gatekeeper layers advanced voice, behavioral, and conversational biometrics with call validation, anti-spoofing, and other factors to securely authenticate legitimate customers and prevent fraud in voice and digital channels.

By verifying customers in seconds during their natural interactions, Nuance Gatekeeper enables businesses to improve their customer experience and increase operational efficiency in contact centers and other delivery channels, while authentication based on inherent biometrics proactively detects fraudsters before they commit crimes, empowering contact center agents to focus on delivering superior and personalized service.

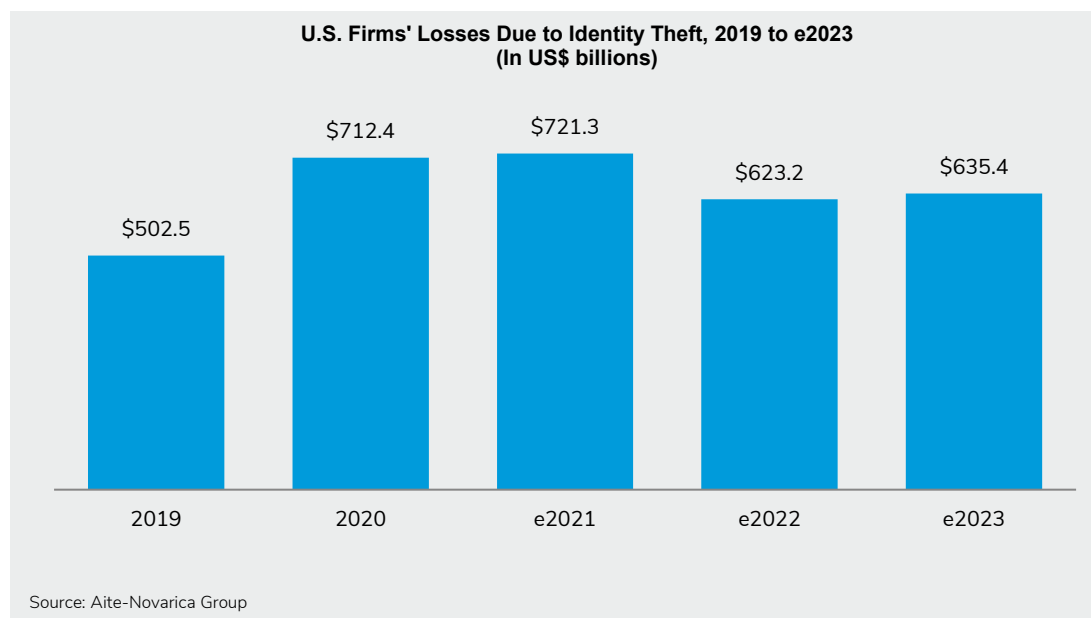
MARKET CHALLENGES AND NEED

Global fraud is on the rise and is not slowing down: 92% of the Association of Certified Fraud Examiners members anticipate a further increase in fraud over the next 12 months,¹ on top of record-setting levels in 2020. With data breaches and fraudsters' use of malware on the rise, traditional knowledge-based customer verification methods are no longer reliable. Other approaches, such as two-factor authentication via SMS or email, still add substantial friction to the customer experience and can be exploited or intercepted by fraudsters.

¹ "Fraud in the Wake of COVID-19: Benchmarking Report," Association of Certified Fraud Examiners, September 2020, accessed August 31, 2021, https://www.acfe.com/uploadedFiles/ACFE_Website/Content/resources/Covid-19%20Benchmarking%20Report%20September%20Edition.pdf.

With the onset of the COVID-19 pandemic, authentication and fraud prevention solutions have become even more critical. Nuance clients reported a 200% to 400% increase in fraud attacks during the onset of the COVID-19 pandemic, while researchers found that phishing attempts increased 667% during that time.² With remote work now being the norm and online engagements becoming more frequent, fraud is continuing to rise as bad actors take advantage of ongoing social disruption through phishing attacks, bogus websites, and social engineering of work-from-home contact center agents. American firms and government agencies lost US\$712 billion³ to identity fraud in 2020 (Figure 1).

FIGURE 1: U.S. LOSSES DUE TO IDENTITY THEFT MARKET SIZING



Fraudsters have increasingly targeted seniors, preying on their vulnerability and isolation during the COVID-19 pandemic. According to a pre-pandemic analysis by the U.S. Consumer Financial Protection Bureau, individuals aged 70 to 79 were the most

² "Coronavirus-Related Spear Phishing Attacks See 667% Increase in March 2020," Security Magazine, April 16, 2020, accessed September 10, 2021, <https://www.securitymagazine.com/articles/92157-coronavirus-related-spear-phishing-attacks-see-667-increase-in-march-2020>.

³ See Aite Group's report [U.S. Identity Theft: The Stark Reality](#), March 2021.

impacted by fraudulent activity, with each victim losing an average of US\$45,300.⁴ With 92% of seniors living at home and not at long-term care homes, one in five is subject to elder abuse, which includes fraud and scams—and senior advocacy organizations believe the true numbers to be much higher than reported. The COVID-19 pandemic has further impacted seniors as these less-technology-savvy older generations are forced to interact with organizations from home rather than in person.

Authentication has always been a formalized step in the customer experience journey, but as interactions have gone increasingly digital, it has become harder for businesses to complete that step without causing undue friction and frustration. Improved customer experience has become a priority in recent years and will continue to be important for companies looking to recruit and maintain loyal customers.

As organizations shifted their contact center agents and other employees to work from home during the COVID-19 pandemic, these workers were suddenly left without traditional sources of accountability and support. This made them vulnerable to fraudsters who continue to exploit pandemic-related confusion. Additionally struggling to translate traditional security controls out of the traditional office, organizations find themselves more vulnerable to internal fraud from employees facing unprecedented pressures.

Seamless and secure biometric authentication combined with proactive fraud detection can enable organizations with contact centers to simultaneously improve their customer experience, increase employee productivity, lower operational costs, and prevent fraud.

INNOVATION: NUANCE GATEKEEPER

Building upon its success in the voice biometrics space, Nuance introduced its cloud-native Gatekeeper biometric security solution in October 2019. Over the past two years, Nuance has updated Gatekeeper to meet new and evolving client needs, particularly in the wake of the COVID-19 pandemic. Today, Nuance Gatekeeper offers a unified source of biometric authentication and intelligent fraud prevention in voice and digital channels.

⁴ "Suspicious Activity Reports on Elder Financial Exploitation: Issues and Trends," Consumer Financial Protection Bureau, February 2019, accessed August 30, 2021, https://files.consumerfinance.gov/f/documents/cfpb_suspicious-activity-reports-elder-financial-exploitation_report.pdf.

The solution authenticates legitimate persons and detects fraudsters seamlessly and in seconds based on how they sound, what they say, how they behave, and other factors.

Nuance Gatekeeper provides the power to secure individuals based on who they are rather than what they know. If hacked, data in the form of biometric templates is far less valuable than stored passwords because biometrics are almost impossible to replicate. Organizations of all sizes are fighting to stay ahead of fraudsters and the increasing threat posed by synthetic impersonation. Nuance Gatekeeper's cloud-native security model is accessible, is scalable, and offers access to real-time updates to the newest fraud-fighting algorithms.

Nuance Gatekeeper offers integrated authentication and fraud prevention in several voice and digital channels, including contact centers, interactive voice response (IVRs) units, web and mobile applications, live chats, and virtual assistants. Nuance Gatekeeper includes an array of unique capabilities (Table A).

TABLE A: NUANCE GATEKEEPER CAPABILITIES

PRODUCT CAPABILITY	DESCRIPTION
Nuance Gatekeeper Risk Engine	Nuance Gatekeeper Risk Engine uses state-of-the-art deep neural networks (DNNs) to synthesize the data output of biometrics and fraud detectors, plus other available data. This AI risk engine returns a holistic engagement risk score along with the individual signals and scores that go into that risk score. Data output can be fed into a client's own risk engines to add additional context to authentication and fraud assessments. This approach increases authentication success rates and reduces false accepts and false positives.
Nuance Lightning Engine voice biometrics	Nuance's AI-powered voice biometrics engine, the Nuance Lightning Engine, allows organizations to authenticate a given person's identity with as little as half a second of speech while they interact naturally with a human agent or speech-enabled IVR. The system seamlessly analyzes a person's voice biometrics, comparing that data to a collection of stored voiceprints that are known to be authentic or fraudulent—securely authenticating legitimate customers and detecting suspected or known fraudsters.

PRODUCT CAPABILITY	DESCRIPTION
ConversationPrint	ConversationPrint is a conversational biometrics capability that identifies fraudulent activity in real time based on patterns of speech or writing during an interaction with a human or virtual assistant. This feature stops hard-to-detect forms of fraud, such as social engineering and fraud mules hired to read from scripts.
Behavioral biometrics	Behavioral biometrics authenticates digital users and detects fraudsters based on their unique behavior patterns, including how they use a keyboard, hold their smartphone, move a mouse, or swipe on a touchscreen. If a user's behavior profile does not match a registered individual, or if it does match to known fraudster behavior profiles, Nuance Gatekeeper flags this suspicious activity for review.

Source: Nuance Communications

NUANCE GATEKEEPER BENEFITS

Biometric authentication through Nuance Gatekeeper helps organizations elevate customer experiences, empower agents to deliver better customer service, and prevent more fraud. Since its introduction, Nuance Gatekeeper has supported clients in achieving superior authentication and fraud prevention outcomes compared to other methods, such as knowledge-based authentication (KBA), PINs, and passwords (Table B).

TABLE B: NUANCE GATEKEEPER AUTHENTICATION IMPROVEMENTS

AUTHENTICATION MEASUREMENT	OTHER AUTHENTICATION METHODS	NUANCE GATEKEEPER
Success rates	80% or less	Up to 99%
Authentication time	57 seconds to seven minutes, depending on methods used	As little as 0.5 seconds

AUTHENTICATION MEASUREMENT	OTHER AUTHENTICATION METHODS	NUANCE GATEKEEPER
Fraud detection rate	Varies widely due to successful social engineering methods used by fraudsters	90% with high accuracy
Implementation	Various methods such as on premises, cloud, or a combination	Flexible integration to cloud and legacy contact center infrastructure

Source: Nuance Communications

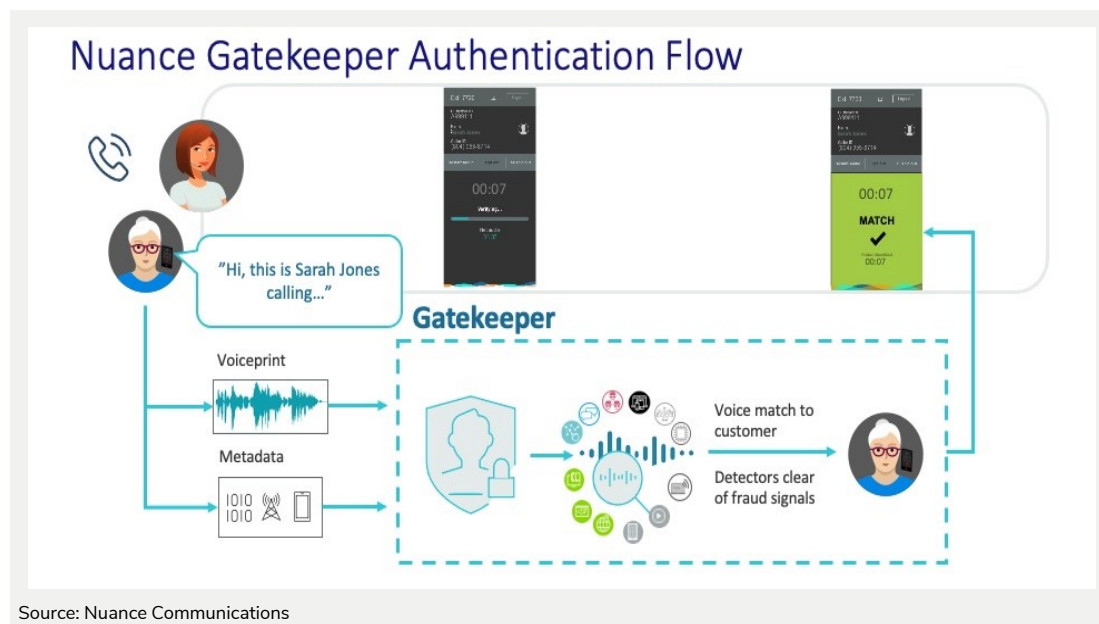
HOW IT WORKS

To protect senior citizens during the COVID-19 pandemic, Nuance enhanced its age detection capabilities with a unique AI algorithm to accurately identify whether a caller is 65 years or older. This intelligent detection capability allows enterprises to immediately distinguish a person's age and direct any calls from customers 65 and over to a live agent for immediate service.

The Nuance research team leveraged its existing age detection AI algorithms and retrained them on two sets of data: voices of individuals below age 65 and voices of individuals aged 65 and older. Although detecting children's voices is intuitively straightforward, even to the human ear, seniors posed a greater challenge. The human ear typically cannot differentiate between a 50-year-old and a 70-year-old with any reasonable degree of precision. Nuance's latest generation of AI voice algorithms detects over 1,000 characteristics of the human voice. To ensure accurate and precise analysis, Nuance trained the DNN-based AI algorithms and homed in on a subset of these characteristics that are affected in a predictable way as humans age.

Figure 2 illustrates how Nuance Gatekeeper securely authenticates callers during their first few seconds of natural speech with a contact center agent.

FIGURE 2: NUANCE GATEKEEPER AUTHENTICATION FLOW



NUANCE GATEKEEPER IMPLEMENTATION: TELEFÓNICA

Headquartered in Madrid, Telefónica is one of the world's largest telephone operators and mobile network providers. Telefónica was one of the first companies to roll out enhanced age detection capabilities. Previously to prioritize support, Telefónica had to ask its callers if they were over 65. However, some customers dishonestly identified themselves as seniors to get ahead in the queue.

Now using Nuance Gatekeeper's age detection AI, Telefónica automatically identifies callers over the age of 65, immediately transferring seniors to priority service. Meanwhile, callers under 65 remain in the standard queue or are encouraged into self-service channels. Through Nuance Gatekeeper, Telefónica achieved over 80% accuracy in the first weeks, which has since improved to 99% accuracy as the AI learns.

KEY QUANTITATIVE AND QUALITATIVE RESULTS

Through its implementation of Nuance Gatekeeper, Telefónica has realized numerous benefits:

- Through the combination of Nuance's voice authentication and age detection AI, Telefónica can now identify and prioritize its most vulnerable customers. This not

only enhances the customer experience but also benefits a vulnerable population by eliminating the need to remember complex PINs and passwords or subjecting them to answering KBA questions.

- Nuance Gatekeeper protects Telefónica and its customers from fraudsters who attempt to socially engineer their way into an elderly individual's account to steal information and money.
- Automatically identifying callers over the age of 65 and immediately transferring them to priority service led to substantial operational efficiency gains, as calls from nonseniors are routed to self-service channels, including a Nuance natural-language-understanding-enabled IVR.
- By eliminating asking for the customer's age and other personal information, average handle time is shortened, improving operational efficiency.
- Significant reductions in authentication times translate to all customers being able to state the reason for their call and receive assistance far more quickly than in the past. Contact center agents are also enjoying their jobs more since they no longer need to authenticate callers and can instead focus on solving problems for customers.

Table C details other key benefits achieved by other financial organizations after deploying Nuance Gatekeeper.

TABLE C: NUANCE GATEKEEPER REALIZED BENEFITS

KEY PERFORMANCE INDICATOR	NUANCE GATEKEEPER BENEFIT
Authentication	130 seconds; using security questions reduced to six seconds or less
Average handle time	89 second reduction
Customers authenticated in IVR	79% of customers authenticated in IVR before reaching an agent, resulting in 82 seconds average handle time reduction on agent-assisted calls

KEY PERFORMANCE INDICATOR	NUANCE GATEKEEPER BENEFIT
Employee impact	53 agents repurposed to higher-value work, resulting in an annual cost savings of US\$1 million

Source: Nuance Communications

FUTURE ROADMAP

Nuance's roadmap is primarily focused on expanding and deepening Nuance's capabilities along four major lines:

- Further enhancing fraud prevention capabilities and evolving the investigative tools used by analysts to manage cases
- Continuing to democratize solutions with more “do it yourself” access to the underlying technology and features
- Developing more solutions for digital channels and expanding the use of biometrics in web, mobile, and messaging applications
- Continuing to evolve AI technologies across the solution set

AITE-NOVARICA GROUP'S TAKE

In recent years, financial services firms have had a strong focus on improving the customer experience to successfully compete against fintech firms. While there has been tremendous growth in digital channels usage, contact centers are still many customers' favorite or fallback channel of choice. It is essential that contact centers reliably authenticate callers to avoid enabling cross-channel fraud.⁵ The following details some of the most impressive items that set this solution apart:

- When Telefónica recognized that seniors were particularly vulnerable to fraud attempts and needed immediate service while adjusting to stay-at-home orders brought on by the global pandemic, Nuance was able to act swiftly. It enhanced its

⁵ See Aite-Novarica Group's report [Contact Centers: The Fraud Enablement Channel](#), April 2016.

existing AI-enabled intelligent age detection capabilities to create a unique AI solution for this telecommunications customer.

- Nuance processes 31 billion customer transactions a year. Using proprietary information, Nuance Gatekeeper is continually improving its voiceprints with each customer utterance. This self-correcting technology ensures that voiceprints are kept up to date, solving for issues such as aging.

For these reasons, the Nuance Gatekeeper solution stands out as one that can continue to evolve in accordance with its roadmap and react quickly to meet clients' changing needs.

IMPACT INNOVATION AWARDS IN FRAUD & AML

The world is changing rapidly, and sustaining effective financial crime risk management has become extremely challenging and complex. The breadth and capabilities of fraud and AML technology solutions must now go beyond traditional offerings to address new market forces, fight financial crime, and achieve regulatory compliance while elevating the customer experience and operational efficiency.

Aite-Novarica Group's inaugural Impact Innovation Awards in Fraud & AML are designed to recognize and celebrate innovations that are disrupting financial crime. Award recipients are leading the industry by identifying and implementing new products, capabilities, or levels of automation and effectiveness that bring our financial services industry one step closer to next-generation fraud and AML innovation. They are the FIs and technology providers, regardless of size or region, that others will follow.

QUALIFICATION AND EVALUATION METHODOLOGY

Aite-Novarica Group solicited nominations for its 2021 Fraud & AML Impact Innovation Awards from May to the end of June 2021. All nominated initiatives were required to be in production and must have been implemented within the last two years.

Analysts from Aite-Novarica Group's Fraud & AML practice reviewed all fraud nominations and narrowed the field to the top submissions. Along with Aite-Novarica Group Fraud & AML analysts, an external panel of subject matter experts and industry thought leaders determined the winners of three distinct fraud innovation categories: risk mitigation, operational efficiency, and customer experience. Each fraud nomination was evaluated on seven individual criteria (Figure 3).

FIGURE 3: IMPACT INNOVATION AWARD EVALUATION CRITERIA

Impact Innovation Award Evaluation Criteria			
Level of innovation and competitive advantage	Market needs assessment	Impact on customer experience and end-user experience	Impact on operational efficiency
Financial crime risk detection and mitigation	Level of scalability across customer base		Future roadmap assessment

Source: Aite-Novarica Group

ABOUT AITE-NOVARICA GROUP

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