

customer care research

from Nuance



executive summary :: research findings

Understanding Consumer Perspectives on Voice Biometrics

Results from *The 2008 Secure Identification Survey* assessing caller authentication methods for UK customer care

summary

Across the globe, customer concern about identity fraud is on the rise. This trend is forcing companies to take a closer look at how they handle security, including caller authentication, for over-the-phone customer service interactions. Nuance Communications commissioned Harris Interactive to conduct a comprehensive consumer survey to;

- understand the implications of caller authentication in customer care,
- understand consumer concerns about the security of personal and account information during phone-based customer service transactions,
- uncover attitudes toward voice verification as a caller authentication method.

Voice verification is the use of voice biometric technology to measure subtle physical and behavioral characteristics of a caller's voice. If the voice of the caller does not match the expected customer voice, then access to personal information or services is denied.

Key Findings

- Consumers remain vulnerable to identity theft as existing forms of security for phone-based customer care remain constant
- 60% of financial services consumers have concerns regarding existing security practices
- Nearly half of the consumers surveyed expressed concern that others could access their account information through customer service channels
- 34% of financial services consumers and 32% of telecommunication consumers want better security, and they want it to be convenient
- Over half of respondents sometimes lose or forget passwords, increasing security risks and costs
- Customer service security concerns are highest in industries like finance and telecommunications where transactions often involve sensitive information
- 60% of consumers feel voice verification is a secure form of identity verification
- The majority of consumers feel that voice verification is the most secure authentication method that can be implemented over the voice channel of a telephone
- Once consumers clearly understand how easy it is to enroll their voice print, over 50% indicate that they are likely to use voice verification
- Based on the type of transaction, consumers want different methods of verification
- 55% of respondents agree that they prefer to do business with a company that offers voice verification
- Not only is voice biometric verification viewed as the most secure caller authentication method available today, but consumers are ready to use it.

Recommendations

- Before launching a voice verification project, give careful consideration to the computing environment in which the solution will operate, the strategy for deployment (hosted vs. on-premise), and the development timeframe
- Invest the time upfront to thoroughly understand your customer demographics, usage patterns, caller behavior, and the most appropriate applications for the technology
- Take a phased approach to voice verification deployment by first introducing the solution to a small pilot group, identifying and resolving any issues, and then moving forward with a full roll-out

introduction

Today's customers expect and demand exceptional service from the companies with which they do business. Because consumers can easily take their business elsewhere, companies are challenged to deliver a superior customer experience — across all interactions — in order to maintain a competitive advantage.

With incidences of identity fraud on the rise, security has become an increasingly important component of the customer service experience. When calling into a company's customer service department, consumers want to feel confident that their personal information is secure and protected. For phone-based customer service, security measures involve verifying a caller's identity before allowing access to account information or processing a transaction. Today's companies are taking varied approaches to verifying a caller's identity. Some require that callers provide memorable information (mother's maiden name, pet's name, etc.). Others perform caller authentication using Personal Identification Numbers (PINs) or passwords, an approach which can be expensive for companies to administer particularly when these identifiers are lost or forgotten by customers.

To more aggressively combat identity theft and to provide greater caller convenience, a growing number of companies are using voice biometrics, a technology designed to compare a voice sample with a stored, digital voice model, or voice print, for the purposes of establishing or verifying caller identity. Because voice biometric verification is not yet widely implemented, many businesses have yet to fully understand the technology and how it is perceived by consumers compared to other caller authentication methods. As companies consider using voice biometrics in customer care, their primary concerns focus on implementation — how the technology will be incorporated into the service they deliver to customers — and adoption — how customers will react to the technology and their comfort level with using it.

The survey polled consumers about a range of topics related to over-the-phone identity verification including:

- How is your identity being verified now?
- Do you believe the current methods provide adequate security?
- Do you feel voice biometric technologies are more or less secure than other forms of verification?
- Do you see enough value in voice verification to enroll your voice print?
- Do you need to hear an example or get more information before deciding to enroll?
- Why would you use voice verification?
- Would you prefer to do business with a company because they offered voice biometrics?

The survey results provide valuable consumer insight that can guide businesses as they decide *whether* and *how* to incorporate voice biometric verification into the service they deliver to their customers.

which security methods do consumers know and prefer?

When it comes to caller authentication, voice biometric verification is just starting to gain recognition among consumers. The Harris Interactive poll results showed that knowledge verification is still the predominant security method that consumers encounter when contacting a business's customer service department by phone. When respondents were asked to make multiple selections from a list of security measures they may have encountered, the top three choices were: memorable information, PIN/password and home phone number.

The results showed that voice verification had been encountered by far fewer of the survey participants. This is consistent with the fact that voice verification leverages newer technology and has been used in relatively few prominent consumer-facing applications to date. Not surprisingly, when consumers were asked to indicate their preferred authentication method, they chose what they already know. The top two preferred methods for caller authentication were the same as the top two most frequently encountered methods, namely memorable information (38%), and PIN/password (21%).

The research revealed that the security methods consumers encounter most frequently are seldom enforced by an automated system alone. In fact, only 10% of respondents indicated that memorable information verification — the most commonly encountered type of security for over-the-phone customer service

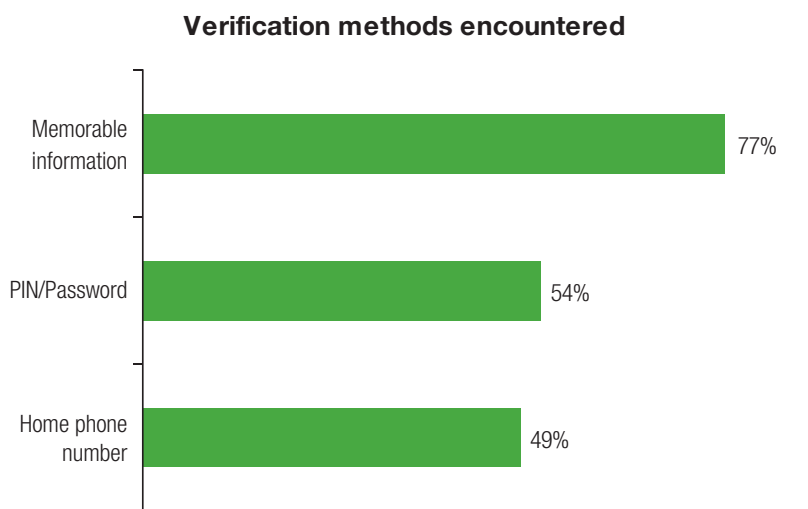


Figure 1: Because memorable information, home phone number, and PIN/password are the most commonly encountered security methods, consumer identities continue to be vulnerable.

interactions — had been conducted exclusively by automated system. Low automation rates for common security methods expose callers to additional risks associated with live agents, including susceptibility to fraud through social engineering practices. At the same time, these low automation rates suggest that companies are still highly dependent on costly live agents — exclusively or in part — for enforcing caller authentication. Voice verification offers a way to reduce that reliance.

Survey results also showed that the security measures used today are becoming increasingly burdensome for consumers. Even as the number of accounts requiring passwords increases (50% of respondents have 2-5 password-protected accounts, 30% have 6-10, and 10% have 11-20), most respondents use a total of 2-5 passwords to access all their accounts. Attempts to simplify security by reusing passwords across accounts, however, may not be enough to eliminate the consumer's security hassles altogether. And for enterprises, password reuse represents an additional security risk to all accounts that share a password in the event that one of these accounts becomes compromised. Over half of the survey respondents reported that they sometimes lose or forget the passwords required to gain access to their accounts or perform customer service related transactions. Handling lost or forgotten passwords represent both a burden and security risk to consumers and enterprises.

are current security methods adequate?

Today's consumers lack confidence that their account information is adequately protected against fraudulent activity. In fact, nearly half of the Harris Interactive survey respondents expressed concern that others might be able to access their account data through customer service channels.

Specific survey questions were designed to examine consumer attitudes toward security in industries characterised by extensive customer care activity. Responses to these questions revealed that a significant percentage of financial (34%) and telecommunications (32%) customers want better protection of their personal information when calling customer service, but they want it to be convenient. When asked about their concerns regarding existing security practices, financial services consumers expressed more pronounced concerns than telecommunications consumers. In the survey, 60% of respondents were "Very Concerned," "Extremely Concerned," or "Concerned" about fraudulent activities in financial services companies as compared to just 38% expressing concern about fraud at telecommunications firms.

As consumer concern about data security continues to rise, the pressure is on customer care organisations to provide new levels of protection — without sacrificing convenience. Voice biometric verification, while still in the early adoption phase, provides a promising alternative.

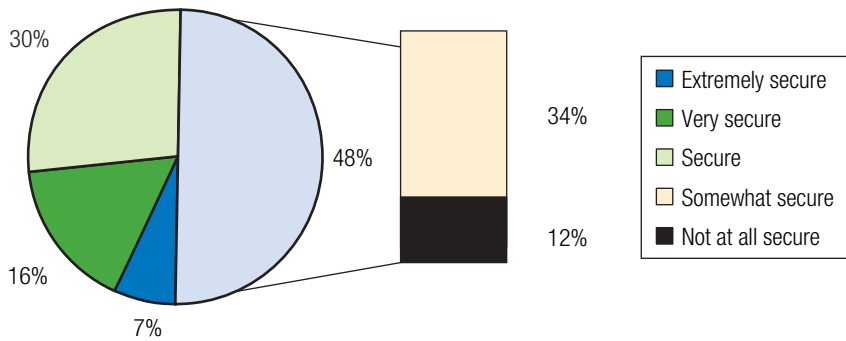


Figure 2: Nearly half of the survey respondents expressed concern about the security of their account data during customer service calls.

will consumers use voice verification?

Although relatively few consumers have had direct experience using voice verification to date, the technology is generally perceived as being highly secure. In The 2008 Secure Identification Survey, nearly 60% of respondents felt that voice verification technology provides a secure method of identity verification. In fact, more respondents believed in the security of voice verification than using home phone number, memorable information, password, PIN, or account-specific information for verifying caller identity. Only fingerprinting and retina scans ranked higher than voice verification for perceived security. This implies that voice verification has the highest perceived security among methods that are applicable to phone-based customer service, since fingerprint and retina scans are not practical in this environment.

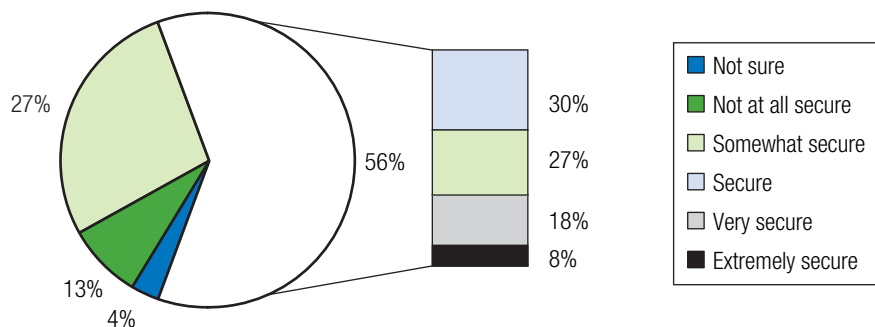


Figure 3: Survey results showed that 83% express some confidence that voice verification is a secure form of identification.

Strong consumer perception of voice verification as secure is one thing, but real world usage is another. The truth is that current consumer familiarity with voice verification is low. This suggests that the consumer market at large will require education in order to fully understand the technology's use and benefits.

Nonetheless, do consumers currently see enough value in voice biometric verification to enroll their voice print and give the technology a try? Once consumers clearly understand how easy it is to enroll, over 50% indicate that they are likely to use voice verification. Selecting the best method to inform consumers about the voice verification process has substantial influence on their likelihood to use voice verification. After reading a text description of the enrollment process, 38% of respondents were "Likely," "Very Likely" or "Extremely Likely" to use voice verification. However, after participants listened to an audio clip example of voice verification, this response increased to 51%, implying that even minimal demonstration of the enrollment process can significantly increase consumers' likelihood to enroll their voice prints.

Those respondents who indicated a high likelihood of using voice verification most often cited combating identity theft (21%) as the primary driver, followed closely by its higher levels of security (17%). When the general population of respondents was asked to rate the appeal of various benefits for voice verification, identity theft topped the list with 51% finding this benefit "Extremely Appealing" or "Very Appealing."

Among those indicating a low likelihood of using the technology most cited a reluctance to use automated systems (36%) rather than a specific problem with voice verification as their reason. Not surprisingly, the survey results also showed that consumers desire different methods of identity verification based on the type of transaction they are performing and the sensitivity of the information involved.

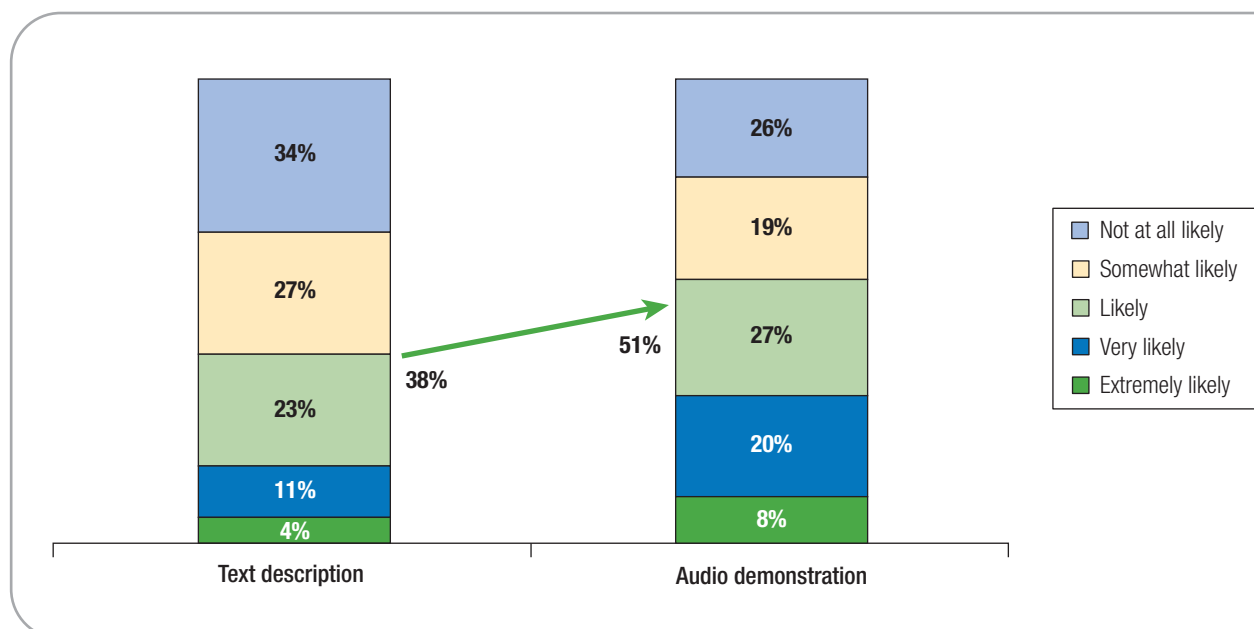


Figure 4: Hearing an audio clip example of voice verification significantly increased the likelihood that respondents would use voice verification when contacting customer service.

how should companies approach enrolling customers for voice verification?

According to the survey, availability of voice verification for caller authentication may attract some consumers to do business with a company. In response to the statement, “I prefer to do business with a company that offers Voice Verification technologies,” 55% of respondents stated they “Somewhat Agreed,” “Agreed,” “Strongly Agreed” or “Very Strongly Agreed”. This suggests that although consumers may not be familiar enough with voice verification to incite strong preferences for or against the technology, the perceived security benefits nevertheless make it an attractive offering that may draw some customers.

When developing their security strategies, however, companies need to consider how to offer voice verification to customers. Should they require all existing customers to enroll their voice prints? Should they make enrollment available as an option?

Nearly two-thirds (60%) of respondents reported they would be likely to continue their account with a company if forced to use voice verification technologies as part of the automated verification method. A little over half (52%) would be likely to sign up for a new account with an institution if the sign-up process required the registration of their voice print. As an unqualified offer for voice enrollment, these numbers are quite encouraging. They would typically increase within the context of a marketing campaign to launch a new system. Therefore, these results indicate that a voice verification enrollment requirement would be readily accepted by most existing customers and would be unlikely to serve as a major barrier for signing up new accounts.

Likelihood to accept voice verification

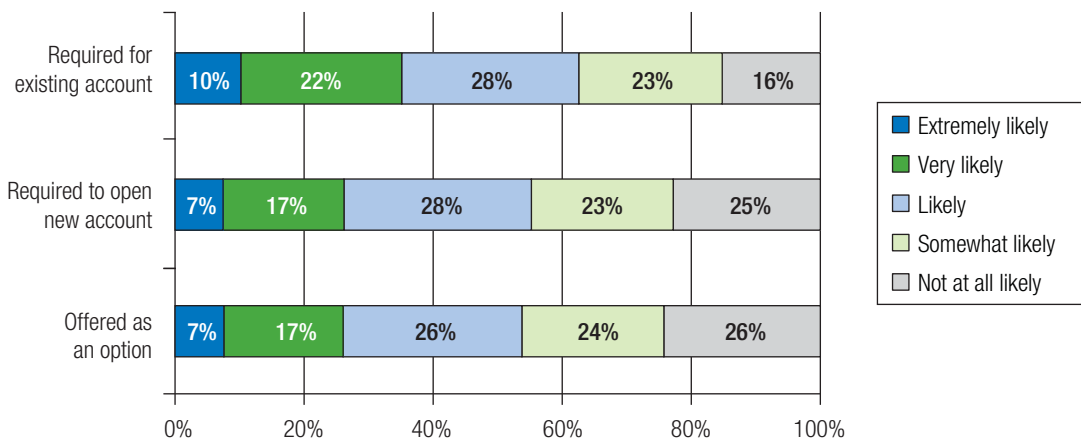


Figure 5: Companies implementing voice verification as a security method must consider the impact of making it a requirement versus an option for their customers. Survey results showed that 60% of consumers would continue to do business with a company and 52% would open a new account with a company even if voice verification was a requirement.

will voice verification make it more difficult for consumers to access their accounts?

The survey results indicated that consumers want convenient security methods for protecting their personal and account information from identity fraud. To provide insight into consumer perceptions of convenience, survey participants were asked to listen to an audio clip of a 90-second enrollment process. After hearing the audio clip, approximately 51% of respondents expressed a likelihood to register for voice verification. Participants' likelihood to register remained high (47% indicated "Likely," "Very Likely," or "Extremely Likely") when asked if they would enroll even if the registration process took twice as long. In fact, two thirds of respondents indicated that the enrollment process sounded easy, with nearly a third finding it "Very Easy". These results indicate that an enrollment process of 90 seconds to three minutes meets most consumers' criteria for convenience — a finding that should allay concerns that voice verification would make accounts more difficult to access for consumers.

It is important for businesses to understand that not all customer service transactions require voice verification and that consumers recognize this distinction. The key is deploying the technology in the right places. Survey participants overwhelmingly supported systems that would apply security selectively based on the type of transaction being performed. Furthermore, when asked to indicate their comfort level using voice verification to conduct certain types of transactions, checking account balances and other account information ranked highest (52%), followed by conducting a transaction (48%), cancelling a service or resolving an issue with a bill (both 44%). These findings indicate that consumers are very likely to embrace voice verification for protecting account information, personal data, and access to funds during certain types of customer service transactions.

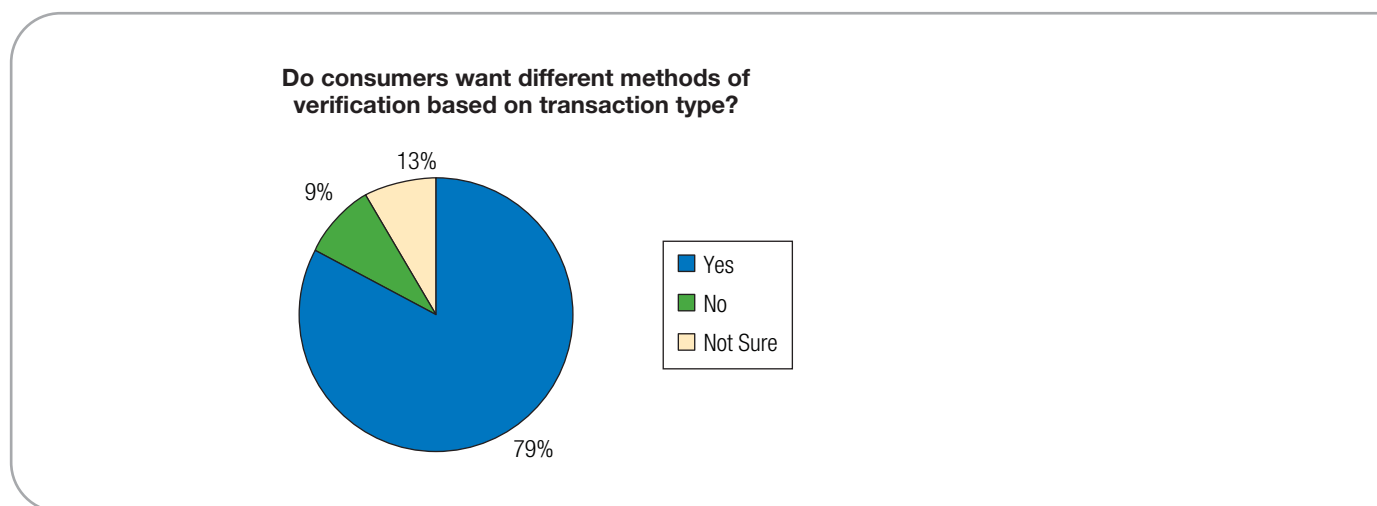


Figure 6: Survey findings revealed that consumers overwhelmingly believe that institutions should require different forms of identity verification based on the types of transactions completed.

where and why do consumers want voice verification?

According to the survey results, consumers perceive voice verification as being especially useful for preventing identity theft, eliminating PINs, and providing higher levels of protection than other security methods used today. Consumer interest in voice verification is especially high within industries like utilities (48%) and financial services (45%), where customer service interactions often involve monetary transactions or access to personal/account information. As voice verification is more widely deployed within select industries, consumer familiarity and acceptance is likely to drive its deployment across other industries as well.

what conclusions can be drawn from these findings?

The 2008 Secure Identification Survey provided valuable insight into UK consumer perceptions of customer service security for protecting personal information as well as their attitudes toward voice verification technology. The survey results revealed that consumers:

- want protection of their personal and account information
- do not believe that current identity verification methods are providing adequate security
- feel that verification methods should match the sensitivity level of information involved in a given transaction
- believe that voice verification provides the most secure authentication method available today for customer service transactions conducted over the telephone
- currently see enough value in voice biometric verification to enroll their voice print, but may require minimal education regarding ease of registration to ensure widespread adoption

What's more, with a majority of respondents agreeing that they would prefer to do business with a company that offers voice verification, this leading-edge technology appears to be an attractive caller authentication approach for companies with a strong customer care focus.

what are the most important considerations for deploying voice verification?

While the survey results showed that consumers are ready to use voice verification, successful deployment of the technology requires careful planning and execution that takes into consideration your computing environment, business processes, caller population, and implementation timeframes.

Development

Like any technology solution, voice verification must work within your existing computing environment and integrate seamlessly with other customer service and account-related applications. Before launching a voice verification project, consider the following questions:

- In what computing environment will the solution operate?
- What is your deployment strategy — hosted or on-premise?
- What is your timeframe for developing the solution?

Usability

The survey results indicated that consumers want security without compromising convenience. That's why usability is critical to the success of any voice verification solution. It is important that consumers find the security method appropriate for any given transaction and that the enrollment process is quick and easy. In order to deploy the optimal solution for your customer base, invest the time upfront to thoroughly understand:

- customer demographics
- usage patterns
- caller behavior
- appropriate applications for voice verification

Launch

Today, customers will not settle for anything less than an exceptional service experience. When introducing a new approach such as voice verification, a phased roll-out is typically used to manage the key factors for a successful launch. A phased implementation allows you to introduce the solution to a small pilot group, identify and resolve any issues, and then move forward with a full roll-out to the entire customer base.

A phased roll-out also enables you to ensure adequate communication to and education of your internal and external audiences. Since voice verification is new to most consumers, you'd be well advised to let your audiences know it is coming and what they can expect from the technology. Familiarize your audiences with the ease of enrollment and educate them about the impact of head colds, phone connection quality, and other factors on voice verification performance. The more prepared your customers are for voice verification, the more readily and enthusiastically they will embrace the technology.

methodology

In April-May 2008, Nuance commissioned Harris Interactive, a worldwide market research and consulting firm, to administer a 25-minute survey – online and over the phone – to a random sampling of 553 United Kingdom residents, 18 years or older, who had contacted customer service within the prior twelve months. The objectives of this research were to gather input and feedback on the experience of recent customer service users and to assess their attitudes toward and perceptions of voice biometric verification compared to other methods of caller authentication. This research formed part of a global research effort spanning the US, UK, Germany and Australia to assess the global context of the results.

The overall objectives of this research were to:

- gather input and feedback on the experience of recent customer service users
- assess attitudes toward and perceptions of voice biometrics compared to other methods of caller authentication
- identify segments that are most interested in trying voice biometrics
- provide insights into consumer “likes” or “dislikes” pertaining to voice biometrics

Nuance was not identified as the sponsor of the research and the results were weighted to reflect the general population of the United Kingdom.

Demographics of Survey Respondents

Gender	
Male	55%
Female	45%

Age Ranges	
18-19	2%
20-24	11%
25-29	8%
30-34	13%
35-39	9%
40-44	11%
45-49	7%
50-54	8%
55-59	7%
60-64	7%
65+	18%

Education	
GCSE/O-Level/CSE	21%
Vocational qualifications	10%
A-Level/Scottish Higher or equivalent	16%
Bachelor Degree or equivalent	19%
Masters/PhD or equivalent	8%
Other	13%
No formal qualifications	7%
Still studying	5%
GCSE/O-Level/CSE	21%
Vocational qualifications	10%
A-Level/Scottish Higher or equivalent	16%
Bachelor Degree or equivalent	19%
Masters/PhD or equivalent	8%
Other	13%

Income	
Less than £25,000	37%
£25,000 - £39,999	21%
£40,000 - £74,999	16%
£75,000 or more	5%
Decline to answer	21%

Region	
Scottish TV/Grampian	7%
Border TV	1%
Tyne Tees TV	3%
Granada TV	11%
Yorkshire TV	10%
Central TV	16%
ITV	6%
Anglia TV	8%
Carlton/LWT	26%
Meridian	8%
West Country TV	2%
Ulster TV	2%
Channel	1%

Area	
Rural	23%
Sub-urban	53%
City	23%
Other	1%

how can Nuance help?

As the leading provider of speech recognition, text-to-speech, and voice verification for businesses and consumers around the world, Nuance can help you understand what it takes to develop and deploy a successful voice verification solution that provides optimal security for phone access to customer service data.

Nuance solutions reflect our unique understanding of how businesses interact with customers, our unwavering focus on the user experience, and our rich history of driving customer care strategies that improve business performance. Everyday, we put our solutions, expertise, and best practices to work helping companies take on the challenges of a world in which customers demand great service.

Find out how Nuance can help you leverage voice biometric verification to ensure the highest levels of security and convenience to consumers calling into your customer service organisation. It's an important step toward providing the kind of exceptional customer experience that today's consumers expect and deserve.

about Nuance Communications

Nuance is in the business of helping companies better support, communicate with and understand their customers while maintaining operational efficiency goals. Nuance currently supports over 8 billion care interactions around the world. No other company has as much experience as Nuance in understanding how customers interface with a care operation. Our vision is to make every customer interaction a winning experience. For more information about our customer interaction solutions, business consulting and professional services, please visit www.nuance.com/care.

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