

Lesson 5: Open Banking and APIs

Module 1: FinTech Fundamentals

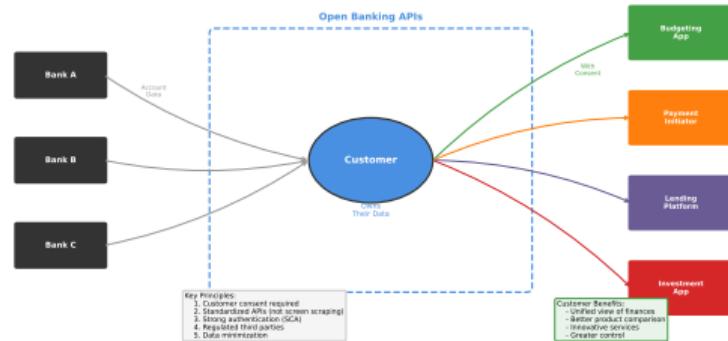
Digital Finance

Open Banking Revolution

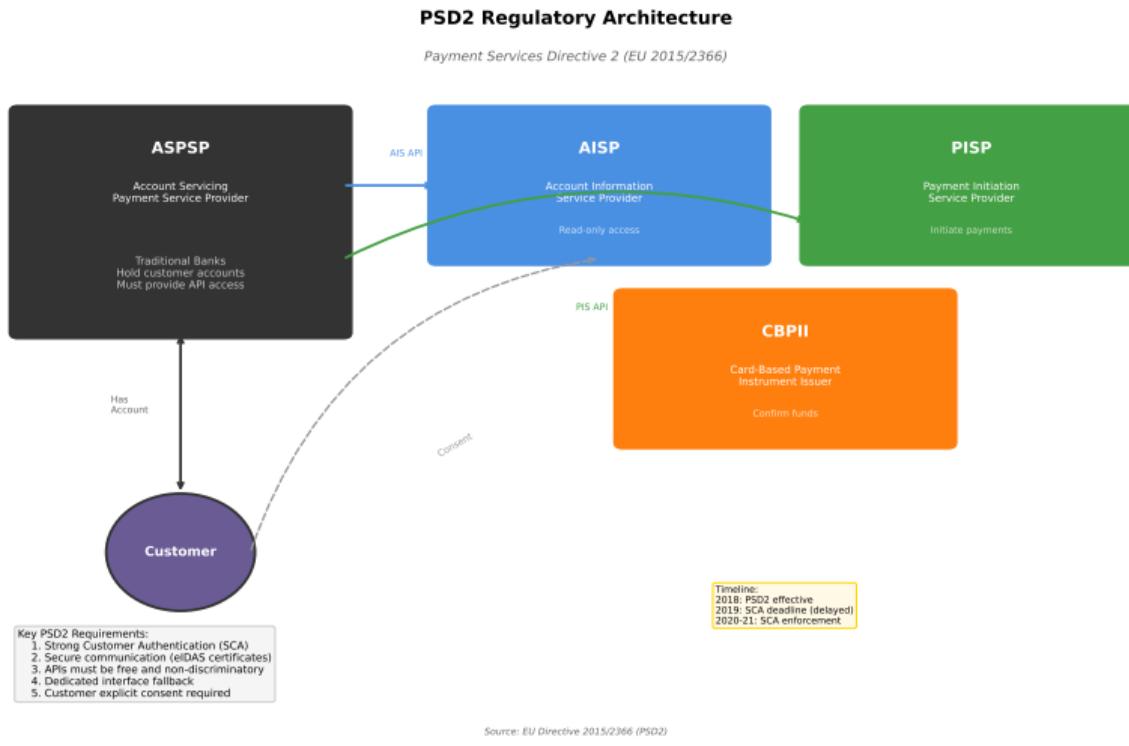
Data Sharing Paradigm

- Customer-permissioned access
- Standardized APIs
- Third-party innovation
- Regulatory mandate (EU, UK)

Open Banking: Customer-Centric Financial Data Sharing



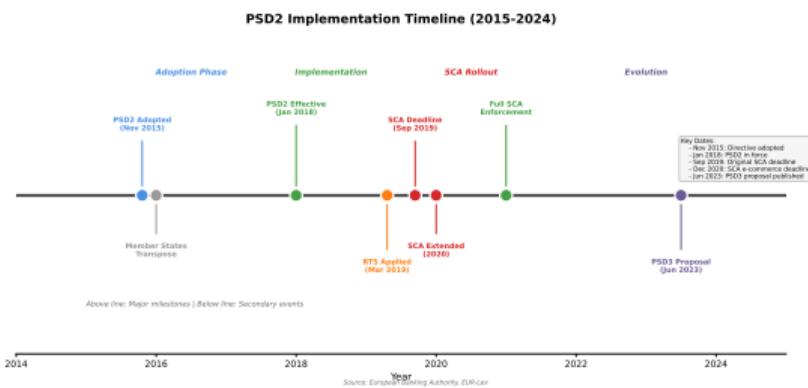
(CONCEPTUAL DIAGRAM)



PSD2 Timeline

Implementation Phases

- 2015: Directive adoption
- 2018: SCA requirements
- 2019: RTS compliance
- 2021: Full enforcement



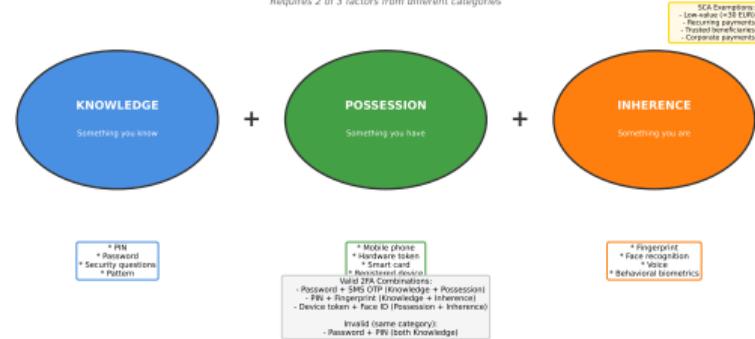
Strong Customer Authentication (SCA)

Two-Factor Requirement

- Knowledge (password)
- Possession (mobile device)
- Inherence (biometric)
- Exemptions for low-risk

Strong Customer Authentication (SCA)

Requires 2 or 3 factors from different categories



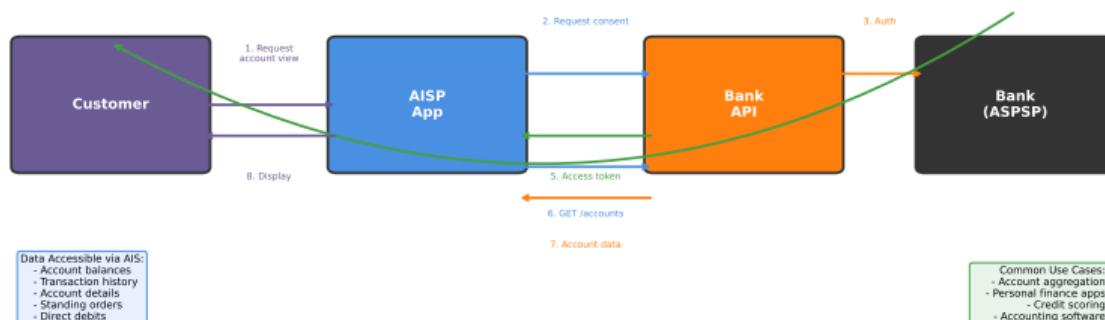
Source: PSD2 RTS on Strong Customer Authentication (EU 2018/399)

Account Information Service (AIS)

Account Information Service (AIS) Flow

Read-only access to account data

4. Bank redirects customer for SCA



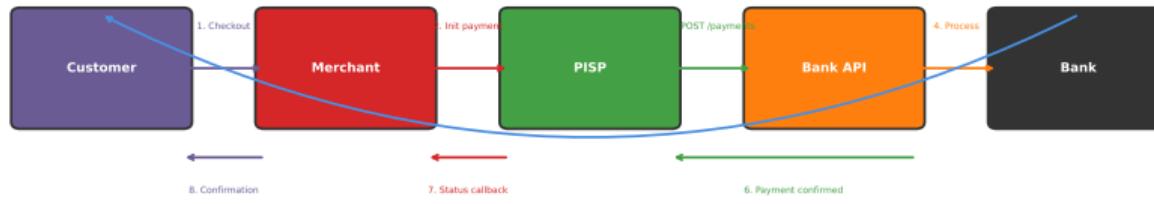
(CONCEPTUAL FLOW DIAGRAM)

Payment Initiation Service (PIS)

Payment Initiation Service (PIS) Flow

Bank-to-bank transfer via open banking

5. Redirect customer for bank authentication (SCA)



PIS vs Card Payment:

- No interchange fees (0% vs 1.5-3%)
- Direct bank transfer (instant settlement)
- Irrevocable (no chargebacks)
- Lower fraud risk

PIS Use Cases:

- E-commerce checkout
 - Bill payments
 - Account funding
 - Recurring payments

[CONCEPTUAL FLOW DIAGRAM]

Third-Party Providers (TPPs)

Provider Types

- AISP: Account aggregation
- PISP: Payment initiation
- CBPII: Card balance checks
- Regulatory authorization

Third Party Provider (TPP) Categories

Note: A single provider can register for multiple TPP categories



- * Account aggregation
- * Personal finance right
- * Read-only
- * Accounting integration



- * Payment initiation
- * E-commerce checklist
- * Write payments
- * Account transfers



- * Virtual cards
- * Card Issuer
- * Cardholder
- * Funds availability

Example:
Plaid, Transferwise, Tink

Example:
TPP Registration and Intervention
Authorised by a competent authority
- Listed in EBA registers
- Must have a valid payment institution or eIDAS certificates for API access

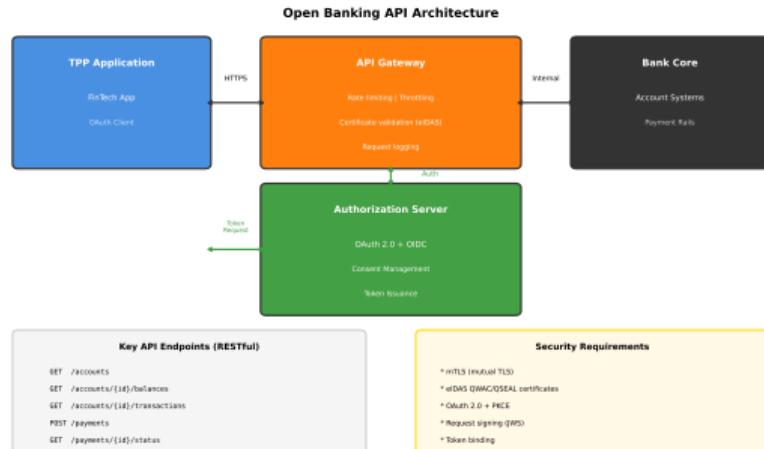
Example:
Cirrus, Revolut (card issuing)

Source: PSD2/EU 2015/2395, EBA Register

API Standards

Technical Protocols

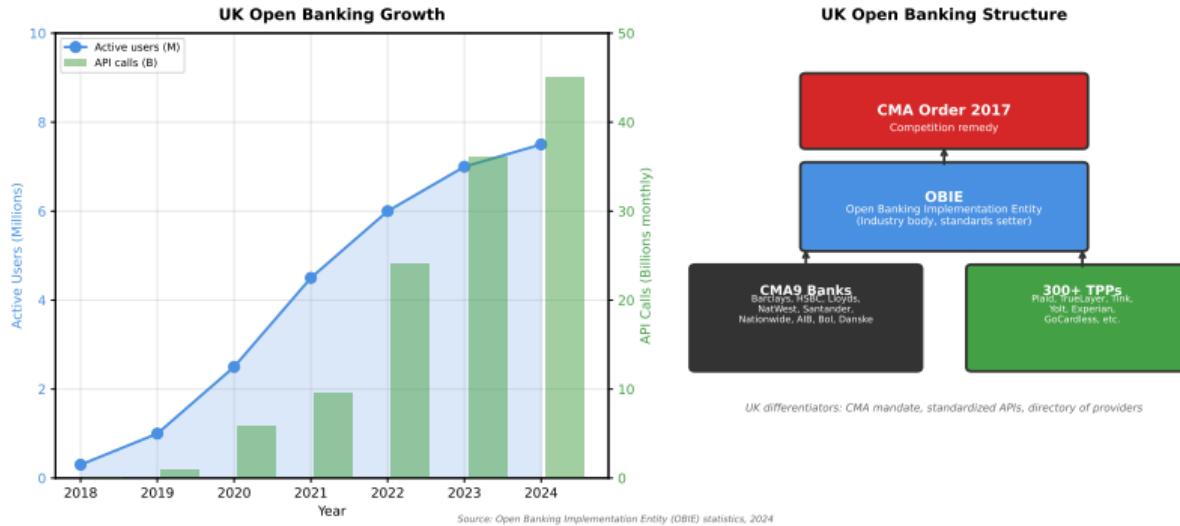
- RESTful architecture
- OAuth 2.0 authorization
- OpenAPI specification
- JSON data format



Source: Open Banking API specifications (Brite Grus, UK OBC, STET)

UK Open Banking Implementation

UK Open Banking: World-Leading Implementation

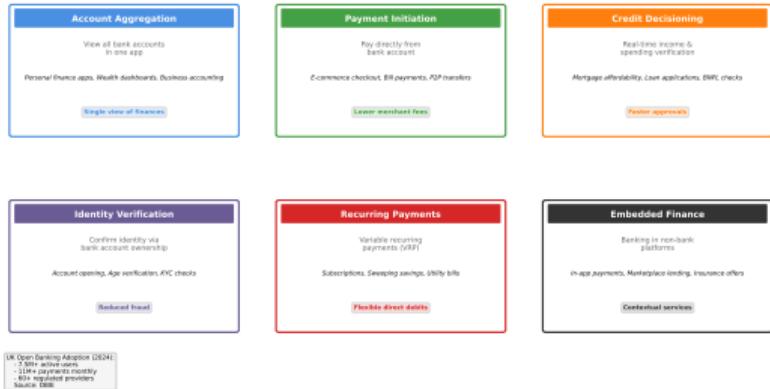


Open Banking Use Cases

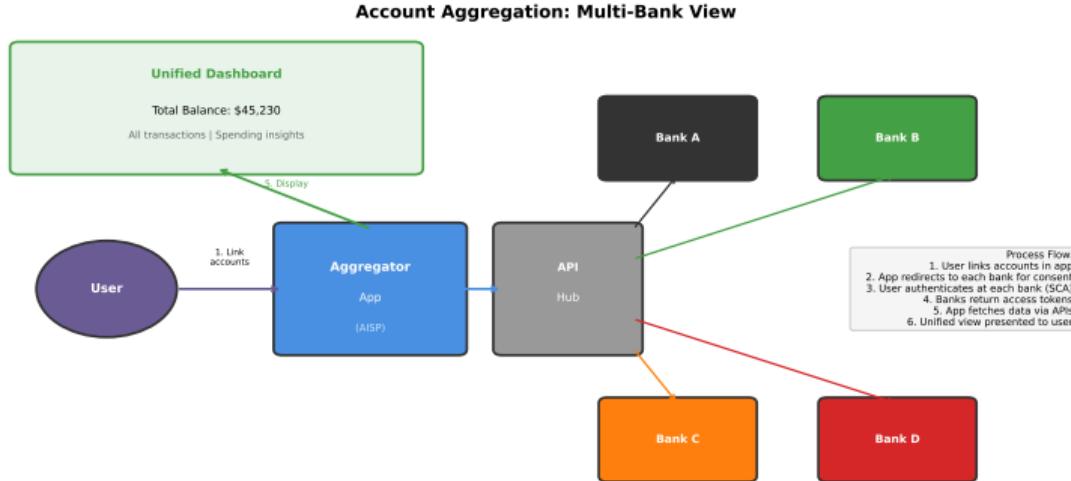
Consumer Applications

- Multi-bank aggregation
- Automated budgeting
- Alternative credit scoring
- Instant payments

Open Banking Use Cases



Account Aggregation Example

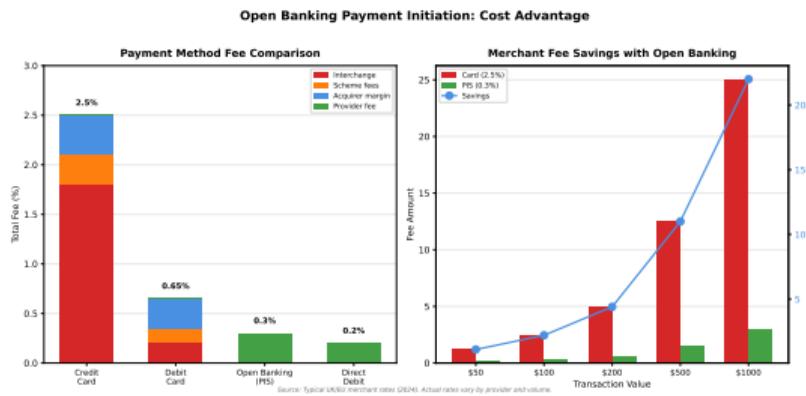


(CONCEPTUAL FLOW DIAGRAM)

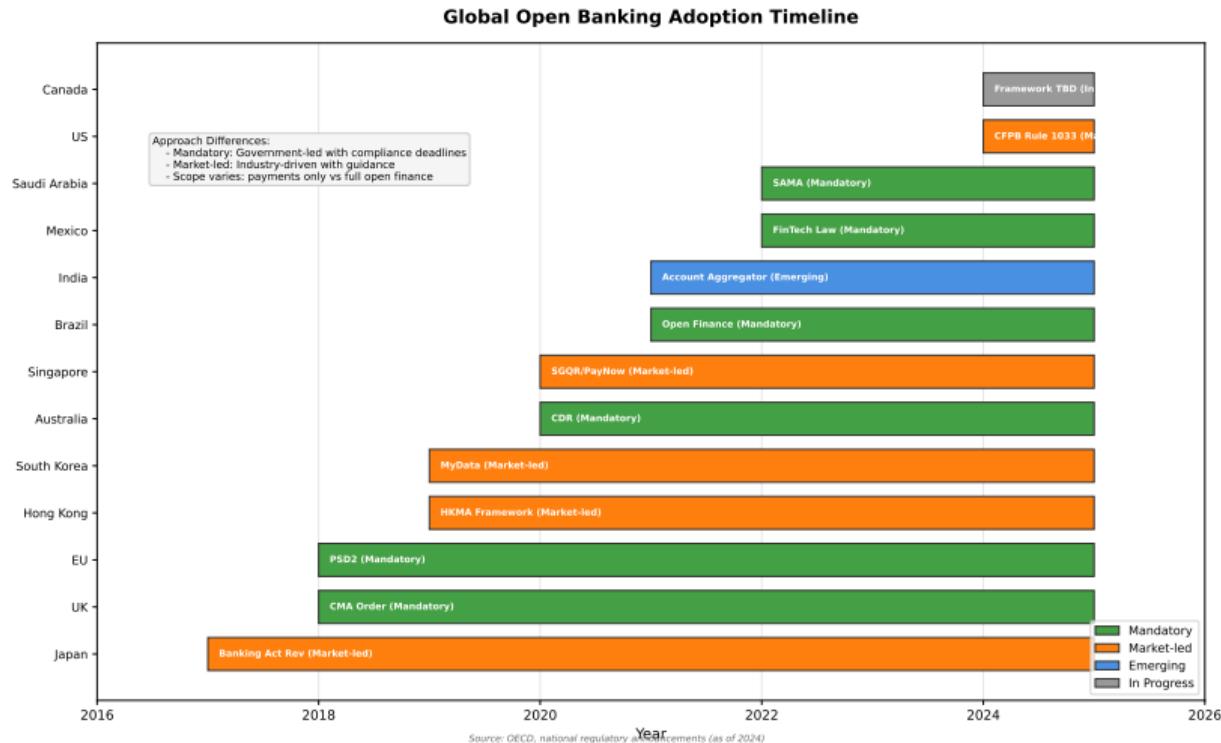
Payment Initiation Benefits

vs Card Payments

- Lower fees (0.1% vs 1.5%)
- Faster settlement
- No chargebacks
- Direct bank transfer



Global Open Banking Adoption



API Performance Metrics

UK Success Rates (2023)

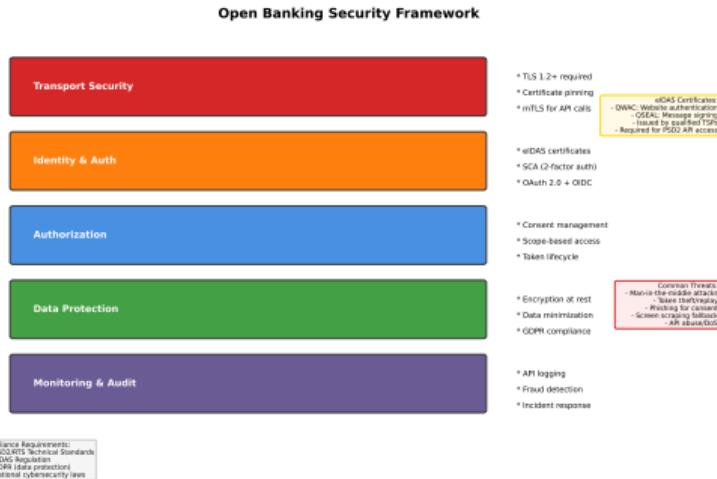
- API uptime: 99.5%
- Response time: 1.2s avg
- 12M monthly API calls
- 8M active users



Security Challenges

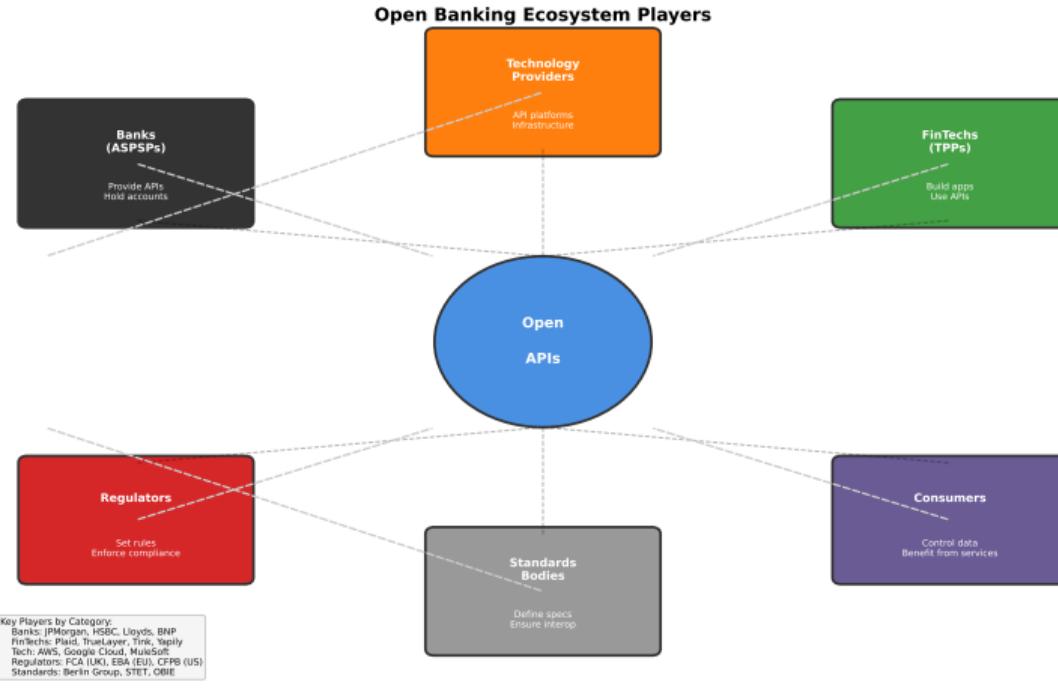
Risk Mitigation

- API credential theft
- Man-in-the-middle attacks
- Excessive data access
- Fraud monitoring systems



Source: PSD2 AT5, EBA Guidelines on ICT and Security Risk Management

Business Model Impact



Future: Open Finance

Beyond Banking

- Pension data sharing
- Insurance APIs
- Investment platforms
- Mortgage comparison



Key Takeaways

- **PSD2:** EU regulatory mandate for bank API access
- **Services:** AIS (aggregation) and PIS (payment initiation)
- **SCA:** Two-factor authentication requirement
- **Benefits:** Lower fees, faster payments, innovation
- **Future:** Expanding to open finance ecosystem