

A large, stylized graphic of a voice waveform in orange and white. The waveform is composed of many vertical lines of varying heights. In the center of the waveform, there is a white silhouette of a keyhole, with the stem of the keyhole forming a horizontal bar across the middle of the waveform.

## Speak on the Dotted Line ...

Using Voice Biometrics to improve customer service and close more business

# INTRODUCTION

***Voice biometrics—specifically, voice signature solutions—can help enterprises that require traditional registration and confirmation processes such as offline, paper forms with wet ink signatures to drastically streamline the process and improve conversions.***

By eliminating the lengthy process that usually involves printing, faxing, mailing, or other forms of paper distribution coupled with waiting for the returned signed documents, organizations can achieve better customer service, higher levels of data security, tighter audit trails, and increased conversion rates.

What's more, this multi-step process has been shown to result in lower conversion rates. In fact, research has shown that no matter what the industry, there is a 30-55% falloff rate when a paper process is involved in getting a signature from parties who are not face-to-face.

Because each person's voice is their 'spoken identifier,' with unique characteristics such as pitch and rhythm, these characteristics can be mapped and used to verify identity.

There are more than 120 different touchpoints to an individual's voice. A voice biometric will capture all of these touchpoints and, in essence, make a fingerprint of that unique voice. That is why voice biometrics can be used to securely and safely replace lengthy paper-based signature processes. By identifying customers using their individual voice, organizations can provide a secure and easy way for them to "sign on the dotted line" using a voice print.

## VOICE BIOMETRICS:

- Shortens sales cycles and increases close rates by offering 'e-signature' capability via telephone
- Shortens time-per-call and reduces agent loads
- Can provide multifactor authentication by voice and caller ID
- Satisfies FFIEC and FCC CPNI compliance and HIPPA/CMS guidelines; and is recognized by the FDA as a legally binding, E-Sign Act compliant, e-signature
- The e-signature tied to a voiceprint provides non-repudiation in case of disputes
- Provides a secure and easy-to-use audit trail
- Is scalable
- Increases revenue
- Improves customer experience

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## VOICE BIOMETRICS DEFINED

### BIOMETRICS

Biometrics consists of automated methods of recognizing a person based on measurable physiological, anatomical and behavioral characteristics. Some common characteristics that can be measured biometrically are: voice, face, fingerprints, hand geometry, iris and retina.

Biometrics is seeing wide adoption as the technology matures, and as new methods of securing systems becomes increasingly important. The inherent convenience of biometrics means that its use for personal authentication is becoming commonplace. This reflects its cost effectiveness and user-friendliness. A key strength of biometrics in system security is that it does not rely upon external elements, like passwords or PINs, that could be used by someone other than the authorized user. Biometrics rely on something you are (a person with biometric characteristics) rather than something you know (a password, PIN, and so on). For this reason, biometrics is considerably more secure. In other words—only biometrics can verify that you are you.

A typical biometric system comprises five integrated components:

1. A sensor, used to collect the data and convert analog information to digital format. For example, a microphone.
2. Signal processing algorithms that develop the biometric template and perform quality control activities.
3. A data storage component that stores the information to which the new biometric templates will be compared.
4. A matching algorithm that compares the new biometric template to one or more stored templates.
5. A decision process that uses the results from the matching component to make a system-level decision.

### THE HUMAN VOICE BIOMETRIC

Voice biometrics is the technology behind voice (or speaker) verification, which in turn is an application of the core technology. The voice, as with other biometric characteristics, is unique to an individual. In voice biometrics, a spoken utterance is captured by the biometric system and compared with a previously stored voiceprint. The new utterance is compared with the stored voiceprint, and the result is assigned a score.

The voiceprint is an algorithmically derived model of physical and behavioral characteristics of a speaker's voice and its unique digital representation. It is not a recording; nor a set of words; nor a wave pattern of a voice. It cannot be played back or used for any other purpose than a comparison with subsequent voiceprints using the same algorithm. The algorithm uses more than 100 different calculations to generate a voiceprint. An adaptation process can be used to track changes to a speaker's vocal tract/voice over time as they age, avoiding any need to continuously update and maintain a voiceprint 'identity'.

Because the voiceprint is characterized by the vocal tract (a physiological trait) and not specifically the 'sound' of the utterance, afflictions that affect the 'sound' of a voice—the common cold, for example—do not affect the vocal tract and don't have an adverse affect on accuracy levels. If a speaker can provide enough vocal energy to be heard, enough of their voice will be present for verification.

BIOMETRICS IS SEEING WIDE ADOPTION AS THE TECHNOLOGY MATURES, AND AS NEW METHODS OF SECURING SYSTEMS BECOMES INCREASINGLY IMPORTANT. THE INHERENT CONVENIENCE OF BIOMETRICS MEANS THAT ITS USE FOR PERSONAL AUTHENTICATION IS BECOMING COMMONPLACE. THIS REFLECTS ITS COST EFFECTIVENESS AND USER-FRIENDLINESS.

## THE ADVANTAGES OF VOICE BIOMETRICS

The advantages of voice biometrics over other forms of biometrics are: ease of use, easy integration and security.

- Voice biometrics requires only existing phone systems and technology. No special hardware or software is needed. The environment (a telephone) for using the technology is already familiar to users, is culturally non-invasive, and is therefore generally seen as non-contentious.
- Voice biometrics works with any telephone, any telephony system, from anywhere in the world, which promotes mobility.
- A speaker's voice is always with them, there is nothing to carry or remember, and it cannot be stolen (like a PIN or password).
- No training is needed to use a voice biometric system – speaking is a natural activity.
- By leveraging existing telephony and security infrastructure, voice biometric systems are cost-effective.
- Voice biometric systems can be used with existing authentication methods to provide high-security multi-factor user-authentication. When used with speech recognition, voice biometric systems can also be used to gather additional information such as a PIN; user-acknowledgement of prompted questions and so on, if required.

## COMMON APPLICATIONS

A voice verification system is used to verify that a speaker is who they claim to be. This capability can be used in applications such as:

- Self-service password resetting
- Digitally voice-signing electronic documents
- Gaining access to secure systems such as phone banking (using caller authentication)
- Providing secure access to remote systems such as web site (using web authentication)
- Verifying that a person is at the location at which they are being phoned (for example, tracking parolees)

In a voice verification system, fraud is generally perpetrated by someone attempting to impersonate a speaker with a recording of their voice (or more specifically, a recording of an utterance made by the speaker at enrollment time). Voice verification systems therefore employ sophisticated techniques to detect recordings of voices and utterances.

## CLOSING MORE BUSINESS WITH VOICE-SIGNED DOCUMENTS

Among the benefits of voice signature, one of the biggest benefits to business seems to involve contracts. Specifically, when voice signature is used, the number of contracts that do not get signed drops drastically when compared with a paper-based process (including documents sent via e-mail). Businesses find that when using paper-based processes, 45-70% of contracts typically do not come back; leaving a dropout rate of 30-55% regardless of any efforts to the contrary. Contracts are simply left on the shelf, or someone meant to sign but did not, or for whatever reason the prospect had a change of heart.

That dropout rate goes to almost zero when a voice signature is obtained the moment someone says “yes.”

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### HEALTH INSURANCE COMPANY

#### The Business Challenge

- Customer signatures are time-consuming and expensive to obtain
- Need to increase close rate on policies signed
- Desire to enhance customer-service
- Solution must be HIPAA and E-Sign Act compliant

#### The Voice Biometric Solution

- “Speak on the dotted line”!
- Simple interface for agent and consumer alike –the telephone
- Accepted as a valid e-Signature under HIPPA
- Guidelines and the E-Sign Act

#### Results

*Closed more business with a solution that makes phone transactions simple and secure*

- In the first three months, closure rate increased 25%
- Turnaround time for signing counter-offers reduced from days to minutes
- Sales agents have more time to generate more business

## SECURITY AND REGULATORY ACCEPTANCE

Once of the most important aspects of an e-signature solution is the legal standing of the e-signatures. Regulatory issues are a major consideration in the pharmaceutical industry.

Voice Biometrics follows the E-SIGN act. The FDA considers the voice biometric in the same category as an e-signature, and states that any place where an e-signature can exist, a voice biometric signature can exist.

In fact, the voice signature even offers a better audit trail. With a traditional 'wet' signature, there is no proof that the legitimate signor signed the document—other than to compare signatures, which proves to be a somewhat difficult task. With an e-signature, there is no proof that the person on the other end is the legitimate signor, except that the person had the correct login credentials. However, with voice signature there is an enrollment record, possibly a sample of the person signing at an earlier time, and the voice signature itself ... typically three files that can be used during an audit.

Voice Signature e-signatures are accepted as legally binding by the following regulatory bodies and organizations:

### **E-SIGN (Federal Electronic Signatures in Global and National Commerce Act)**

The Electronic Signatures in Global and National Commerce Act (known as the E-SIGN Act) is a United States federal law passed by the U.S. Congress to facilitate the use of electronic records and signatures in interstate and foreign commerce by ensuring the validity and legal effect of contracts entered into electronically.

A voice biometric signature legally constitutes an electronic signature under E-SIGN.

### **Validity of Voice Signature E-signatures Under HIPAA**

The HIPAA privacy regulations require that an authorization required for the disclosure of protected health information be signed by the individual. The US Department of Health and Human Services

(HHS) states that electronic signatures are sufficient provided they meet the standards adopted under HIPAA. They go on to say that the application of the E-SIGN Act fully covers such electronic signatures.

This guidance indicates that signatures generated using the Voice Signature technology provide a valid written, signed authorization for HIPAA compliance purposes if the voice signature meets the definition of an electronic signature under E-SIGN.

### **Validity of Voice Signature E-signatures Under FDA 21CFR Part 11**

In order to provide a prescription drug sample to a physician, FDA rules promulgated under PDMA require the company to obtain a written request from the doctor including his or her signature. PDMA rules expressly permit electronic records as long as they comply with the requirements of Part 11.

Part 11 provides the following general requirements for electronic signatures:

- They must be unique to one individual
- The identity of the individual must be verified before the signature can be assigned
- The agency issuing the electronic signature must assert that the electronic signatures in their system are intended to be the legally binding equivalent of a traditional handwritten signature

Part 11 further states that electronic signatures based upon biometrics must be designed such that they cannot be used by anyone other than their genuine owners.

From these requirements and definitions, Voice Signature is established as a valid means of creating electronic signatures that satisfies Part 11 and therefore the PDMA physician written request requirements.

## USE CASE: VOICE SIGNATURE AND SAMPLING IN THE PHARMACEUTICAL INDUSTRY

THE 'DIRTY LITTLE SECRET'  
IN THE SAMPLING WORLD  
IS THAT NO ONE KNOWS  
FOR SURE WHETHER THE  
DOCTOR OR THE ADMIN  
PROVIDED THE WET  
SIGNATURE ON A FORM, OR  
ACTUALLY LOGGED  
IN AND ESIGNED IN AN  
ESAMPLING PROGRAM.  
WITH VOICE SIGNATURE,  
YOU KNOW DEFINITELY  
THAT THE VOICE OF THE  
SIGNATURE IS THE VOICE  
OF THE DOCTOR.

Where Angel has seen the most interest in voice biometrics is in the area of sampling, where innovative, next-generation sampling strategies including voice biometrics can decrease turnaround time from weeks to hours.

Drug sampling is that critical but challenging aspect of sales and marketing in the pharmaceutical industry. Pharmaceutical companies are tasked with reaching overworked, often remote HCPs. HCPs and administrators must take valuable time away from patient care to manage the sampling process. Providing innovative, industry-leading technology solutions that uphold the industries' rigorous security and compliance standards is one way that the industry is managing that challenge.

Among those technology solutions, voice biometrics is being used by pharmaceutical companies to authenticate doctors during the sampling ordering process. The 'dirty little secret' in the sampling world is that no one knows for sure whether the doctor or the admin provided the wet signature on a form, or who actually logged in and eSigned in an eSampling program. With Voice Signature, you know definitively that the voice of the signature is the voice of the doctor. A prescriber can approve the order through a series of controls that include voice biometrics for real-time verification of practitioner identity.

Sample turnaround time can decrease by 80% when compared with the traditional paper-based process. Prescribers avoid the challenges of dwindling supplies and are better equipped to offer the optimal samples to their patients when needed. Pharmaceutical sales reps can expand the reach of their territories and assist in better servicing practitioners.

Prescribers also appreciate the tremendous convenience and time savings—prescribers and their administrators can spend less time focused on sampling tasks and more time focusing on patient care.

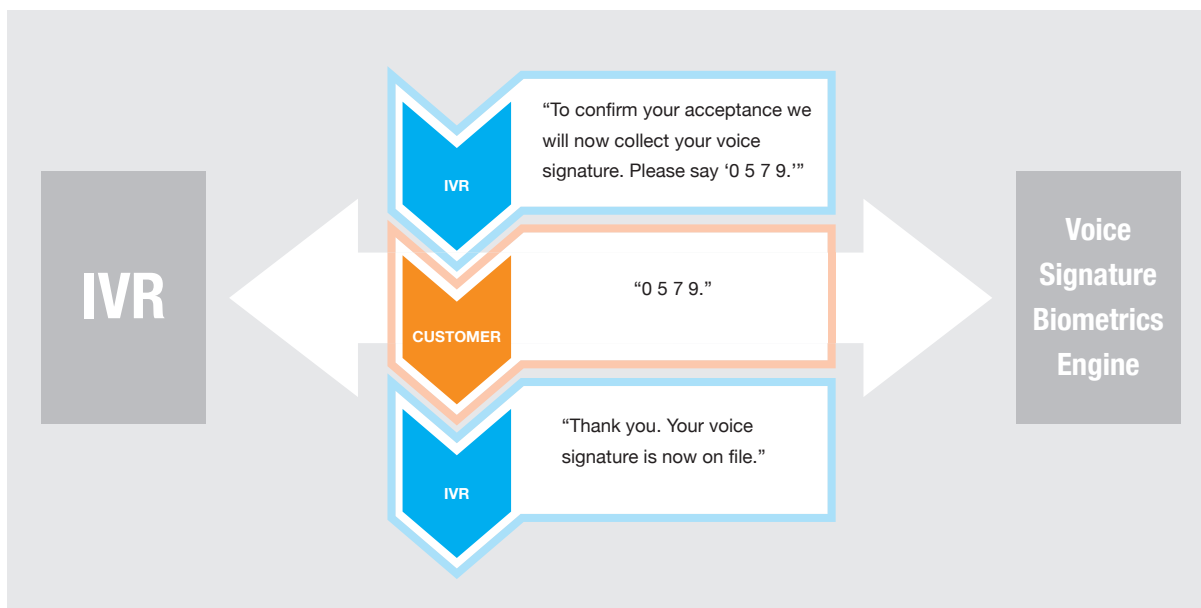
### Highlights of the Angel solution for the pharmaceutical enterprise

- Health care professionals (HCPs) order samples from cell phones, anytime, anywhere
- Voice biometrics offers multifactor authentication by voice
- HCPs can request return contact by email, SMS text messaging, phone call
- Satisfies FFIEC and FCC CPNI password compliance
- Easily customizable for branding and to meet changing legal/FDA requirements

## ANGEL SOLUTION

Angel's Voice Signature, powered by voice-based biometric systems, provides a natural, convenient, highly-secure and legally binding alternative to hand-written signatures on health insurance applications, financial forms, authorizations and other documentation while meeting stringent U.S. compliance requirements such as HIPPA/CMS guidelines and the E-Sign Act. By using the human voice as a unique identifier, Angel has proven to improve customer service while reducing costs and increasing close rates for many enterprise companies.

With simple and accurate voice verification through your Angel IVR or contact center solution, your callers and agents are immediately able to focus on quick call resolution rather than wading through paperwork.



**THE VOICE SIGNATURE PROCESS**

### THE VOICE SIGNATURE PROCESS

Angel combines award winning IVR and call center technologies with immediate voice signature solutions to provide a way for callers to quickly, conveniently and securely e-sign documents over the phone. Angel Voice Signature is used globally by insurers, pharmaceutical companies, banks and government agencies. Enterprises currently using Voice Signature have increased close rates by 25%, grown sales by 5% or more, and reduced administrative costs by 80% by replacing all paper authorizations with voice signatures.

The rigor and flexibility of our technology means voice signatures can be securely captured regardless of a caller's location and across any voice/telephony channel without the need for special hardware. And integration is seamless, integrating easily with your existing underwriting processes and CRM systems to deliver a rapid return on investment.

### THE ANGEL VOICE SIGNATURE SOLUTION ALLOWS THE ENTERPRISE TO:

Deploy quickly and easily. Angel's IVR and contact center solutions are integrated seamlessly with voice biometrics to get up-and-running quickly.

- Generate immediate ROI by increasing close rates of programs requiring paper-based processes and handwritten signatures.
- Maximize productivity and efficiency of call centers by reducing the burden on agents to deal with paperwork – resulting in shorter caller wait time, call handling time, and a lower abandon rate.
- Improve caller satisfaction. Voice Signature empowers customers to handle important, signature-based processes simply, securely and immediately, without being tied to a fax machine or mailing process.



## CONCLUSION

Voice biometrics is a powerful, robust and secure technology foundation for voice verification techniques that have wide application in industry today. It is a cost-effective, easy to integrate and non-invasive technique for identifying and authenticating people. Voice Signature can be used within any phone or smartphone-based process where a traditional hand-written signature is needed. The technology can be quickly and easily incorporated into any call flow or smartphone-based application. No specialized hardware or on-site software is required. Angel Voice Signature is part of a fully hosted solution.

Angel Voice Signature can be used in enrollment applications, authorizations and approvals, phone-based sales, sampling or to simply electronically capture that a person conducted the transaction. In fact, anything in the digital domain can be signed. The value and nature of the transaction will determine the security criteria associated with the implementation.

For more information on Voice Biometrics Solutions from Angel, visit [www.angel.com/products/voice-biometrics.php](http://www.angel.com/products/voice-biometrics.php).



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