

Lesson 6: Digital Identity and Authentication

Module 1: FinTech Fundamentals

Digital Finance

Identity Verification Problem

- 1.7B unbanked adults
- Lack of identity documents
- Fraud losses: \$5.8B (2023)
- Remote onboarding need

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`figures/kyc_requirements.pdf`

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

`figures/eidas_framework.pdf`

`figures/eidas_assurance_levels.pdf`

Modalities

- Fingerprint: 99.8% accuracy
- Face recognition: 99.5%
- Iris scan: 99.99%
- Voice: 95% accuracy

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Anti-Spoofing

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

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Automated Extraction

- Optical character recognition
- Machine-readable zone (MRZ)
- NFC chip data (ePassports)
- Security features check

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Authentication Factors

- Knowledge: Password/PIN
- Possession: OTP token
- Inherence: Biometric
- Reduces fraud 99.9%

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AI-Powered KYC

- 1B+ verifications
- 5 minute verification
- 95% automation rate
- 200+ countries

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Decentralized Model

- User controls credentials
- Blockchain-based
- Verifiable credentials
- Privacy-preserving

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Data Protection

- GDPR compliance
- Biometric template storage
- Data minimization
- Right to erasure

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`figures/global_identity_map.pdf`

EU Digital Identity Wallet

- eIDAS 2.0 mandate
- 2026 rollout target
- Universal EU acceptance
- Private sector integration

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- **KYC:** Digital verification reduces cost 90% and time 95%
- **eIDAS:** EU framework for cross-border identity
- **Biometrics:** Face + liveness detection standard approach
- **MFA:** Multi-factor prevents 99.9% of fraud
- **Future:** Self-sovereign identity and digital wallets