

Lesson 5: Open Banking and APIs

Module 1: FinTech Fundamentals

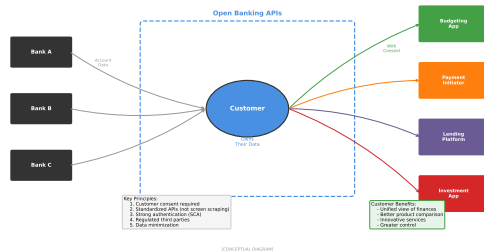
Digital Finance

Open Banking Revolution

Data Sharing Paradigm

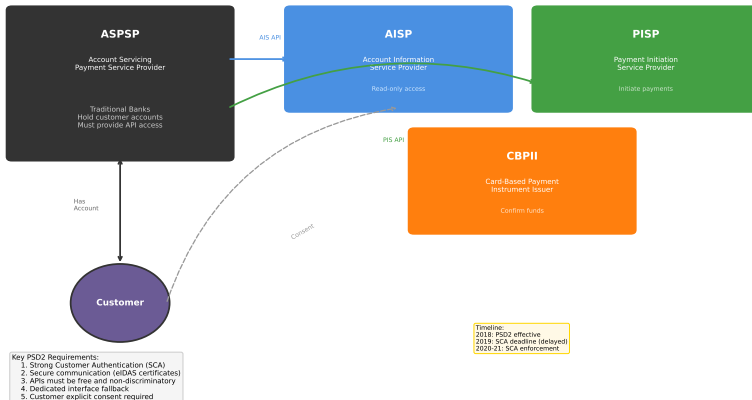
- Customer-permissioned access
- Standardized APIs
- Third-party innovation
- Regulatory mandate (EU, UK)

Open Banking: Customer-Centric Financial Data Sharing



PSD2 Regulatory Architecture

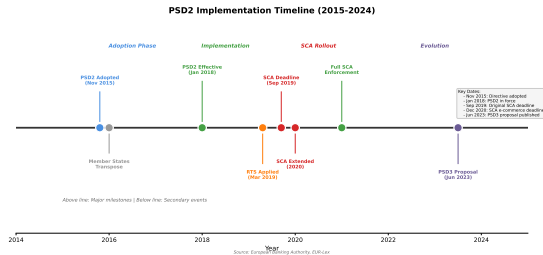
Payment Services Directive 2 (EU 2015/2366)



Source: EU Directive 2015/2366 (PSD2)

Implementation Phases

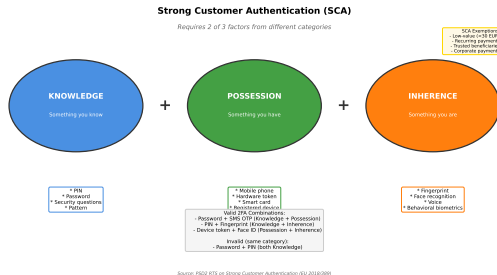
- 2015: Directive adoption
- 2018: SCA requirements
- 2019: RTS compliance
- 2021: Full enforcement



Strong Customer Authentication (SCA)

Two-Factor Requirement

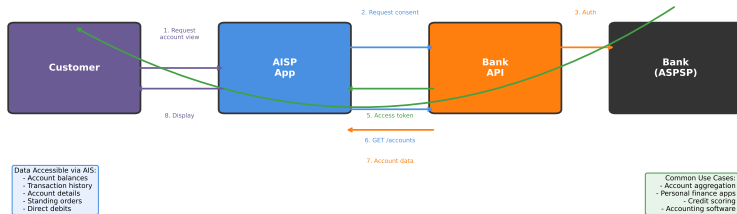
- Knowledge (password)
- Possession (mobile device)
- Inherence (biometric)
- Exemptions for low-risk



Account Information Service (AIS) Flow

Read-only access to account data

4. Bank redirects customer for SCA



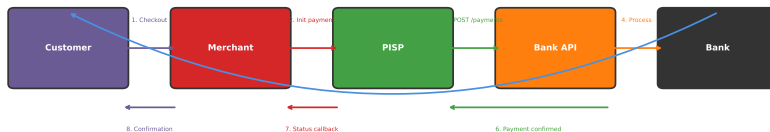
[CONCEPTUAL FLOW DIAGRAM]

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]

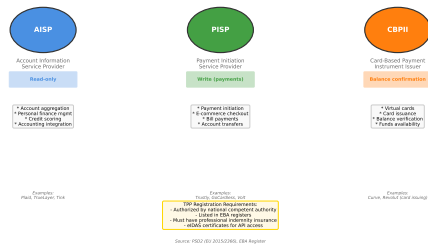
Third-Party Providers (TPPs)

Provider Types

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

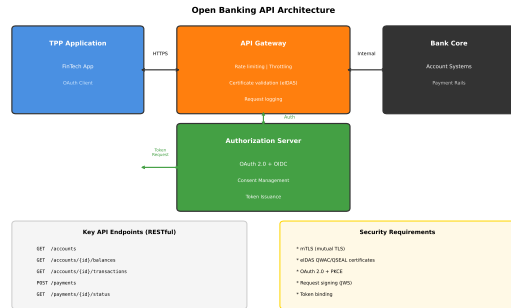
Third Party Provider (TPP) Categories

Note: A single provider can register for multiple TPP categories



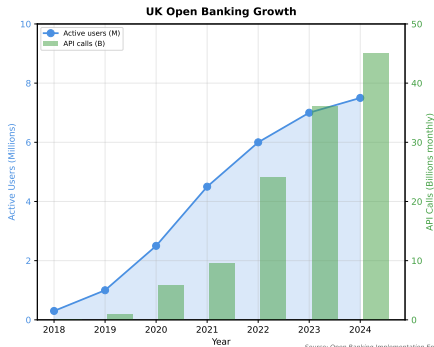
Technical Protocols

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

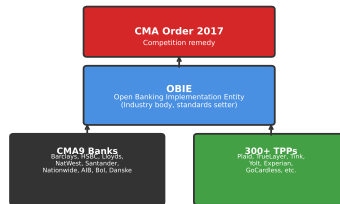


Source: Open Banking API specifications (Bank Group, UK OBC, STET)

UK Open Banking: World-Leading Implementation



UK Open Banking Structure



UK differentiators: CMA mandate, standardized APIs, directory of providers

Open Banking Use Cases

Consumer Applications

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

Open Banking Use Cases

Account Aggregation

View all bank accounts
in one app

Personal finance apps, Wealth dashboards, Business accounting

[Single view of finances](#)

Payment Initiation

Pay directly from
bank account

E-commerce checkout, Bill payments, P2P transfers

[Lower merchant fees](#)

Credit Decisioning

Real-time income &
spending verification

Mortgage affordability, Loan applications, BNPL checks

[Faster approvals](#)

Identity Verification

Confirm identity via
bank account ownership

Account opening, Age verification, KYC checks

[Reduced fraud](#)

Recurring Payments

Variable recurring
payments (VRP)

Subscriptions, Savings savings, Utility bills

[Flexible direct debits](#)

Embedded Finance

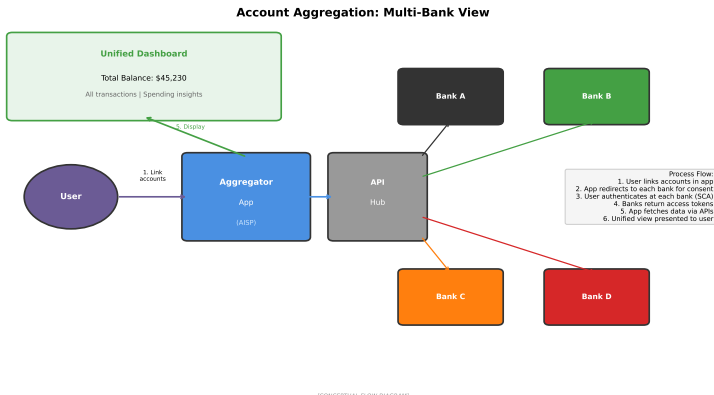
Banking in non-bank
platforms

In-app payments, Marketplace lending, Insurance offers

[Contextual services](#)

UK Open Banking Adoption (2024):
- 3.5m active users
- 10M+ payments monthly
- 80% approval providers
Source: UKOB

Account Aggregation Example

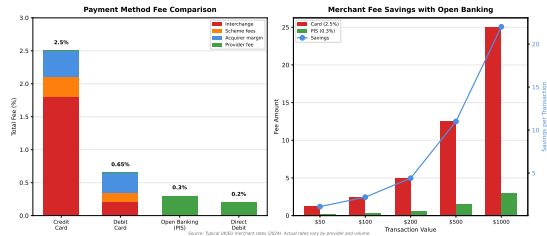


Payment Initiation Benefits

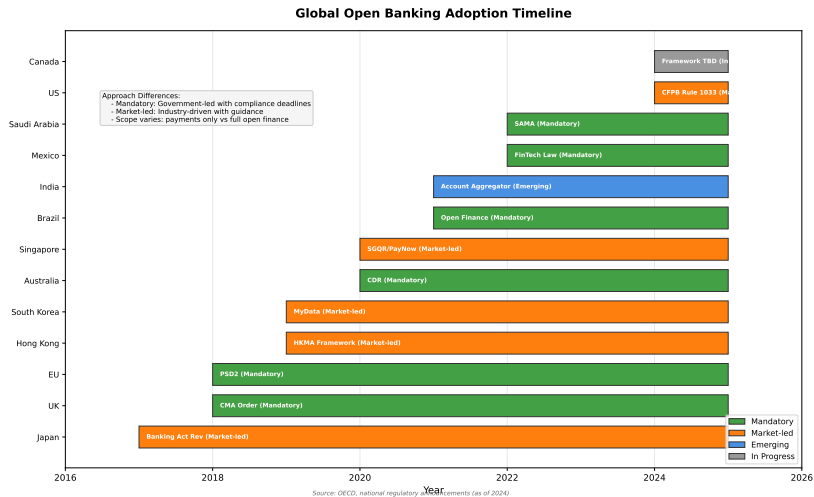
vs Card Payments

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

Open Banking Payment Initiation: Cost Advantage



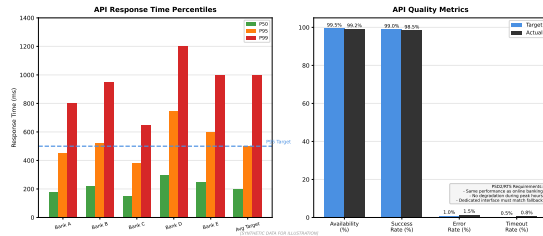
Global Open Banking Adoption



UK Success Rates (2023)

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

Open Banking API Performance Standards



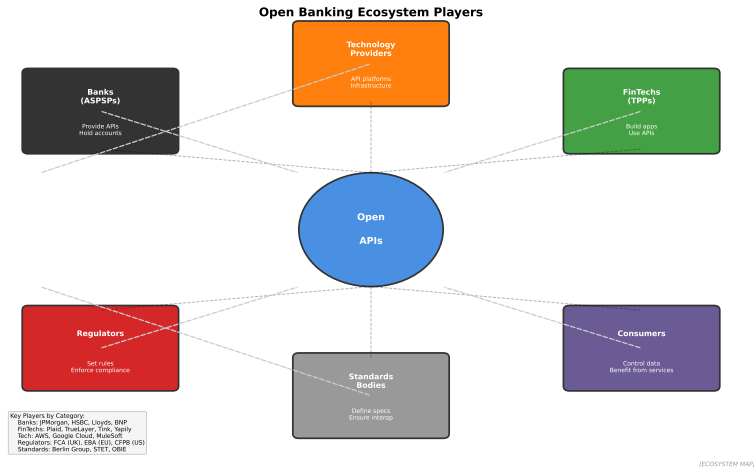
Risk Mitigation

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

Open Banking Security Framework

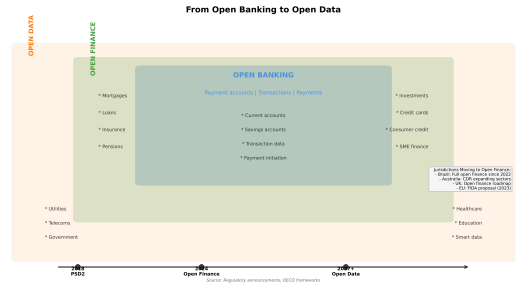


Source: PSD2 RTS, EBA Guidelines on ICT and Security Risk Management



Beyond Banking

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



- **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