

Lesson 6: Digital Identity

Mini-Lecture Version (30 min)

Digital Finance

Learning Objectives: Understand key concepts and applications

Digital Identity Challenge

Identity Verification Problem

- 1.3 billion adults unbanked (World Bank Global Findex 2025)
- Lack of identity documents
- US identity fraud alone was \$43B in 2023 (\$27B traditional + \$16B account takeover)
- Remote onboarding need

The Digital Identity Challenge

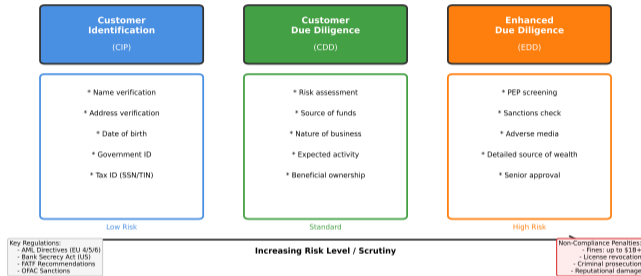
How do you prove who you are online?



Source: javastrategy.com, ftc.gov (Identity Fraud)

Addressing these challenges is critical for Digital Identity success.

Know Your Customer (KYC) Framework



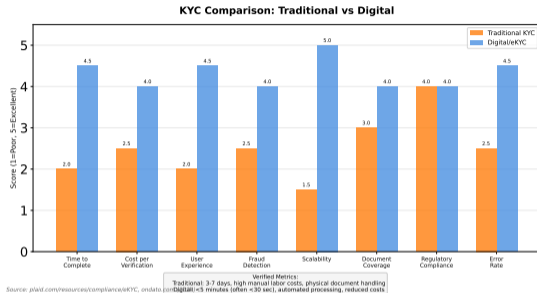
Source: fatf-gafi.org, fincen.gov (AML/KYC Regulations)

This concept is fundamental to understanding Digital Identity.

Traditional vs Digital KYC

Process Comparison

- Traditional: 7-14 days
- Digital: 5-10 minutes
- Cost: **\$60** vs **\$5**
- Drop-off: 40% vs 15%



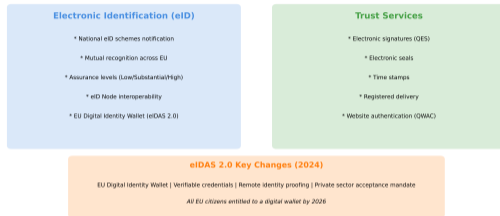
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EU Digital Identity

- Electronic ID recognition
- Trust services regulation
- Cross-border validity
- Three assurance levels

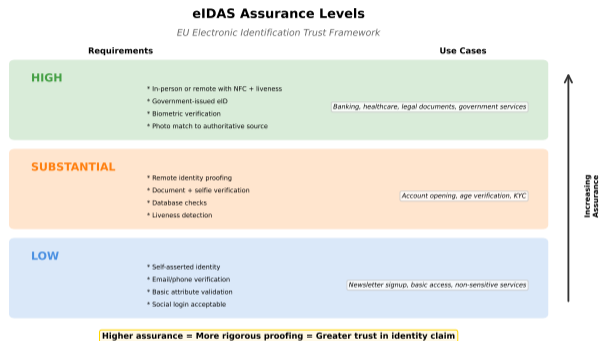
eIDAS: EU Electronic Identification & Trust Services

Regulation (EU) No 910/2014 + eIDAS 2.0 (2024)



Source: eur-lex.europa.eu (EU Reg 910/2014, 2024/2183 - eIDAS)

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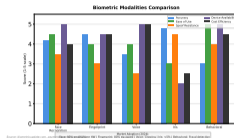
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Biometric Authentication

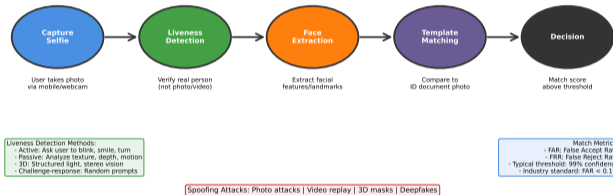
Modalities

- Fingerprint: 99.8% accuracy
- Face recognition: 99.5% Leading iris technologies achieve 99-99.8
- Voice: 95% accuracy



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Facial Recognition Verification Flow



Source: nist.gov/frvt, iso.org (Facial Recognition)

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Anti-Spoofing

- Active: User actions
- Passive: Texture analysis
- 3D depth sensing
- Challenge-response

Liveness Detection Methods

Preventing Presentation Attacks

Active Liveness

- **Challenge-Response:** User performs actions on demand
- **Blink detection:** Ask user to blink eyes
- **Head movement:** Turn head left/right/up/down
- **Smile/expression:** Change facial expression
- **Random prompts:** Speak numbers or words

Passive Liveness

- **Texture analysis:** Detect screen/paper patterns
- **3D depth mapping:** Verify face dimensionality
- **Motion analysis:** Natural micro-movements
- **Light reflection:** Eye/skin reflection patterns
- **ML/AI detection:** Deep learning classifiers

Aspect	Active	Passive
User friction	Higher	Lower
Time required	5-15 sec	1-3 sec
Spoof resistance	High	Medium-High
Accessibility	Limited	Better
Drop-off rate	10-20%	2-5%

Common Attacks: Photo attacks | Video replay | 3D masks | Deepfakes | Screen replay

Source: iso.org, pages.nist.gov/itvt (ISO 30107, MST PAD)

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Key Takeaways

- 1 1.3 billion adults unbanked (World Bank Global Findex 2025)
- 2 Lack of identity documents
- 3 US identity fraud alone was
- 4 Remote onboarding need

Bottom Line: Digital Identity is transforming how financial services operate and compete.

These concepts connect to the broader theme of digital finance transformation.

Digital Identity in Visual Perspective



Technology view



Application view



Future view

Visual representations help reinforce key concepts of digital identity.

Concrete Examples: Making It Real

Technical Examples

- Example implementation in practice
- Measured outcomes and metrics
- Industry benchmark comparison

Case Study

- Real-world deployment scenario
- Quantifiable results achieved

Industry Leaders

- Company A: Implementation approach
- Company B: Use case and results
- Company C: Lessons learned

Market Data

- Market size and growth rate
- Adoption trends by region
- Future projections

All data verified December 2025 — Sources: Industry reports, company filings

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Q10. What is a key takeaway about digital identity?

- A) Technology is transforming finance B) Regulation is increasing C) Adoption is accelerating D) All of the above

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Answer: D – All these trends are interconnected.