



**Hitachi Digital Security**

**THIS IS THE DIGITAL BUSINESS ERA AND  
IT'S CREATING BOTH OPPORTUNITIES  
AND SECURITY THREATS.**



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**„Securing transactions using Hitachi Finger Vein biometrics”**  
Ray Hockley, Senior Pre-Sales Solution Manager

# INTRODUCTION



# FINANCIAL SECURITY IN THE OLD WORLD

## -- The Perimeter



Assets were physical



KYC was easy



Threats were local

# FINANCIAL SECURITY IN **DIGITAL** WORLD

## The new Perimeter



Assets are digital



Who are you  
dealing with?



Threats are  
remote



# HITACHI **DIGITAL SECURITY** APPROACH

Protecting Society Beyond The Perimeter



IDENTITY  
MANAGEMENT



END POINT  
SECURITY



BROWSER  
SECURITY



NETWORK  
SECURITY



WEB SERVERS  
SECURITY

# HITACHI „ONE STOP SHOP” FOR **POLISH** BANKS

## STORAGE SOLUTIONS

(Flash and hybrid enterprise storage, software and professional services)



## ID MANAGEMENT

(Identity Management, Privileged Access Management, Password Management)



## PAPERLESS

Document management systems, WORM repository, cloud signature, hand-written signature



## COMPLIANCE

Solutions for regulations (GDPR, Durable Medium, MIFID2)



## BIOMETRICS

Biometric systems (Finger Vein, voice, hand written signature)



## ANTI-MALWARE

Cloud antimalware/antiphishing solutions



## BIG DATA

Data analytics solutions (Pentaho)



## VIDEO ANALYTICS

Video data storage, video analytics, face recognition, video management system.





# FINGER VEIN - TECHNOLOGY

## Security

Biometric technology with highest available accuracy and lowest false accept (FAR < 0,0001%).

## Acceptability

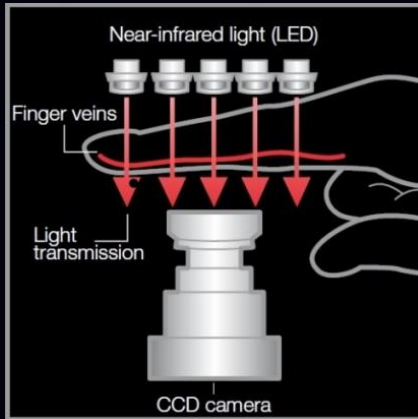
Biometrics technology with very high acceptance in society (>85%)

## Privacy

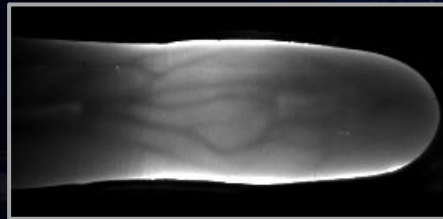
Privacy compliance technology, previously approved by personal data protection organisations (e.g. CNIL)

## References

Technology with the biggest number of the implementation in banking globally.



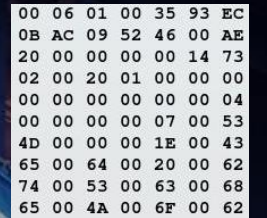
Acquire



Normalise

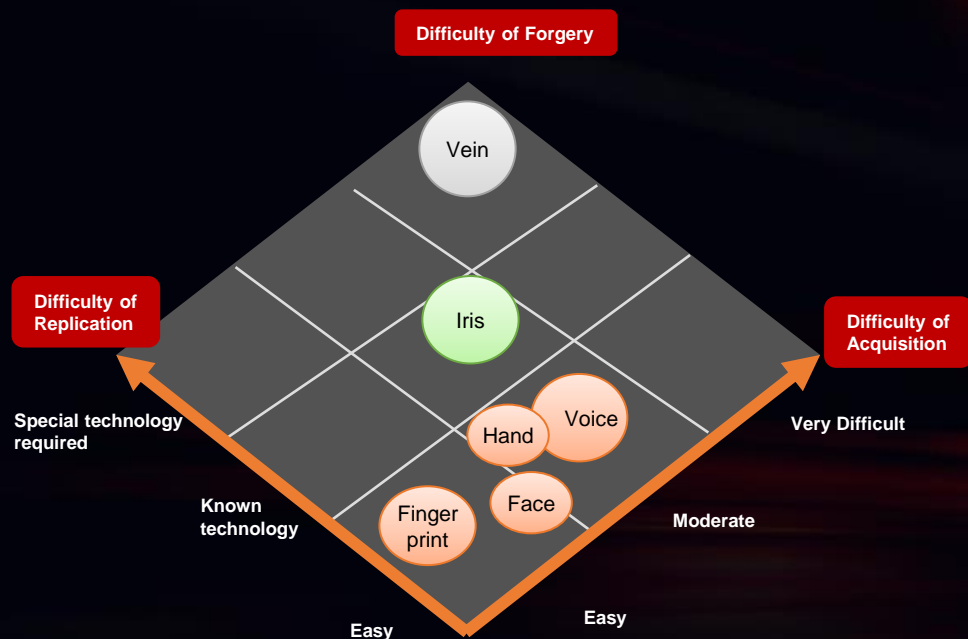


Extract







Transform

# FINGER VEIN – **UNIQUE** BIOMETRIC STRENGTHS



- Finger Vein is an *internal* biometric
- It is very difficult to *obtain* finger vein patterns
- It is very difficult to *replicate* finger vein patterns

## HITACHI FINGER VEIN BIOMETRICS

	ACCURACY	SECURITY	SPEED	EASE OF USE	USER RESISTANCE
 FINGER VEIN	High	High	Fast	High	Low
 FINGER PRINT	Low	Low	Fast	Fast	High
 IRIS	High	Medium	Slow	Low	High
 FACE	Low	Low	Medium	Low	Low

ALL OF THE STRENGTHS OF OTHER BIOMETRICS, WITHOUT THE WEAKNESSES



# HISTORICAL VIEW OF FINGER VEIN IN POLAND

**2009** – First biometric ATM in Europe



In 2009, PBS Bank in Sanok implemented first biometric ATM in Europe to allow easy withdrawal of benefit payments.

**2011** – First biometric branches in Europe



In 2011 BPH Bank implemented biometrics in their whole network to allow secure transactions in the branches.

**2014** – First biometric VTMs in Poland



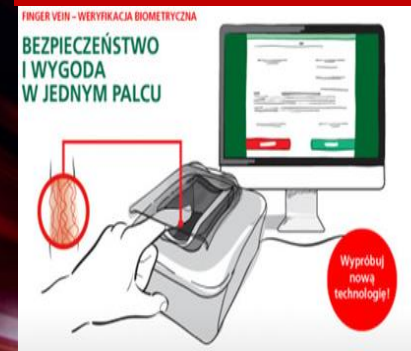
In 2014 Getin Bank introduced network of a self service branches with ability to sign contracts using your finger.

**2014** – First independent biometric ATMs network in Poland



In 2014 IT Card SA introduced Finger Vein technology in more than 1000 ATMs of their independent network.

**2015** – First „paperless” branches in Poland using biometrics



In 2015 BZ WBK implemented pilot project of „paperless” branch using Finger Vein combined with PKI.

In 2007 Hitachi established Biometric Group within Polish Bank Association, which developed foundation for biometrics in Polish banking (legal framework, best practises, security, use cases etc.)



ZWIĄZEK  
BANKÓW  
POLSKICH

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# NEW DIRECTIONS OF FINGER VEIN IN POLAND



## PAYMENTS

Biometric payments is the next step, allowing customers making transactions just by using their fingers. The solution can scale to millions of customers and second factor is not necessary.

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## CORPORATE BANKING

Cybersecurity is one of the key topics in banking - high value payments are at risk using tokens or cards. Hitachi provides a solution for corporate banking which combines FV biometrics, PKI card and SWYS.



## PAPERLESS BANKING

80% of information exchange is still based on paper which creates significant cost for the organisation. Hitachi is providing a solution which combines biometrics and PKI and allows the organisation to transform.

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# HITACHI PROPOSITION FOR CORPORATE BANKING

# CHALLENGES TO THE BANK

## Product & Marketing

- Be innovative
- Differentiate from the competition!
- Improve user experience for payments

## Operations/BAU

- Provide cheaper operational model on card replacement costs
- Reduce IT install conflict with multi-banked customers

## Anti-Fraud / Digital Security

- Remove risk of shared credentials (Chip & PIN) – transaction repudiation
- Increase security
- Establish non-repudiation of all financial transactions not just login



# SECURITY **VS** EASE OF USE



- THERE IS NORMALLY A TENSION BETWEEN IMPROVING SECURITY AND MAKING THE USER EXPERIENCE MORE 'FRICTIONLESS'.
- ADDING SECURITY LAYERS NORMALLY SLOWS DOWN THE USER EFFICIENCY

WOULDN'T IT BE GREAT IF YOU COULD ADD SECURITY AND SPEED UP PAYMENTS EXECUTION TIME?



# CORPORATE METHODS OF AUTHENTICATION

Something you are



Finger Print

Iris

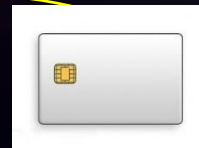
- User resistance to fingerprint and IRIS
- Medium security level
- Issues with usability
- No integrity
- Verification speed

## Biometrics solutions

### Traditional solutions

- Slow usage (card input, PIN provision ...)
- Not effective card personalisation process
- System is expensive to maintain
- Card can be stolen or shared

Something you have and something you know



PKI card

Something you have and something you know



Token

- Slow use
- Can be stolen and shared
- No integrity

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Something you are + integrity



Finger Vein

PKI

- High acceptance
- Very high security
- Easy and high speed of use
- Integrity = combination with PKI
- Privacy compliance biometrics (biometric data inside your body) - cannot be stolen or shared



# NOVEL COMBINATION OF TECHNOLOGIES BY HITACHI

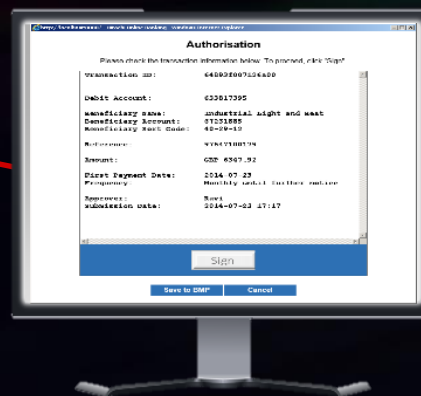
Our powerful  
biometric



Smartcard PKI  
infrastructure



Sign-what-you-see  
displays



# HITACHI INNOVATION WITH FINGER VEIN + PKI



Take the Hitachi established technology biometric vein logical access unit



Utilise existing industry standard Public Key Infrastructure needed for Chip & PIN



Create light footprint Sign What You See transaction anti-tamper tool



**Uniquely** combine all of these to one device for tamper evident banking transactions identity verification for desktop payment clerk usage.

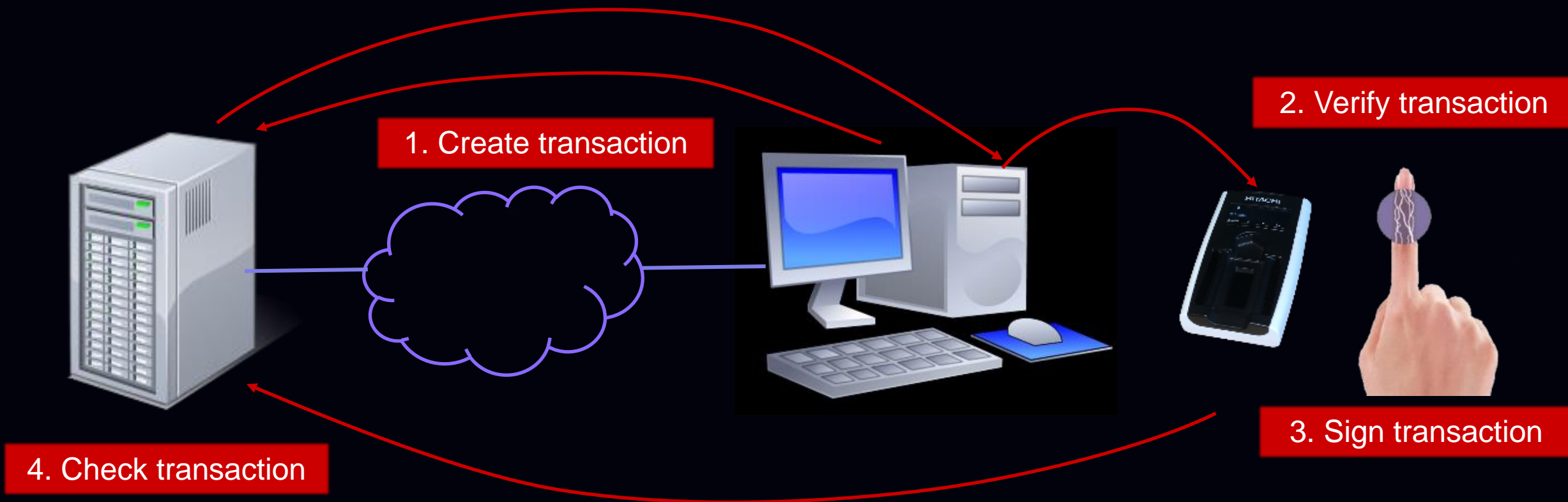
**No other biometric combines these technologies for highly secure, tamper-evident authentication.**



OTP Push to Mobile or mobile app approval can still be used for final release (or our mobile finger vein + PKI for greater security).



# END-TO-END TRANSACTION INTEGRITY



# NEW HITACHI FINGER VEIN DEVICES



Desktop USB  
+ PKI Smartcard  
(Small card or standard  
format)



Portable BlueTooth  
+ PKI Smartcard  
(Small card format)



# PSD 2.0

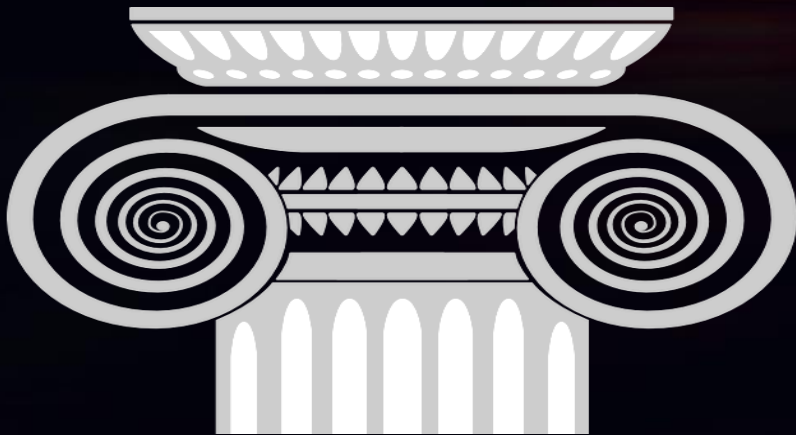
Three important aspects from PSD II for developing biometric market in EU

**Strong authentication concept established**

**Mandatory two or multi-factors authentication**

**2 of 3 measures are needed of following categories:**

- Knowledge
- Possession
- **Inherence (biometrics)**



# BUSINESS BENEFITS OF HITACHI SOLUTION

The **HITACHI** solution has the following benefits:

- A simplified process
- Reduced reliance on the card / card reader company
- Reduced costs as processes are simplified and cards re-used
- Increased security & improved auditing of transactions to an individual
- Transactions are processed much faster, which increases productivity.



Links the individual clearly to the transaction

Achieves individual non-repudiation

Reduces 'plastic issuance/renewal' costs

Speeds up payment transactions



# SUCCESS STORY

This solution is at the leading edge of innovation and is in direct response to client concerns about the threat of online fraud.

We have shown the technology to a range of businesses and the interest and enthusiasm for the product is tremendous.

Ultimately, I hope this will pave the way for other institutions to adopt equally robust technology in the fight against online crime.



– *Ashok Vaswani*  
*CEO Barclays PCB*

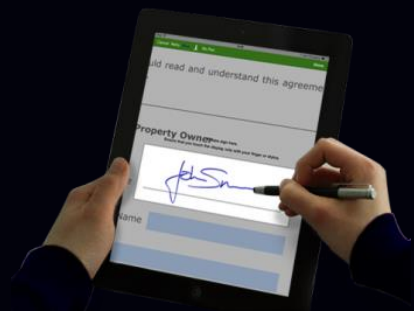


# OTHER **NEW** USE CASES FOR FINGER VEIN



# FINGER VEIN IN „PAPERLESS” SYSTEMS

## Signing



Finger Vein,  
SIGNificant

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## Information capture



Hitachi  
Authentication  
Module

## Document processing



STS ERA or SEAL

## Secure storage



Hitachi Content  
Platform

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# FINGER VEIN IN PAYMENTS

- Finger vein technology identifies customers
- No second factor
- Links to payment and loyalty systems
- Speed and convenience
- Scales to millions of customers (even 1:5 mln!)
- Case study: FingoPay (United Kingdom)





# FINGER VEIN IN MASS INFRASTRUCTURE

- Finger vein technology identifies pre-registered users
- No second factor
- Totally contactless
- Near-instant identification
- Suitable for any turnstile application (metro, stadiums, rail, etc.)



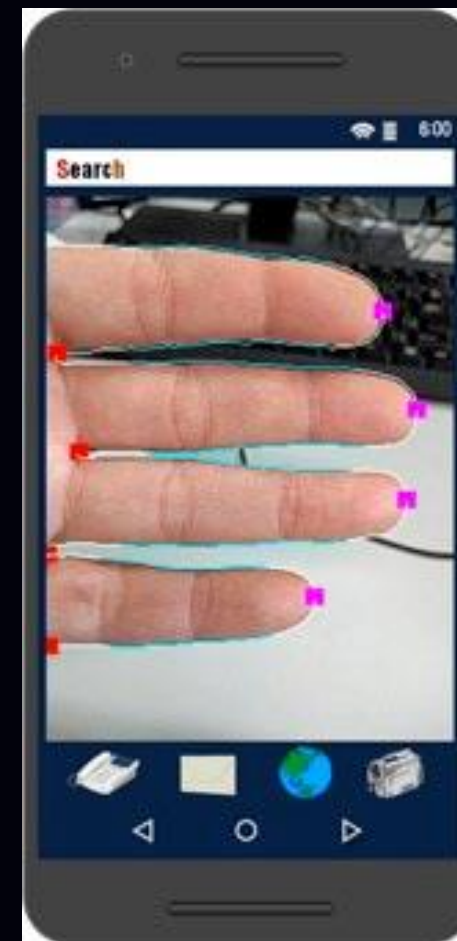
# FINGER VEIN IN ACCESS CONTROL

- Identity assurance for
  - access control
  - time and attendance
  - workforce management
- Deployed for
  - cryptographic vaults
  - schools
  - retail environments
  - domestic residences...
- Solution: VeinGuard
  - co-developed with Polish Institute of Mathematical Machines (IMM)
  - [veinguard.eu](http://veinguard.eu)



# FINGER VEIN IN RETAIL MOBILE BANKING

- Revolutionary solution provided as card app to be integrated with banking applications
- Solution utilizes camera embedded into smartphone
- Biometric data is acquired from 4 fingers to increase the accuracy
- Target of the solution is to replace much less secure biometric solutions for smartphones (fingerprint, face recognition) and passwords
- Application: retail banking
- To be released in **2018**





# END OF PRESENTATION THANK YOU FOR LISTENING



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