Lesson 6: Digital Identity and Authentication
Module 1: FinTech Fundamentals

Digital Finance

Digital Identity Challenge

Identity Verification Problem

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

figures/identity_challenge.pdf

figures/kyc_requirements.pdf

Traditional vs Digital KYC

Process Comparison

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

figures/kyc_comparison.pdf

eIDAS Framework

EU Digital Identity

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

figures/eidas_framework.pdf

figures/eidas_assurance_levels.pdf

Biometric Authentication

Modalities

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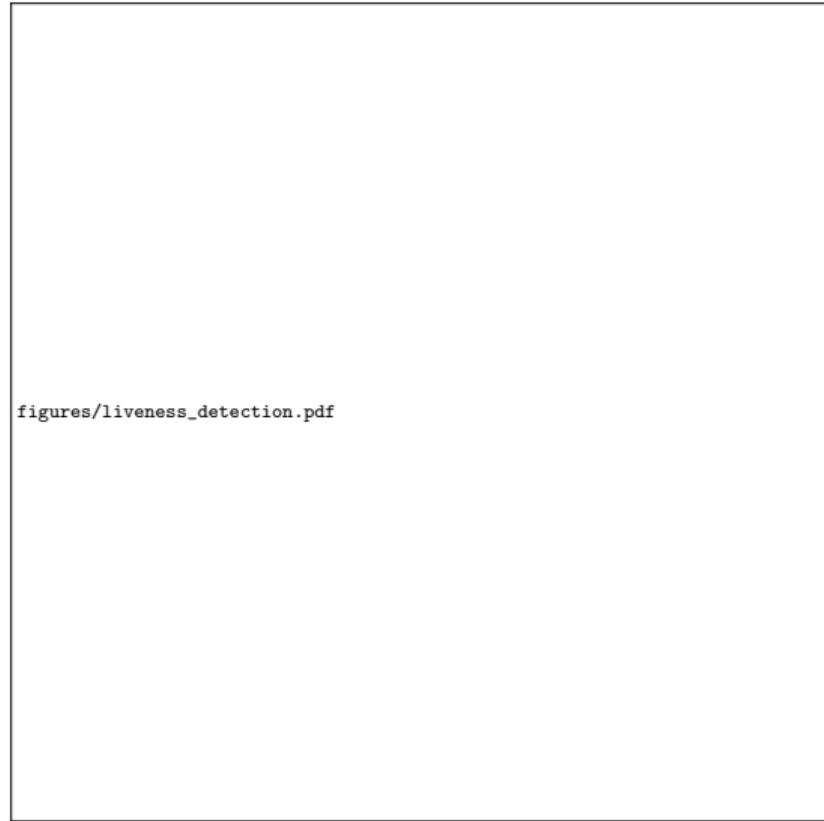- Face recognition: 99.5%
- Iris scan: 99.99%
- Voice: 95% accuracy

figures/biometric_modalities.pdf

Facial Recognition Flow

figures/facial_recognition_flow.pdf

Liveness Detection

Anti-Spoofing

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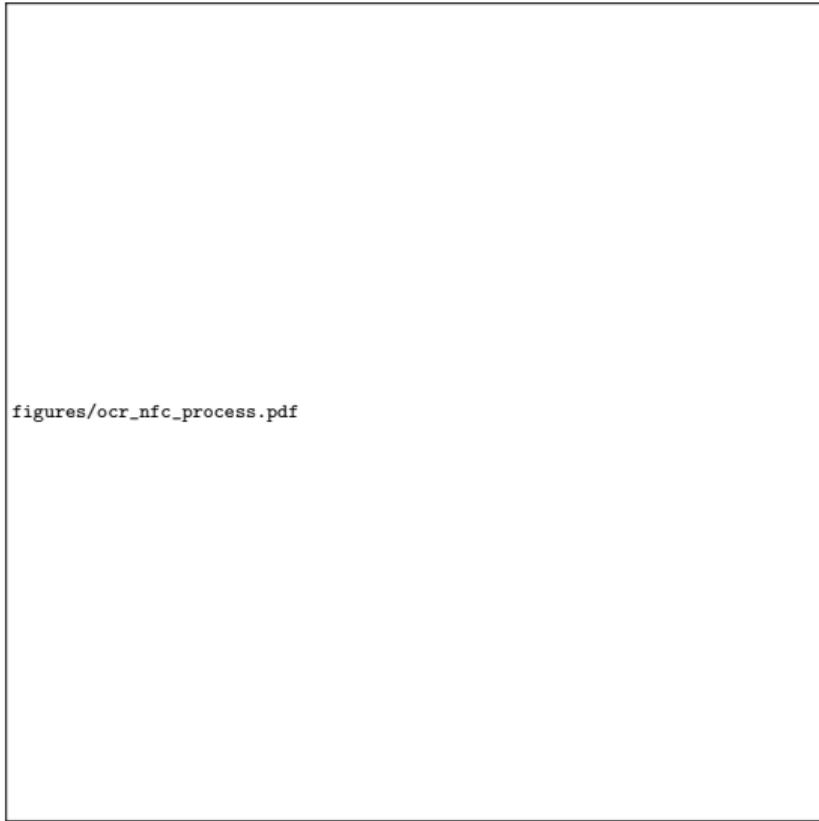- 3D depth sensing
- Challenge-response

figures/liveness_detection.pdf

figures/document_verification.pdf

OCR and NFC Chip Reading

Automated Extraction

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

figures/ocr_nfc_process.pdf

Multi-Factor Authentication (MFA)

Authentication Factors

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

figures/mfa_factors.pdf

figures/idv_provider_landscape.pdf

Jumio Case Study

AI-Powered KYC

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

figures/jumio_workflow.pdf

Self-Sovereign Identity (SSI)

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

figures/ssi_architecture.pdf

Privacy Concerns

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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Key Takeaways

- **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