NEW DEVELOPMENTS IN BIOMETRIC AUTHENTICATION FOR PAYMENTS

Trending Topics represents an executive summary compilation of news, information and perspective on matters affecting businesses and business leaders today. This insight is being provided to keep you up to date on the latest developments and trends influencing these topics. These views do not necessarily represent the views and opinions of PNC. For additional research on these topics, please consult the sources cited in this article.

It no longer seems like science fiction to use your palm or retina to verify your identity when making a payment. Around the world, the use of biometric authentication has been rapidly accepted, largely due to the widespread adoption of smartphones. Technology research firm Gartner estimates that 50% of consumers in established markets will use smartphones or wearables for mobile payments by 2018[1], and analysts have forecasted that by 2024 biometric methods will be used to verify all online transactions.[2]

CONVENIENCE AND SECURITY

Consumers have been won over by the convenience and safety of smartphones and wearable mobile devices for conducting their financial transactions. The popularity of Apple Watch and Apple Pay has advanced the idea of mobile payment devices, and the biometric authentication they employ is seen as a secure way to handle transactions. Deloitte's Center for Financial Services found that 72% of consumers surveyed would like to use biometric identification with mobile devices for financial transactions.[3]

The Biometrics Research Group, Inc. estimates that 650 million people worldwide were using biometrics on mobile devices at the end of 2015.[4] The portability of mobile devices makes biometric authentication a natural fit, as users carry their biometric "signatures" with them in the unique physical qualities of their eyes, ears, palms, faces and heartbeats.

Biometric authentication for ATM use and retail payments has been widely adopted around the world. In Japan, ATMs use palm vein and fingerprint biometrics for authentication, and in Brazil, a bank with 50,000 ATMs nationwide has adopted palm vein authentication.[5] Meanwhile, a bank in Argentina that distributes pension benefits via ATMs is using multispectral imaging technology to combat fraud. This technology uses special light sensors that analyze capillaries to collect unique biometric fingerprint data.[6]

Several new biometric recognition methods for payment systems are in development:

- *Heart rate* — A wristband heart rate monitor is being tested as a mobile payment device that enables a secure payment with a tap of the wrist and a biometric heartbeat authentication.[7]

- *Hand vein matching* — The veins in your hands are a personal living map, as each person's veins develop uniquely. Financial companies like vein matching because it must be done on live tissue, making it harder to fake.

- *Eye movement recognition* — The patterns of eye movement are unique and must be evaluated in real time to the reaction of a stimulus, making fraud improbable.

- *Ear recognition* — Each person's ears are uniquely shaped, and biometric recognition can identify smartphone users by the way they press the phone to their ears.[10]

- *Voice* — This method is attractive as a replacement for PINs and passwords.[11] Voice biometrics measures more than 100 physical and behavioral characteristics and requires only a few seconds of audio for identification. Because voiceprints are stored as algorithms, they are virtually impenetrable by hackers.

MIXING IT UP
Although several of these technologies are promising, many experts believe that a mix of methods will prove to be the best deterrent to fraud. For example, a combination of voice and eye movement recognition would create a unique identity that would be virtually impossible to falsify.[12] It's no wonder that the biometrics sector is booming, with worldwide revenues estimated to reach $45 billion by 2018.[13]

To discuss these topics in more detail, please contact your PNC Relationship Manager.

1 "Gartner Says By 2018, 50 Percent of Consumers in Mature Markets Will Use Smartphones or Wearables for Mobile Payments," press release on Dec. 15, 2015. Available at: http://www.gartner.com/newsroom/id/3178217

2 "Where will payments be in 10 years?" ATM Marketplace, Jan. 2, 2015. Available at: http://www.atmmarketplace.com/articles/where-will-payments-be-in-10-years/

3 "Deloitte survey finds biometrics welcomed for mobile consumer banking apps," press release issued by Biometricupdate.com, May 21, 2014. Available at: http://www.biometricupdate.com/201405/deloitte-survey-finds-biometrics-welcomed-for-mobile-consumer-banking-apps

4 "Biometrics Research Group, Inc. releases report on mobile biometrics market," press release, Oct. 30, 2015. Available at: http://www.biometricupdate.com/201510/biometrics-research-group-inc-releases-report-on-mobile-biometrics-market

5 "Is the palm reader in the ATM industry's future?" ATM Marketplace, May 8, 2012. Available at: http://www.atmmarketplace.com/articles/is-the-palm-reader-in-the-atm-industrys-future/

6 "Biometrics: The key to secure, convenient ATM transactions," ATM Marketplace, Aug. 20, 2015. Available at: http://www.atmmarketplace.com/articles/biometrics-the-key-to-secure-convenient-atm-transactions/

7 "Nymi Band uses your heartbeat to secure mobile payments," CIO.com, Aug. 11, 2015. Available at: http://www.cio.com/article/2969293/wearable-technology/nymi-band-uses-your-heartbeat-to-secure-mobile-payments.html

8 "7 Surprising Biometric Identification Methods," by Dan Moren, *Popular Science*, Dec. 30, 2014. Slide show available at: http://www.popsci.com/seven-surprising-biometric-identification-methods

9 "7 Surprising Biometric Identification Methods," by Dan Moren, *Popular Science*, Dec. 30, 2014. Slide show available at: http://www.popsci.com/seven-surprising-biometric-identification-methods

10 "7 Surprising Biometric Identification Methods," by Dan Moren, *Popular Science*, Dec. 30, 2014. Slide show available at: http://www.popsci.com/seven-surprising-biometric-identification-methods

11 "Voice biometrics safeguarding the financial industry: Q&A with Brett Beranek of Nuance," press release issued by Biometricupdate.com, Oct. 19, 2015. Available at: http://www.biometricupdate.com/201510/voice-biometrics-safeguarding-the-financial-industry-qa-with-brett-beranek-of-nuance

12 "7 Surprising Biometric Identification Methods," by Dan Moren, *Popular Science*, Dec. 30, 2014. Slide show available at: http://www.popsci.com/seven-surprising-biometric-identification-methods

13 "Biometrics Research Group, Inc. releases report on mobile biometrics market," press release, Oct. 30, 2015. Available at: http://www.biometricupdate.com/201510/biometrics-research-group-inc-releases-report-on-mobile-biometrics-market

pnc.com/ideas

PNC