Day 2: Platform Finance

How FinTech Reshapes Financial Services

Joerg Osterrieder

Digital Finance

Day 2 Overview

Topics Today:

1. Digital Payments
2. API Economy & Banking-as-a-Service
3. Data-Driven Finance
4. Platform Economics

Key Questions:

- How does money actually move when you tap your card?
- How can a tech company offer banking without being a bank?
- How do algorithms decide who gets a loan?
- What makes a FinTech sustainable vs. venture-subsidized?

Day Arc:

- **2.1** Concrete mechanics (payments)
- **2.2** Enabling infrastructure (APIs)
- **2.3** Intelligence layer (data/ML)
- **2.4** Business logic (platforms)

Hands-On Components

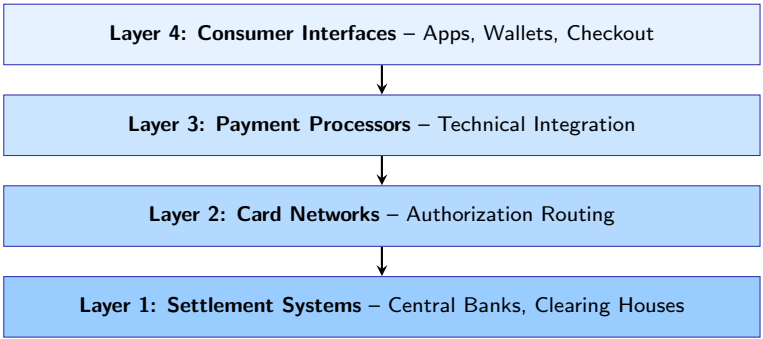
NB02: Payment Transaction Analysis
NB03: Banking API Simulation
NB04: ML Credit Scoring

Digital Payments

The Hidden Journey of a Payment

The Problem

Why does a simple coffee purchase involve so many parties?



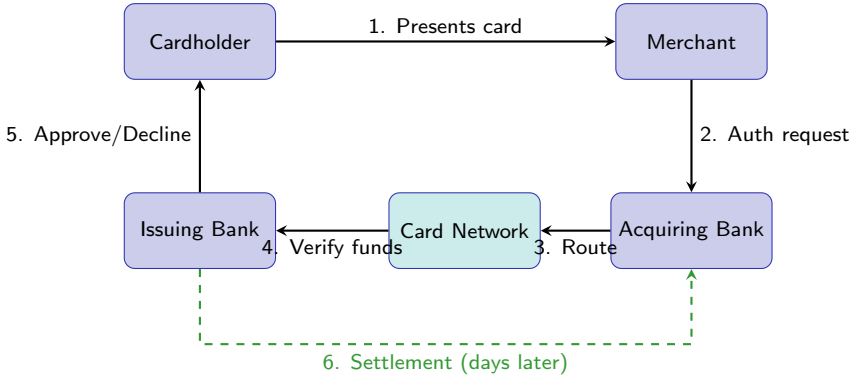
The Hidden Journey of a Payment (cont.)

The Insight

Each layer in the payment stack captures a portion of every transaction. Understanding the stack reveals who profits from your purchase — and where disruption is possible.

The Problem

When you swipe your card, who is involved and what happens?



The Four-Party Model (cont.)

The Insight

Authorization happens in seconds; settlement takes days. The merchant sees “approved” almost instantly, but the actual money moves much later in batch processing.

Who Pays Whom?

The Problem

Who actually pays for the "free" card in your wallet?

Party	Role	How They Earn
Cardholder	Initiates payment	(Consumer — pays indirectly through prices)
Merchant	Accepts payment	Sells goods/services
Issuing Bank	Issues card, bears risk	Receives the largest share of fees
Acquiring Bank	Processes for merchant	Keeps a small portion of fees
Card Network	Routes transactions	Charges assessment fees

The Fee Flow: Merchant pays → Acquirer passes on → Network routes → Issuer receives most

The Insight

The **issuing bank** receives the largest share because it bears the credit and fraud risk. The merchant passes these costs into prices — so consumers ultimately pay, even if their card is "free."

Payment Methods: A Spectrum of Trade-Offs

The Problem

With so many ways to pay, how do you choose the right one?

Method	Speed	Cost	Consumer Protection
Wire Transfer	Slow to moderate	High (flat fee)	Very limited
Bank Transfer	Slow	Low	Limited
Card Payment	Fast auth, slow settle	Moderate (percentage)	Strong (chargebacks)
Digital Wallet	Fast	Moderate to high	Varies
Real-Time Rails	Instant	Very low	Final (no reversal)
Cryptocurrency	Variable	Variable	Final (no reversal)

The Fundamental Tradeoff:
Fast + Cheap $\leftrightarrow$ Less consumer protection
Slow + Expensive $\leftrightarrow$ More certainty and recourse

The Insight

Every payment method is a tradeoff — there is no single "best" option. The right choice depends on the specific context: speed, cost, and how much protection you need.

Real-Time Payment Systems

The Problem

What if payments could be instant *and* nearly free?

The Concept:

- Governments around the world are building **real-time payment infrastructure**
- These are public systems — instant, low-cost, available to all banks
- Examples exist across many countries: Brazil, India, the UK, the EU, and the US have all launched or are rolling out such systems
- They settle in seconds, not days

How They Differ from Cards:

- Government-operated (public good)
- Near-zero transaction cost
- Bank-to-bank (no intermediary network)
- Irrevocable (no chargebacks)

Real-Time Payment Systems (cont.)

Impact on the Payment Landscape

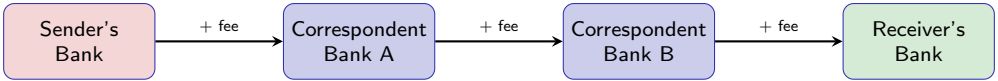
- **Commoditizes payment rails**: Basic money movement becomes free
- **Threatens card networks**: Why pay a percentage fee when instant transfer is free?
- **Enables new business models**: Micropayments, real-time payroll, instant refunds
- **Shifts competition**: Value moves from moving money to services built on top

The Insight

When the government builds free instant payment infrastructure, it changes the entire competitive landscape for private payment companies. The value shifts from *moving* money to *services around* money.

The Problem

Why is sending money abroad still slow and expensive?



Each hop adds time and cost

Why It Is Broken:

- Money must "hop" through several **correspondent banks**[1]— each one charges a fee and adds delay
- Currency conversion happens at each hop, often at unfavorable rates
- Compliance checks (anti-money laundering) at every intermediary slow the process further
- The sender often does not know the total cost until the money arrives

[1] Correspondent banking — a system where banks maintain accounts at other banks in foreign countries to facilitate international transfers.

Cross-Border Payments: The Broken System (cont.)

The Insight

Cross-border payments are the most expensive, slowest part of the payment system — making them a prime target for FinTech disruption.

Buy Now Pay Later (BNPL)

The Problem

Why would a merchant pay *higher* fees for installment payments?

How BNPL Works:

1. Consumer selects BNPL at checkout
2. BNPL provider pays the merchant (minus a fee)
3. Consumer repays in several installments
4. Typically no interest if payments are on time

Why Merchants Accept Higher Fees:

- Increases average order value
- Attracts customers who might not buy otherwise
- Converts browsers into buyers
- Shifts credit risk to the BNPL provider

BNPL Revenue Sources

- **Merchant fees**: Higher than standard card fees — the provider's main revenue
- **Late payment fees**: Charged when consumers miss installments
- **Interest**: On longer-term loan products

Buy Now Pay Later (BNPL) (cont.)

Business Model Tensions

- Credit losses without traditional underwriting[2]
- Growing regulatory scrutiny globally
- Consumer debt accumulation concerns
- Sustainability questions when growth slows

The Insight

BNPL shifts credit risk from consumers to providers, creating new business model tensions between growth and sustainability.

[2] Underwriting — the process of assessing whether a borrower is likely to repay.

Hands-On: NB02 Payment Transaction Analysis

The Problem

How do we analyze payment data to make better business decisions?

Notebook Overview

Analyze simulated payment transaction data to understand:

- How different payment methods compare in practice
- How fee structures affect merchant profitability
- How settlement times vary and why it matters for cash flow
- How network analysis can reveal transaction patterns

What You Will Do:

- Work with a realistic simulated payment dataset
- Compare multiple payment methods across key dimensions
- Visualize cost and settlement trade-offs
- Build and analyze a payment network graph

No Programming Prerequisites

The notebook is self-guided with code provided. Your job is to **interpret the results** and draw business conclusions — not to write code from scratch.

Hands-On: NB02 Payment Transaction Analysis (cont.)

The Insight

Data analysis reveals patterns invisible in individual transactions — what seems random at the single-payment level becomes predictable at scale.

Section 2.1 Key Takeaways

1. **Payments are multi-layered**: Consumer interfaces → processors → networks → settlement systems. Each layer extracts value from every transaction.
2. **Speed vs. protection is the fundamental tradeoff**: Faster, cheaper payments are typically less reversible. Every payment method trades off these dimensions differently.
3. **Interchange funds the card ecosystem**: The issuing bank receives the largest share of fees because it bears credit and fraud risk. Merchants pass these costs to consumers through prices.
4. **Real-time government rails are reshaping competition**: When instant payments become free public infrastructure, the value shifts from moving money to the services built on top.
5. **Most FinTechs are layers, not replacements**: The majority of payment innovators build on top of existing rails rather than replacing them — true disruption of the underlying infrastructure is rare.

Coming Up: Notebook NB02

Analyze simulated payment transaction data — fees, settlement times, failure rates, and optimization opportunities.

The API Economy and Banking-as-a-Service

What is an API?

The Problem

How do different software systems talk to each other without knowing each other's internal workings?

Non-Technical Definition:

- An API is a **contract** between software systems
- It defines what you can **request** and what you will **receive**
- Think of it like a restaurant menu: a fixed set of options, in a standardized format

Jargon explained: *API* stands for Application Programming Interface. *Endpoint* = a specific address where you send requests (like a phone number). *Request* = asking for data. *Response* = the data you get back.

Why APIs Matter for Finance

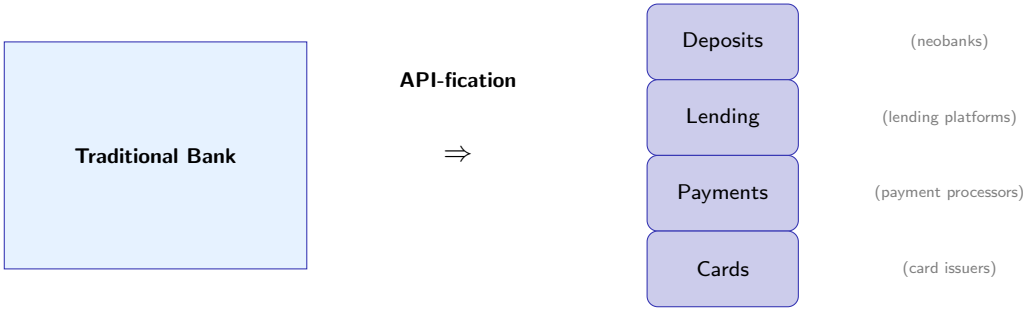
- **Unbundling**: Break a monolithic bank into separate, accessible components
- **Speed**: Integrate with banking infrastructure quickly instead of building from scratch
- **Innovation**: Any authorized developer can access banking capabilities
- **Competition**: A more level playing field between incumbents and startups

The Insight

APIs let any developer access banking capabilities without building them — just as a restaurant menu lets you order food without knowing how to cook.

The Problem

What happens when you break a monolithic bank into separate, independently accessible services?



The Unbundling of Banking (cont.)

The Concept:

- Each banking function becomes a standalone service accessible via API
- Different companies can specialize in one service and do it exceptionally well
- A single startup can compete with a bank on one specific dimension

The Insight

Any service can now be offered independently by a different company. The "bank" is no longer a single institution — it is a collection of components that can be mixed and matched.

Open Banking: Regulatory Approaches

The Problem

How do different regions approach opening up banking data — and why does the approach matter?

Regulated Approach:

- Governments **mandate** that banks provide APIs
- Standardized specifications ensure interoperability
- Third parties must be licensed and supervised
- Adopted by several European and Asia-Pacific jurisdictions

"Banks must open up — whether they want to or not."

Market-Driven Approach:

- No government mandate for standardized APIs
- Data aggregators negotiate access with banks individually
- Screen-scraping (sharing passwords) remains common
- Innovation happens, but without standardization

"Let the market figure it out."

The Insight

The regulatory approach shapes how fast innovation happens. Mandated standards create a level playing field quickly; market-driven approaches allow flexibility but create fragmentation.

AISP and PISP: Read Access vs. Write Access

The Problem

What can third parties actually *do* with your banking data — and how is this regulated?

AISP — Account Information

Account Information Service Provider

- **What**: Reads your account data
- **Use cases**:
  - Budgeting apps that show all your accounts in one place
  - Credit assessment based on transaction history
  - Financial planning tools
- **Permission**: Read-only access

PISP — Payment Initiation

Payment Initiation Service Provider

- **What**: Initiates payments from your account
- **Use cases**:
  - E-commerce checkout directly from your bank
  - Bill payment services
  - Money transfer apps
- **Permission**: Write access (with explicit approval)

AISP and PISP: Read Access vs. Write Access (cont.)

The Insight

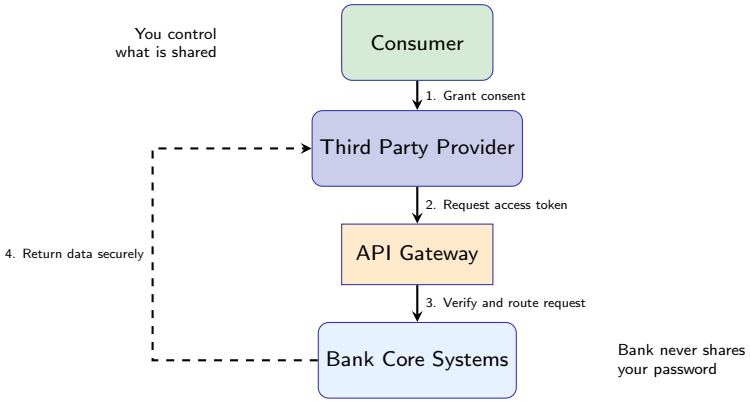
Read access and write access are regulated differently because the risks differ. Seeing your balance is far less risky than moving your money.

Jargon explained: *TPP (Third Party Provider)* = a company (not your bank) that accesses your bank data with your permission. *Account aggregation* = combining data from multiple banks into one view.

Open Banking Architecture: The Consent Flow

The Problem

How does the consent flow actually work — and how is your data kept secure?



Open Banking Architecture: The Consent Flow (cont.)

The Insight

You never share your password with the third party. Instead, the bank issues a temporary *token* — like a concert wristband that grants limited access and can be revoked at any time.

The BaaS Stack: What You Build vs. What You Rent

The Problem

In a BaaS arrangement, what does the FinTech actually build — and what does it rent from others?

Brand Layer: Your Company's Brand and Identity

UX Layer: Mobile App, Web Portal, Customer Support

Middleware: BaaS Platform (connects everything)

Banking Layer: Partner Bank (holds the license)

Regulatory Layer: Deposit Insurance, Compliance, Charter

The BaaS Stack: What You Build vs. What You Rent (cont.)

The Insight

The FinTech only needs to build what the customer sees and touches. Everything underneath — the license, the compliance, the ledger — is rented from specialized providers.

Jargon explained: *Middleware* = software that connects different systems together. *Charter* = a government-issued license to operate as a bank.

Embedded Finance: Financial Services at the Moment of Need

The Problem

Why are non-financial companies — retailers, ride-sharing apps, e-commerce platforms — starting to offer financial products?

What is Embedded Finance?
Financial services integrated directly into non-financial platforms and experiences — offered at the exact moment a customer needs them.

Conceptual Examples:

- An e-commerce platform offering merchant loans based on sales data
- A ride-sharing app providing driver banking and instant payouts
- A retail checkout offering installment payments
- A freelancing platform with built-in invoicing and tax savings

Why Non-Banks Have Advantages

- **Distribution**: They already have the customers
- **Data**: They know customer behavior intimately
- **Context**: They can offer finance at the exact moment of need
- **Trust**: Customers already have a relationship with the brand

Embedded Finance: Financial Services at the Moment of Need (cont.)

The Insight

When finance is embedded where you already are — shopping, working, traveling — the traditional bank becomes invisible. The bank still exists in the background, but the customer never interacts with it directly.

Hands-On Exercise: Notebook NB03

Open Banking API Simulation

In Notebook NB03, you will build a simulated open banking environment:

1. Create a mock bank with customer accounts
2. Implement Account Information API endpoints
3. Simulate a token-based authentication flow
4. Build a Payment Initiation service
5. Create an Account Aggregator (multi-bank view)

What You Will Build:

- A simulated bank with realistic account structures
- API endpoints for reading accounts, balances, and transactions
- A payment initiation endpoint
- A multi-bank aggregation dashboard

Learning Goal: Understand the mechanics of API-based banking by building it yourself — even without prior programming experience, the notebook guides you step by step.

Notebook: day_02/notebooks/NB03_Open_Banking_API.ipynb

Section 2.2 Key Takeaways

1. **APIs unbundled banking**: Any financial service can now be offered separately via standardized interfaces — breaking the bank monopoly on financial products
2. **Regulation drives adoption**: In regions where governments mandate open banking, innovation accelerates; in market-driven regions, adoption is slower and more fragmented
3. **BaaS enables non-banks**: Companies can "rent" banking infrastructure (charter, compliance, ledger) instead of building it from scratch, dramatically lowering the barrier to entry
4. **Embedded finance is the frontier**: Non-financial platforms increasingly offer financial services at the moment of need, making the traditional bank invisible to the end consumer
5. **Value accrues to the customer interface**: Whoever owns the customer relationship captures the most value in the API economy — not necessarily whoever holds the banking license

Coming Up: Notebook NB03

Make API calls to a simulated open banking endpoint — retrieve accounts, transactions, and initiate a mock payment.

Data-Driven Finance

Traditional Credit Scoring

The Problem

Lenders used to rely on personal relationships and gut feelings. How do you scale that to millions of applicants?

The Solution: Credit Scores

- A credit score condenses your entire financial history into a **single number**
- The number represents predicted creditworthiness
- Scores span a range from **very poor to excellent**
- Higher score = lower predicted risk = better loan terms

Where Scores Are Used:

- Loan approvals and interest rates
- Credit card limits
- Insurance pricing
- Rental applications
- Sometimes even employment screening

What Goes Into a Score

Scores are built from categories of your financial behavior:

- How reliably you pay bills
- How much debt you carry
- How long you have been borrowing
- How often you apply for new credit
- What mix of credit types you use

The Insight

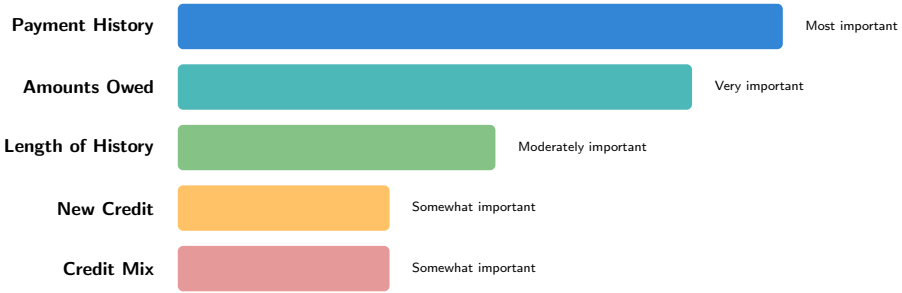
A single number determines the cost of many major life decisions — your mortgage rate, your credit card limit, sometimes even whether you can rent an apartment.

What Matters Most in a Credit Score

The Problem

Not all financial behaviors matter equally. What should a score emphasize?

Credit Score Components — Ranked by Importance:



The Insight

Your behavior with existing debt — whether you pay on time and how much you owe — matters far more than anything else. The most important factors are the ones you control through everyday financial discipline.

Who Gets Left Behind?

The Problem

What about people who have *no* credit history at all?

"Credit Invisible" — No Score at All:

- **Young adults**: Have not had time to build history
- **Recent immigrants**: Foreign credit history does not transfer
- **Cash-economy users**: Pay for everything without credit
- **Divorced individuals**: Shared accounts removed
- **Post-bankruptcy**: Wiped history, starting over

The "Thin File" Problem:
Some people have *some* history, but not enough for a reliable score. They fall into a gray zone — not scoreable, but not invisible either.

The Scale of the Problem

Millions of people across every country are excluded from credit — not because they are risky, but because the system has no data on them.

The Catch-22:

- You need credit to build a credit history
- You need a credit history to get credit
- This traps millions in a cycle of exclusion

The Insight

Millions of creditworthy people are excluded not because they *cannot* repay, but because they lack traditional history. This is the opportunity that alternative data and FinTech try to address.

Alternative Data: A New Lens

The Problem

What if we could assess creditworthiness using everyday financial behavior — not just formal credit history?

Data Type	What It Reveals	Who Benefits
Bank transactions	Cash flow patterns, income stability, spending habits	Thin-file borrowers
Rent payments	Reliability of regular payments	Young adults, renters
Utility bills	Consistent bill payment behavior	Cash-economy users
Employment/payroll	Job stability, income verification	Immigrants, gig workers
Education history	Future earning potential	Young graduates
Shopping behavior	Financial responsibility signals	Underbanked consumers

The Insight

Alternative data can bring "credit invisible" people into the system — scoring them on behaviors they already have, rather than formal credit products they lack.

The Problem

Can computers find patterns in data that humans miss?

Traditional Models:

- Simple, well-understood rules
- Easy to explain to regulators and applicants
- Limited to relationships humans define
- Proven track record over decades

Think of it as: a carefully designed checklist where each item has a clear weight.

Machine Learning Models:

- Can discover complex, hidden patterns
- Handle hundreds of variables simultaneously
- Significantly better at predicting defaults
- Much harder to explain *why* a decision was made

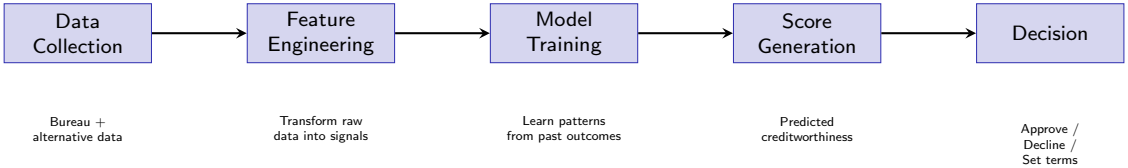
Think of it as: a system that learns its own rules from the data — powerful, but opaque.

The Insight

Better accuracy comes at the cost of explainability. This is not just a technical annoyance — it is a fundamental tension that shapes regulation, consumer trust, and business strategy in lending.

The Problem

How does raw data become a lending decision?



Key Decisions at Each Stage:

- **Data**: What sources? What are the privacy implications?
- **Features**: What transformations? What should we exclude?
- **Model**: How much accuracy vs. how much explainability?
- **Decision**: Where do we set the approval threshold? When does a human review?

The Credit Scoring Pipeline (cont.)

The Insight

Bias can enter at *every* stage of this pipeline — not just in the model itself, but in which data is collected, how features are designed, and where thresholds are set.

Algorithmic Bias: The Dark Side

The Problem

Can a "neutral" algorithm discriminate?

Sources of Bias:

1. **Historical data bias**:
   If past lending was discriminatory, the data reflects those patterns — and the model learns to repeat them
2. **Proxy variables**:
   Features like location or school can correlate with race or socioeconomic status
3. **Sample bias**:
   Training only on existing customers misses the people who were already excluded
4. **Feature selection bias**:
   Human choices about what data to include embed assumptions

Real-World Example:

- A major technology company launched a credit card
- An algorithm set credit limits for applicants
- People in the same household, with shared finances, received **dramatically different credit limits**
- The algorithm could not explain why
- A regulatory investigation followed

Fairness Concepts:

- **Demographic parity**: Approval rates similar across groups
- **Equalized odds**: Error rates similar across groups
- **Calibration**: Predictions equally accurate for all groups

The Insight

Bias in the data means bias in the decisions. Good intentions do not prevent harmful outcomes — you must actively test for and mitigate bias.

Explainability: The Right to Know Why

The Problem

If a machine denies you a loan, who explains why?

Why Explainability Matters:

- **Regulatory requirement**: In many jurisdictions, lenders *must* tell you why you were declined ("adverse action notice")
- **Consumer trust**: People need to understand decisions that affect their lives
- **Model debugging**: Developers need to find and fix errors
- **Fairness auditing**: Regulators need to verify the model is not discriminating

What an Adverse Action Notice Looks Like:
"Your application was declined because of: high debt relative to income, short credit history, and a recent late payment."

Explainability Techniques (Conceptual):

- **Feature importance**: Which inputs matter most *overall*?
- **SHAP values**: How much did each input push *this specific* decision up or down?
- **Partial dependence**: How does changing one input affect the output?

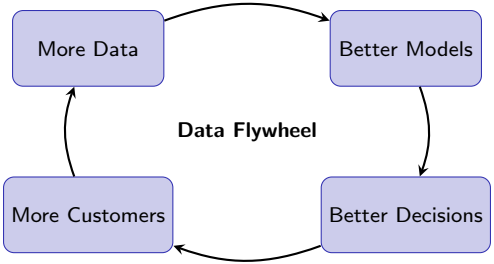
SHAP in Plain Language:
Imagine you are splitting a restaurant bill fairly. SHAP assigns each feature its "fair share" of the prediction — showing exactly which factors helped and which hurt.

The Insight

Explainability is both a regulatory requirement and an ethical imperative. Consumers deserve to understand the decisions that shape their financial lives — and to have a path to challenge those decisions.

The Problem

Why do data-rich companies keep getting stronger while newcomers struggle to compete?



How It Works:

- More data improves model accuracy
- Better models make better lending decisions
- Better decisions attract more customers
- More customers generate more data
- The cycle *compounds* over time

The Data Flywheel (cont.)

Why It Matters for Competition:

- Incumbents have more historical data
- Newer entrants often have more *diverse* data
- Data advantages compound over time
- Switching costs increase as models improve

The Insight

First-mover advantage in data creates a compounding moat. Incumbents have more historical data; newer entrants often have more *diverse* data. The winner is whoever spins the flywheel fastest.

Section 2.3 Key Takeaways

1. **Traditional scoring leaves people behind**: Credit scores are powerful but exclude millions of creditworthy people who lack formal credit history
2. **Alternative data expands access**: Bank transactions, rent payments, and employment data can bring excluded people into the credit system
3. **ML improves accuracy but reduces transparency**: Machine learning finds patterns humans miss, but creates "black box" challenges for regulators and consumers
4. **Bias is real and requires active mitigation**: Historical discrimination gets encoded in data; proxy variables can circumvent legal protections; good intentions alone do not prevent harm
5. **Explainability is non-negotiable**: Consumers have a right to know why they were denied credit — this is both a legal requirement and an ethical imperative

Coming Up: Notebook NB04

Build a credit scoring model with alternative data. See how feature selection affects outcomes and probe for potential bias.

Platform Economics

What is a Platform?

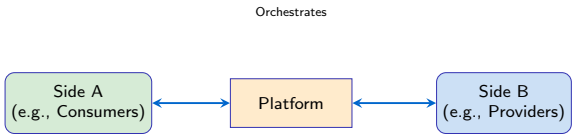
The Problem

What makes a platform fundamentally different from a traditional business?

The Concept:
A **platform** is a business that creates value by facilitating exchanges between two or more interdependent groups.

Key Characteristics:

- Two or more distinct user groups
- Each group needs the other to participate
- The platform orchestrates and facilitates their interaction
- Value is created by the participants, not the platform itself



The Insight

Platforms don't own the means of production — they own the means of **connection**. This is a fundamentally different source of power.

Network Effects: The Core Mechanism

The Problem

Why does a payment network become more useful as more people join it?

Direct (Same-Side) Network Effects:
More users on the same side makes the platform more valuable for everyone on that side.

Example: A peer payment app — the more of your friends who use it, the more useful it is to you.

Indirect (Cross-Side) Network Effects:
More users on Side A makes the platform more attractive to Side B, and vice versa.

Example: The more cardholders a card network has, the more merchants want to accept it — and vice versa.

What is an Externality?
When your action affects others who didn't choose to be affected. Network effects are a *positive externality* — each new user makes the platform better for all existing users.

Network Effects: The Core Mechanism (cont.)

The Insight

Each new user adds value for *all* existing users — this is what makes platforms so powerful and why they invest so heavily in early growth.

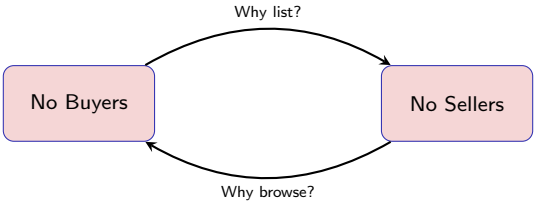
Critical Question

Does this company have **real** network effects, or just **growth**?

Growth without network effects is just expensive customer acquisition.

The Problem

How do you launch a platform when each side needs the other to exist first?



Death Spiral

The Chicken-and-Egg Problem (cont.)

Three Launch Strategies:

Subsidize One Side
One early payment platform famously paid new users to join — absorbing losses to reach critical mass quickly.

Single-Player Mode
Make the product useful even without a network — e.g., an app that tracks expenses alone but becomes more powerful when friends join.

Seed Supply
Create initial supply yourself or partner with existing providers so the platform has value from day one.

The Insight

Every successful platform found a creative way to solve this bootstrapping problem. The strategy chosen often shapes the platform's economics for years.

Winner-Take-Most Dynamics

The Problem

Why do some markets end up with one dominant player while others sustain healthy competition?

The Concept:
A market "tips" toward a single dominant player when three conditions align:

1. **Strong network effects** — each new user significantly increases value for all
2. **High switching costs** — it is expensive or difficult to move to a competitor
3. **Low multi-homing** — users find it impractical to use multiple platforms

Key Distinction:

- **Winner-take-all**: One company captures nearly the entire market
- **Winner-take-most**: A dominant player emerges but competition survives at the margins

FinTech Examples:

- **Tips**: Card networks — strong network effects, high switching costs for merchants
- **Does not tip**: Neobanks — low switching costs, easy to hold multiple accounts

The Insight

Not all markets tip — understanding *when* they do is the key to evaluating any FinTech investment. The conditions must all be present simultaneously.

Key Question

Does this FinTech's market have the conditions to tip, or will competition persist?

The Problem

How do FinTechs actually make money, especially when many products appear "free"?

Transaction-Based:

- A small percentage of each transaction plus a flat fee
- Interchange revenue from card spending
- Foreign exchange markups on currency conversion

Subscription:

- Premium tiers with additional features
- Business-to-business software-as-a-service
- Membership models with bundled services

Interest and Float:

- Earning interest on customer deposits held temporarily
- Lending margin: borrow at a low rate, lend at a higher rate
- Holding funds in transit and earning interest on the "float"

Data and Ecosystem:

- Selling order flow to market makers
- Cross-selling additional products to existing customers
- Licensing aggregated, anonymized insights

The Insight

The most resilient FinTechs combine multiple revenue streams. Dependence on a single source creates vulnerability — especially if regulators restrict it.

Unit Economics: The Health Check

The Problem

How do you tell if a fast-growing company is actually healthy — or just burning money?

Key Concepts (No Math Required):

- **CAC** (Customer Acquisition Cost): How much you spend to get one new customer
- **LTV** (Lifetime Value): Total revenue expected from one customer over their entire relationship
- **Payback Period**: How long until a customer "pays back" their acquisition cost
- **Churn**: The rate at which customers leave

The Core Question:
Does each customer eventually pay back *more* than it cost to acquire them?

Healthy vs. Unhealthy:

- Lifetime value should be **several times** the acquisition cost
- Payback should happen within a **reasonable timeframe**
- Churn should be **low enough** that customers stay long enough to generate returns

Unit Economics: The Health Check (cont.)

FinTech CAC Challenges

- Trust is required for financial products
- Regulatory constraints limit marketing channels
- High-intent keywords are expensive
- Referral programs can be costly

The Insight

Growth without healthy unit economics is just burning money. Always ask: is each new customer profitable, or is the company paying more to acquire them than they will ever earn back?

Venture Subsidies: Real Growth or Fake Economics?

The Problem

If a product is free or extremely cheap, is the demand real — or artificial?

The Blitzscaling Playbook:

1. Raise large amounts of venture capital
2. Use it to subsidize user acquisition (below-cost pricing, free products, sign-up bonuses)
3. Grow at all costs to reach critical mass
4. Achieve network effects and lock-in
5. Raise prices once dominant

When This Works:

- The market truly tips (winner-take-most)
- Network effects create lasting value
- Switching costs prevent users from leaving when prices rise

Venture Subsidies: Real Growth or Fake Economics? (cont.)

When It Doesn't Work

- Multi-homing prevents lock-in
- No real network effects to capture
- Regulation prevents pricing power
- Competition never stops — multiple players survive indefinitely

The "Remove Subsidies" Test

Ask: Would customers stay at *sustainable* prices?
Test: Mentally remove the subsidies — what happens to demand?
If demand collapses: The growth was artificial.

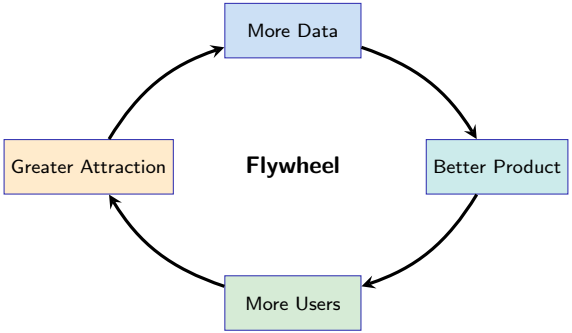
The Insight

Always ask: would customers stay at sustainable prices? If the answer is unclear, the company may be building on sand.

The Data Flywheel in Platforms

The Problem

Why do data-rich platforms keep getting stronger while newcomers struggle to catch up?



The Data Flywheel in Platforms (cont.)

How It Works in FinTech:

- More transactions generate more data, which improves fraud detection, which reduces false declines, which attracts more merchants, which generates more transactions
- More loan applications improve risk models, which enable more accurate pricing, which attracts better borrowers, which generates more data

The Insight

The data flywheel creates compounding advantages that new entrants cannot easily replicate — it is one of the most powerful moats in modern finance.

Discussion: Evaluating FinTech Sustainability

Framework: Six Questions for Any FinTech

1. Does this FinTech have **real network effects**, or just growth fueled by subsidies?
2. Are the **unit economics healthy** — does each customer pay back more than they cost to acquire?
3. Are **switching costs** high enough to retain users when prices rise?
4. Does the **data advantage** compound over time via a flywheel?
5. Can incumbents **easily copy this** — or is there a lasting moat?
6. Will **regulation** help or hurt the company long-term?

Discussion Exercise:
Think about a financial app you use regularly. Apply these six questions:

- What would happen if the app raised its prices significantly?
- Could you easily switch to an alternative? Would you?
- Does the app get better the more people use it, or is the experience the same regardless?

There are no wrong answers — the goal is to practice the framework.

Section 2.4 Key Takeaways

1. **Platforms create value differently**: They orchestrate exchanges rather than produce goods — the most powerful FinTechs are platforms, not pipelines
2. **Network effects are the goal, but not guaranteed**: Not every FinTech has real network effects — growth without them is just expensive customer acquisition that evaporates when subsidies end
3. **Winner-take-most requires specific conditions**: Strong network effects combined with high switching costs and low multi-homing — without all three, competition persists
4. **Unit economics determine sustainability**: Lifetime value should be several times the acquisition cost — venture subsidies mask reality until funding stops
5. **Multiple moats beat single advantages**: The strongest FinTechs combine network effects, data flywheels, switching costs, and regulatory positioning

Core Skill

Always ask: "Would this business work at *sustainable* prices without subsidies?"

Day 2 Summary: Platform Finance

What We Covered:

1. **Digital Payments**
   - Four-layer payment stack
   - Speed vs. protection tradeoffs
   - Real-time rails reshaping competition
2. **API Economy & BaaS**
   - APIs unbundled banking
   - Open banking regulation
   - Embedded finance as the frontier
3. **Data-Driven Finance**
   - Alternative data expands access
   - ML vs. explainability tension
   - Algorithmic bias is real
4. **Platform Economics**
   - Network effects drive dominance
   - Unit economics determine sustainability
   - Data flywheels compound advantages

Notebooks

NB02: Payment Analysis — NB03: Banking API — NB04: Credit Scoring Model

The Day 2 Arc: From how money moves (payments) → how infrastructure is shared (APIs) → how decisions are automated (data/ML) → how business models sustain (platforms). Tomorrow: Blockchain, DeFi, and the crypto ecosystem.