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CRYPTO · STOCKS · ETFS · MUTUAL FUNDS

WHITEPAPER

Investing, made clear

How Pinnora works, how it is built,
and what a customer can expect

October 2026 · Version 1.0

Pinnora Technologies Limited · Berlin

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BEFORE YOU BEGIN

About this document

This whitepaper explains what Pinnora is, how it works, why it is built the way it is, and what a customer can expect from it. It is written for prospective customers, investors in the business, partners and journalists, and it is meant to be read by people who are not engineers.

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Questions about this document	legal@mypinnora.com
Customer support	helpdesk@mypinnora.com, or a support ticket in the app

Purpose

A financial service should be able to explain itself plainly. This paper sets out, chapter by chapter, the products Pinnora offers, the way money moves through an account, the safeguards around it, and the engineering underneath. Wherever it can, it says what the customer sees on the screen and what happens behind it, so that each claim can be checked against the app itself.

Figures that can change

Rates, fees, limits, minimums and rewards are set in one place and can change. This paper therefore describes how they work rather than printing them as fixed facts. The figures that apply are always the ones the app shows before you confirm. Where the paper describes something that may change, such as which crypto networks are open for deposits, it says so and dates it “at the time of writing (October 2026)”.

Examples and sources

Amounts marked “for example” are round figures chosen to show how a flow works; they are not offers or forecasts. Statements about Pinnora come from its app, its website and its published terms as of the date above. Outside statistics and technical standards are cited with small superscript numbers, and every source is listed in Chapter 17.

What this document is not

It is not an offer to buy or sell any investment, and it is not investment, tax or legal advice. A plan’s return is a target, not a promise, and the value of investments can go down as well as up. The binding rules are those in the terms of service and the privacy policy at mypinnora.com.

Version 1.0 · October 2026. A later version replaces this one.

WHITEPAPER · VERSION 1.0

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CHAPTER

01

Executive summary

Pinnora is one app for investing, saving, borrowing and moving money, provided by Pinnora Technologies Limited in Berlin. It opens in a web browser on a phone or a computer, keeps every product in a single account that adds up to one balance, and shows what each thing costs before anyone pays it. This summary sets out what Pinnora does, how it is built and how it handles security and privacy; the chapters that follow explain each part in detail.

Pinnora in brief

Pinnora brings the main things people do with their money into one place. A customer can buy US stocks, major crypto assets, index funds and IPOs by the dollar; join investment plans that aim for a target return over a fixed term; keep money in flexible, fixed-term, floating-rate or mixed savings plans; borrow US dollars against what they already hold; trade crypto pairs with market and limit orders; apply for capital for a business; and send money to other members by their @username.[1] All of it lives in the same account, and all of it adds up to the same balance.

12 languages

in the app, including Arabic written right to left, with the same Latin digits everywhere so an amount reads the same in every language

10 minutes

the window after which money leaving an account needs the password or a passkey again, on top of being signed in

6 backup codes

issued with authenticator two-factor, shown once and each usable once, so a lost phone need not mean a lost account

0 third-party packages

in the server, which runs on Node.js and its built-in modules alone, so there is no third-party package for an attacker to compromise

What a customer can do

Each product has its own screen in the app and is explained on the website. The table gives the short version; Chapters 5 to 8 give the long one. Apart from the “from $1” starting point the website itself quotes, rates, minimums, fees and limits are deliberately left out of this paper: they are set in one place, they can change, and the figures that apply are always the ones the app shows before the customer confirms.[2]

Product	What it is	How it works, in brief
Investing	US stocks, major crypto assets, index funds and IPOs	Bought by the dollar from $1; an order from an asset’s page fills at once at the price shown
Investment plans	Fixed-term plans that aim for a target return	Terms, target and payout rules shown before joining; capital paid back at the end of the term
Savings	Flexible, fixed-term, floating-rate and mixed plans	Earn in the asset put in, in US dollars or digital assets; paid on the plan’s own schedule

Product	What it is	How it works, in brief
Spot trading	Crypto pairs on the Trade page	Market orders at the live price, or limit orders that wait for the customer's price
Loans	US dollars borrowed against a holding	The holding is locked rather than sold; simple interest; repay in full at any time without an early-repayment fee
Empowerment	Capital for businesses	A loan to the business, decided by people, repaid in equal instalments every 30 days; no share of the business taken
Payments	Money sent to any member	By @username or pay link; instant, free and final, landing in the recipient's funding wallet
Deposits and withdrawals	Money in and out of Pinnora	In by bank transfer or crypto, free of Pinnora charges; out to a bank account or crypto address, with the fee shown first

One account, one balance

Every Pinnora account has two parts. The **funding wallet** is where deposits arrive and where withdrawals leave from. The **trading account** is where investments are held. Moving money between them is instant and free, and a purchase uses cash in the trading account first and then the funding wallet, so a customer never has to shuffle money by hand before buying.[3]

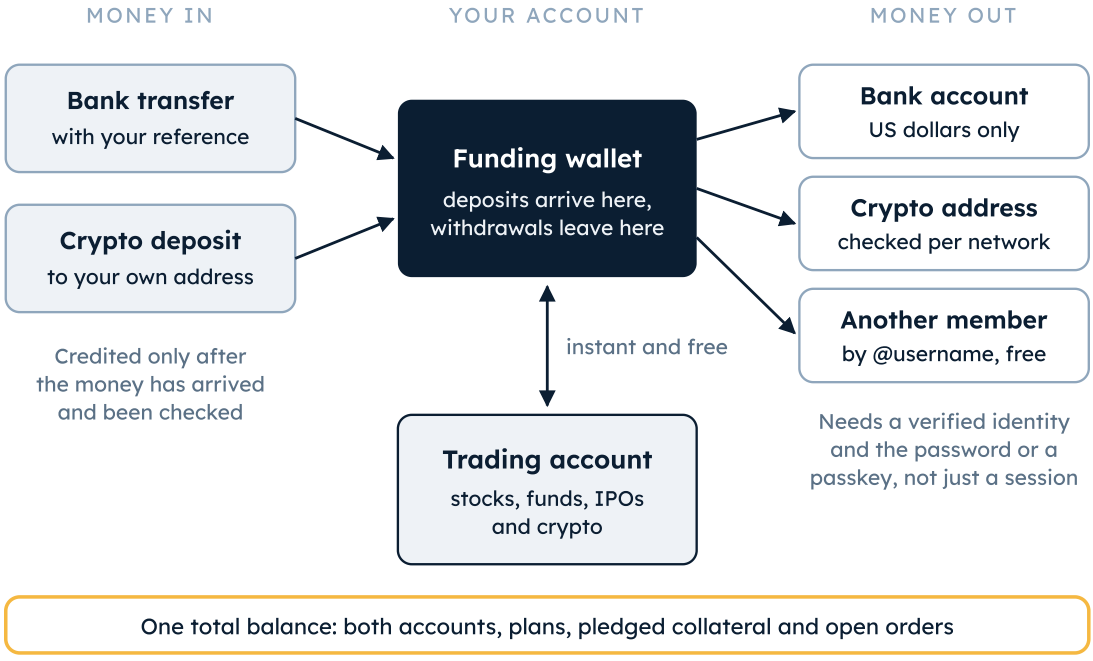


Figure 1.1 How money moves through a Pinnora account. Deposits arrive in the funding wallet and are credited only once checked; investments sit in the trading account; anything leaving Pinnora, or sent to another member, starts from the customer's own confirmation.

How Pinnora is built, in short

A financial app is judged on whether its numbers can be trusted. Three engineering decisions run underneath everything Pinnora does, and each one is described in full later in this paper.

Every figure has one source

Each rate, fee and limit is declared once, in one place on the server. The route that charges the fee or enforces the limit reads it from there, the app is sent the same value to display, and the public website fills it in as each page is sent. What the customer is shown is therefore what the server does, and the website never quotes a rate that no plan currently offers.[4]

Nothing credits itself

A deposit is a request, not a credit. Whether it comes by bank transfer or crypto, it is credited to the funding wallet only after the money has actually arrived and been checked. There is no timer that credits money and no button a customer can press to settle their own deposit; “I’ve sent it” simply tells Pinnora that a payment is on its way.[5]

Money moves exactly once

Balances change only through one function inside a database transaction, and a balance can never go negative. Each order on the Trade page carries a reference that the app makes up, so a request retried on a slow connection is answered with the first result instead of buying twice. Plan payouts are unique per subscription and due time in the database itself, so a period can never be paid twice. Money reserved by a limit order is held on the order and cannot be spent on anything else, and a deposit or withdrawal that has been settled cannot be settled a second time.

> **What a customer owns when they invest**
>
> Pinnora fills every order itself, at its own prices, which follow public market prices; nothing is sent to an exchange. What a customer buys is a position on Pinnora’s books, valued at those prices. It is not a share or coin bought for them at a broker or on an exchange, and it gives no rights against the issuer. The terms of service say this in plain words, and Chapter 5 explains how prices are kept true.[6]

Security in brief

Pinnora’s security model starts from the first sentence of its security page: being signed in is not, on its own, enough to move money out of an account. Around that sit several independent layers, each covered in Chapter 9.[7]

1. **Passkeys** let a customer sign in with Face ID, Touch ID or the device passcode. The private key never leaves the device, and a passkey works only on Pinnora’s own site, so a look-alike site cannot use it.
2. **Two-factor authentication** with an authenticator app is available, with six one-time backup codes.
3. **A step-up check** before money leaves: withdrawing, sending money and adding a passkey ask for the password or a passkey unless the customer confirmed in the last ten minutes.
4. **Alerts:** every new sign-in, with a password or a passkey, sends a security notification naming the device, as do repeated failed attempts to sign in, a passkey added or removed, and a password change.
5. **A tamper-evident audit log** chains each entry to the one before it, so altering or deleting history in the database can be detected.

> **Being signed in is not enough to move money out of your Pinnora account.**

Privacy in brief

Pinnora collects what it needs to run an account and to meet its legal duties, and keeps the rest out of reach. Chapter 10 sets out the full picture; the essentials are these.[8]

- **No tracking on the website.** Pinnora's web pages set no cookies and use no analytics, advertising or social-media tools, and its e-mails do not track whether they are opened or clicked.
- **Data is not for sale.** In the privacy policy's words: "We never sell your data or share it for advertising." Nor does Pinnora buy data about its customers or use an outside service to find out more about them.

A first week on Pinnora: a worked example

The table follows one new customer through a first week. The amounts are round figures chosen *for example* only; the steps, checks and messages are the ones the app and server actually use. Each row says what the customer does and what happens behind the screen.

Day	What the customer does	What happens behind it
1	Opens mypinnora.com/app/ and signs up with a name, e-mail, contact details and a password of at least eight characters, accepting the terms and privacy policy	The password is stored only as a scrypt hash; a six-digit code and a link are e-mailed to prove the address
1	Types the code, then chooses a username	The browser that signed up is signed in the moment the address is proved; a username is chosen once and is how members pay each other
2	Deposits, for example, $500 by bank transfer where the app offers it, quoting the reference shown, and taps "I've sent it"	The request waits as "In progress" and is credited to the funding wallet only once the money has arrived and been matched; a notification follows
4	Buys, for example, $50 of a US share from its page, holding the button for a second	The order fills at once at the price shown; cash, position and history change together, and no fee is charged on shares bought this way
6	Verifies their identity: personal details, photos of an ID document and a selfie, taken in the app	Pinnora's own staff review the check; once verified, withdrawals and sending money are unlocked

A note on risk

Investing involves risk: prices move, and the value of investments can go down as well as up. A plan's return is its target rather than a promise, and nothing in this paper is investment advice or a personal recommendation.[6]

CHAPTER

02

The opportunity: why investing needs a better home

Most adults in the world now have an account and a phone, yet owning investments is far less common, and very unevenly spread. This chapter sets out what public research says about that gap, names the frictions that keep people out, and lists the design requirements we took from them. Every outside figure is cited, with its source listed in Chapter 17, and every Pinnora feature mentioned is one the app has today.

79%
of adults worldwide have an account at a bank, a similar institution or a mobile-money provider[9]

1.3 billion
adults still lack access to financial services; about 900 million of them have a mobile phone[10]

Around 80%
of euro area households own no stocks or other market-based financial instruments[11]

56%
of US families held stock directly or indirectly in 2025, against 31% in the bottom half of incomes[12]

The gap in brief

Access to basic financial services has widened quickly, carried by mobile phones and digital payments; investing has not followed at the same pace. Policymakers know this, and the European Commission has made wider retail participation an explicit aim. To us it looks like a product problem as much as an education problem. If investing asks for a large first sum, hides part of its cost, speaks a specialist's language, sits in a separate app behind a separate login, and leaves people unsure whether anyone will answer when something goes wrong, then many people will reasonably decide that it is not for them. Pinnora is our attempt to remove those reasons one at a time, inside a single account.

> **How to read the figures in this chapter**
> The statistics come from different publishers, surveys, years and populations: adults worldwide, households in the euro area, families or adults in the United States, adults in the countries that took part in an OECD survey. Each is quoted as its publisher states it, with the population and year beside it. We do not add them up, compare them across sources or round them, and none of them describes Pinnora's own customers.

1. Getting connected is no longer the hard part

Accounts

The World Bank's Global Findex Database 2025, built on nationally representative surveys carried out during 2024, finds that 79% of adults worldwide have an account at a bank or similar financial institution, with a mobile-money provider, or both[9]. The Bank's launch release rounds this to nearly 80% and sets it against 50% in 2011[10]. Within

little more than a decade, holding an account has gone from something only half the world's adults did to the normal experience.

Phones

Phones carried much of that change. For the first time, the 2025 edition includes data on personal mobile-phone ownership: 86% of adults worldwide owned a mobile phone, and 68% owned a smartphone[10]. Of the 1.3 billion adults without access to financial services, about 900 million already have a mobile phone, 530 million of them a smartphone[10]. The World Bank's own conclusion is that phones could help close the gap that remains.

What this means for design

If the phone is the common denominator, an investing service should start there and ask for as little else as possible. That is why Pinnora opens in the web browser at mypinnora.com/app/, on a phone or a computer, with nothing to download, and can be added to the Home Screen so that it opens like any other app. It is also why the app speaks 12 languages, including Arabic laid out from right to left, and writes amounts with the same digits in every language, so that a figure reads the same wherever it is shown. An app-store download is one more step between curiosity and a first deposit; a web address that works on any modern phone is one step fewer.

2. Savings that stand still

Europe: deposits first, markets rarely

When the European Commission launched its savings and investments union strategy in March 2025, it noted that about 70% of household savings in the EU, worth €10 trillion, are held as bank deposits[13]. The Commission describes deposits as easy to reach but usually earning less than investments in capital markets, and gives that as a reason for wanting more citizens to take part in those markets[13].

Writing on the European Central Bank's blog in September 2026, a team of ECB economists looked at the same picture from the household side. Around 80% of euro area households own no stocks or any other market-based financial instruments, and only 4% invest a sizeable share of their wealth directly[11]. Measured against all their financial assets, euro area households keep about a third in bank deposits, compared with 11% for households in the United States[11]. The Commission's figure is a share of household savings and the ECB's a share of financial assets, which is why the two percentages differ.

Why Europeans hold back

The ECB's authors find that affordability alone does not explain low participation[11]. For households without tight budgets, perceived risk is the main barrier to holding shares or equity funds; limited knowledge and low trust in financial markets deter many others, and the two are linked, since limited understanding can itself feed low trust[11]. Habits, the products on offer and differences between pension systems also play a part[11]. Much of this is about clarity and confidence, which are exactly the areas where the design of a product can help or get in the way.

The United States: broad, but uneven

The Federal Reserve's Survey of Consumer Finances, published in October 2026, finds that 56% of US families held stock directly or indirectly in 2025, down from 58% in 2022 but above the 53% of 2019[12]. The average hides a steep gradient. 31% of families in the bottom half of the income distribution held stock, against 77% in the upper-middle group and 97% in the top tenth, and the bottom half accounted for nearly all of the fall since 2022[12]. Direct ownership of shares, as distinct from holdings through retirement accounts and pooled funds, stood at 19% of families, down from 21% in 2022 but well above the 15.2% recorded in 2019[12].

Measure	Figure	Population and period	Source
Adults with an account	79%	Worldwide, data for 2024	World Bank[9]
Adults without access to financial services	1.3 billion	Worldwide, data for 2024	World Bank[10]

Measure	Figure	Population and period	Source
Adults owning a mobile phone / a smartphone	86% / 68%	Worldwide, data for 2024	World Bank[10]
People using the internet	About 6 billion	Worldwide, 2025	ITU[14]
Household savings held as bank deposits	About 70% (€10 trillion)	European Union, 2025	European Commission[13]
Households owning no stocks or other market-based instruments	Around 80%	Euro area, published 2026	ECB[11]
Families holding stock directly or indirectly	56% (31% in the bottom half of incomes)	United States, 2025	Federal Reserve[12]
Adults comfortable choosing and managing investments	47%	United States, 2025	Federal Reserve[15]
Adults reaching the minimum target financial literacy score	34%	Participating countries and economies, 2023	OECD[16]
Citizens with a high level of financial literacy	18%	European Union, 2023	European Commission[17]
Adults who compare financial products across providers	26%	Participating countries and economies, 2023	OECD[16]

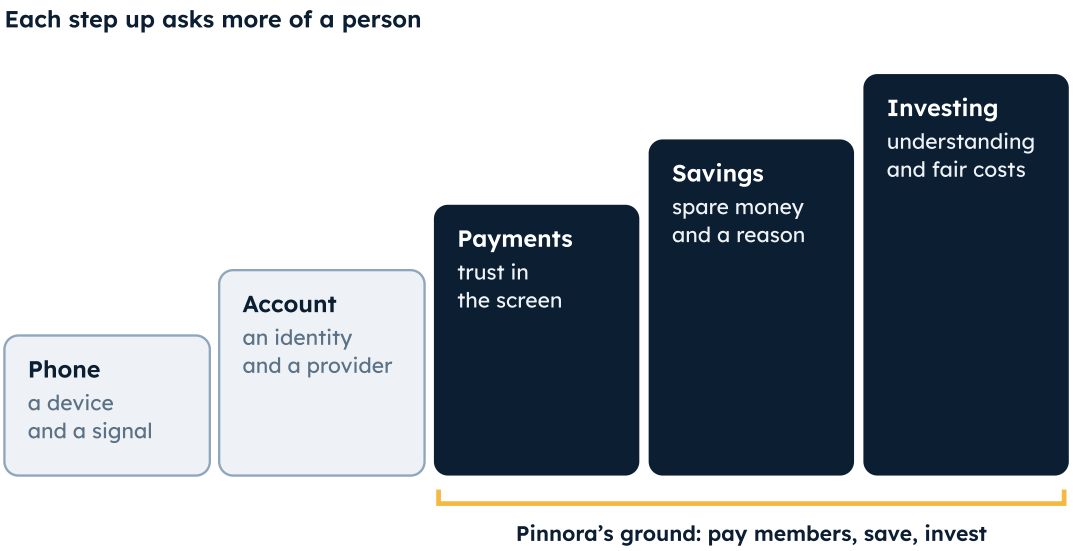


Figure 2.1 The steps from owning a phone to investing. The first two are now widespread; each later step asks for more trust, more spare money and more understanding. Pinnora works on the last three: payments between members, savings plans and investing.

3. Six frictions between saving and investing

Each friction below starts with what the evidence shows, then says briefly what Pinnora does about it. The answers are features of the app as it runs today; the table in section 4 sums them up, and later chapters describe each in detail.

3.1 The first sum looks too large

Shares are priced one at a time, and a single share in a large listed company can cost hundreds of dollars. For someone with a small amount to spare each month, that price decides what they can own before they have thought about what they should own. When individual investors entered US markets in unprecedented numbers during 2020 and the first half of 2021, FINRA, the self-regulatory organisation for US broker-dealers, pointed to lower barriers to entry, among them low- and no-commission trading and the ability to buy fractions of shares[18]. Most of the investors who opened their first taxable account in 2020 were under 45, had lower incomes and held smaller balances than those who already had one[18].

What Pinnora does. An order on Pinnora is an amount of money, not a number of shares. You say how many dollars to put in, and your position grows by whatever fraction of a share or coin that amount is worth at Pinnora's current price. Selling works the same way, in dollars, up to everything you hold, and the proceeds land in your trading account as cash. US stocks, major crypto assets and index funds can all be bought this way from $1, and opening and keeping the account costs nothing.

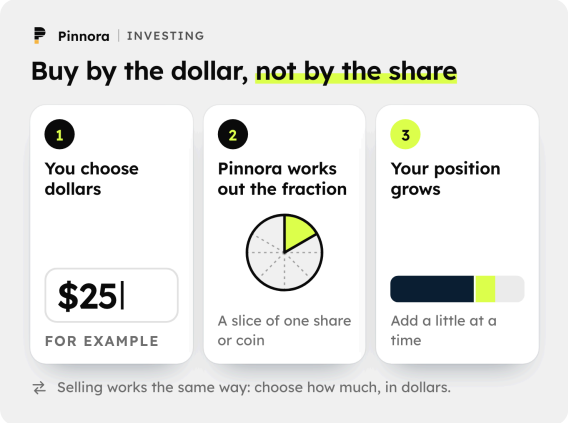


Figure 2.2

An order is an amount of money, not a number of shares: your position grows by whatever fraction that amount buys at Pinnora's current price.

> The price of a share does not decide how much you need.

3.2 Costs that are hard to see

Cost is the one part of an investment's outcome that is known in advance, yet it is often the hardest part to find. The European Securities and Markets Authority's 2025 report on the costs and performance of EU retail investment products notes that the cost information it uses, taken from the key information documents given to investors, leaves out explicit distribution costs paid to the distributor, and that ESMA's separate study of total costs found distribution costs to be 48% of the total costs of UCITS funds, the EU's standard form of retail investment fund[19]. The same report finds that ongoing costs kept falling in 2024; ESMA attributes most of the fall to new funds entering the market with lower fees, while long-standing funds have cut their costs more slowly[19, 20]. Launching it, ESMA's chair said: "Transparency and competition remain key to translating market improvements into real gains for investors."[20] Meanwhile, only 26% of adults across the countries in the OECD's 2023 survey say they compare financial products across providers[16].

What Pinnora does. Our first working rule is that you see the cost before you pay it. There is no commission on share and fund orders placed from an asset's page, nor on payments to other members, and Pinnora charges nothing for deposits. Where a fee does apply, it is on the screen before the customer confirms, and on the Trade page an order stops and asks again if its fee rises while the customer is deciding.

3.3 Products that are hard to read

Financial products are often described in language that assumes knowledge many people do not have. The OECD's 2023 international survey of adult financial literacy found an average score of 60 out of 100 across participating countries and economies, with only 34% of adults reaching the minimum target score of 70[16]. Some 77% of adults understood the link between risk and reward, but only 42% could answer a question on compound interest correctly,

and even among adults who held savings products only 46% could[16]. In the EU, a Eurobarometer survey for the European Commission found that 18% of citizens had a high level of financial literacy, 64% a medium level and 18% a low one[17]. In the United States, 47% of adults said they were mostly or very comfortable choosing and managing their investments, while 53% were not comfortable or only slightly[15].

What Pinnora does. We do not assume the reader is a specialist. Investment plans show their target return, term, payout interval and rules before anyone joins, and a target is always called a target. A plan's terms must be accepted explicitly and are stored with the customer's position, so a later change never rewrites what they agreed to; before a savings plan is redeemed, the app quotes the exact amount and the date it will arrive.

3.4 Worries about fraud and account takeover

People are right to be careful. On average across the OECD survey's participating countries and economies, 15% of adults reported having been the victim of at least one type of financial fraud or scam, such as phishing or investment scams, and only 29% reached the minimum target score for digital financial literacy[16]. Among US investors surveyed by the FINRA Investor Education Foundation in 2024, 37% were worried about losing money to investment fraud, up from 31% in 2021[21]. The World Bank adds a practical detail: of the 4 billion adults in low- and middle-income economies who own a mobile phone, only around half lock it with a password[10].

What Pinnora does. Our working rule is that your money needs you. Withdrawing, sending money and adding a passkey ask for the password or a passkey unless the customer confirmed in the last ten minutes, so an open session on its own cannot move money out. Passkeys work only on Pinnora's own site, so a look-alike page cannot use one, and every new sign-in sends an alert naming the device. Chapter 9 describes each measure in full.

3.5 Too many places for one person's money

It is easy to end up assembling a financial life piece by piece: a bank account for salary and bills, a share-dealing account, a separate app for crypto, a savings account somewhere else and a payments app for settling up with friends. Each has its own sign-up, its own identity check, its own fee page and its own balance, and none of them shows the whole picture. We have not found a public statistic that measures this patchwork well, so we state it as our starting point rather than as a finding: people should not need a separate app or account for each kind of money task.

What Pinnora does. Investing, investment plans, savings, loans against holdings, spot crypto trading, capital for businesses and payments between members sit side by side in one account, around one balance. Moving money between the funding wallet and the trading account is instant and free, and one identity check covers every product that needs one. The bank account does not disappear; what changes is that the places a person must keep track of shrink from several to one.

3.6 Advice from the wrong places, and nobody to ask

When people are unsure, they look for help, and not always in the right places. In the FINRA Foundation's 2024 survey of US investors, 26% said they use recommendations from social-media influencers when making investment decisions, a share that rises to 61% among investors under 35[21]; on average, the same investors answered 5.3 of 11 investing quiz questions correctly[21]. Only 24% of adults in the OECD survey said they seek advice from independent sources when buying financial products[16]. Nor has the move to digital removed the wish to speak to someone: 88% of US families used online banking in 2025, yet the share who visited a local bank branch held steady at 66%, which the Federal Reserve reads as a sign that online banking is still an imperfect substitute for a branch[12].

What Pinnora does. Pinnora gives no investment advice or personal recommendations. What it gives is information without spin: each asset's page shows its price, a chart drawn from real price history, and an About section and key statistics only where independent market-data sources supply them. When something is unclear, a support conversation in the app is answered by a person and keeps the whole exchange in one place.

4. What a better home looks like

Taken together, the six frictions give a set of requirements that any service hoping to bring more people into investing has to meet. We use them as a checklist for Pinnora. None is unusual on its own; the work lies in meeting all of them at once, in one account, without trading one off against another.

Requirement	What the evidence says	What Pinnora does	Chapter
Start with a small sum	Fractional buying lowered entry barriers; newer investors had smaller balances[18]	Stocks, crypto and index funds bought by the dollar, from $1	05
Show the cost first	Distribution costs are 48% of UCITS total costs; explicit ones are left out of product-cost documents[19]	Every fee on screen before you confirm; on the Trade page, an order stops if its fee rises	13
Say plainly what a product is	34% reach the OECD's minimum literacy score; 42% answer compound interest correctly[16]	Targets called targets; plan terms shown in full and accepted; holdings described as positions on Pinnora's books	05, 06
Make moving money out need the owner	15% of adults report a fraud or scam[16]; 37% of US investors worry about investment fraud[21]	Password or passkey before money leaves; passkeys; sign-in alerts; sessions tied to device	09
Keep it in one place	Our starting point, not a measured finding	Funding wallet and trading account, every product around one balance	04
Meet people on the phone they have	86% of adults own a mobile phone, 68% a smartphone[10]	Opens in the browser; Home Screen; 12 languages; light or dark	04, 11
Inform without advising	26% of US investors use influencer recommendations[21]	About and key statistics from independent sources; no investment advice	05
Answer people	Branch visits held at 66% despite 88% online banking[12]	Support conversations in the app, answered by a person	12

5. What this chapter does not claim

> **Evidence, not a forecast**
> The figures above describe large populations. They are not a forecast of Pinnora's own growth, and this paper gives none: Pinnora launched in 2026, and we publish no customer numbers, volumes or projections here.

Making investing easier to start is not the same as making it free of risk. The prices of shares, funds and crypto-assets move, and the value of what someone holds can fall as well as rise. Our job is to make each step clear, each cost visible and each decision the customer's own; the decisions themselves remain theirs.

CHAPTER

03

Pinnora Technologies: who we are and what we believe

Pinnora Technologies Limited is the Berlin company behind Pinnora. This chapter gives the company's details as its legal notice publishes them, names the people who lead it, and explains why Pinnora exists. It then sets out the beliefs that shape the product, each one next to what the app actually does to keep it, because a principle that the code does not enforce is only a slogan.

The company

Pinnora is provided by **Pinnora Technologies Limited**, 4 Güldenhofer Ufer, Treptow-Köpenick, 12437 Berlin, Germany. The company is registered in Germany. It was incorporated in 2018, and the Pinnora app and the service it runs launched in 2026.[1] The service described throughout this paper is that service, as it stands in October 2026.

Item	Detail
Legal name	Pinnora Technologies Limited
Address	4 Güldenhofer Ufer, Treptow-Köpenick, 12437 Berlin, Germany
Registered in	Germany
Incorporated	2018
App and service launched	2026
Represented by	Sergio Mayo Rieken, director
Website and app	mypinnora.com; the app opens in the browser at mypinnora.com/app/
General contact	helpdesk@mypinnora.com, or a support ticket in the app
Identity checks	compliance@mypinnora.com, the official channel for identity-check correspondence
Contract language and law	English; German law, with consumers keeping the mandatory protections of their own country

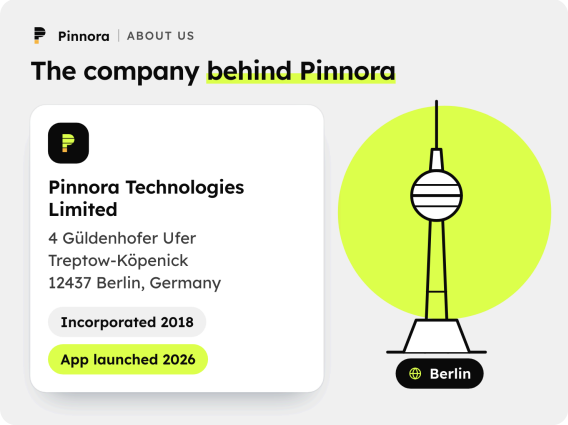


Figure 3.1

Pinnora is provided by Pinnora Technologies Limited in Berlin. The company was incorporated in 2018; the app and its service launched in 2026.

Who leads Pinnora

According to its about page, Pinnora Technologies Limited is led by its founders, the chairman of its board and 13 other board members.[1] Three people are named, each with their role. This paper gives the same names and roles the company has published.

Name	Role	Where the company names them
Idse Pen	Founder	About page; named as a founder in the website's structured data
Sergio Mayo Rieken	Co-founder and Director	About page; legal notice, as the company's representative; terms of service, clause 1.1; named as a founder in the structured data
Zubayr Jamal al Din Daher	Chairman of the Board	About page
13 others	Members of the Board	About page

Why Pinnora exists

Pinnora's about page puts the idea in one sentence: Pinnora "puts the things people do with their money side by side, in one account that opens in your web browser — and is plain about what each of them costs."[1] Two ideas sit in that sentence. The first is that investing, saving, borrowing and paying belong together. The second is that the cost of each should never be a surprise.

Three questions that decide whether an app is worth keeping

The Pinnora website names three things that decide whether a money app is worth keeping: how fast you can start, what it costs, and whether anyone answers when something goes wrong.[22] Each one became a design requirement.

1. **How fast you can start.** There is no branch and no paperwork, and nothing to download: an account is opened in the browser on a phone or a computer. Anything can be bought by the dollar from $1, so the price of a share does not decide how much someone needs to begin, and nothing is held back as a minimum balance.
2. **What it costs.** There is no commission on share and fund orders bought from an asset's page, and none on transfers to other members. Pinnora charges nothing for deposits by bank transfer or crypto. Where a fee does apply, on a crypto trade or on money leaving Pinnora, it is shown before the customer confirms.[5]
3. **Whether anyone answers.** Support works through tickets in the app, answered by a person, with the whole conversation, screenshots included, kept in one place until it is resolved, when the customer can rate the answer.

What we believe: four working rules

Four rules run through the whole app. The about page states them plainly and adds that they are not slogans: each of them is something the app does.[1] Here is each rule, what it means in practice, and an example of it at work.

1. You see the cost before you pay it

Fees on trades, withdrawals and sends are shown before the customer confirms, and a withdrawal fee is repeated in the notice that follows. Fees and limits change only for the future, never for a transaction already confirmed.[6] The rule also covers the moment of decision itself. On the Trade page, a market order is refused on an out-of-date price, and it stops and asks again if the price moves against the customer beyond a small margin, or if the fee rises, while they are confirming.[23]

2. Clear targets

An investment plan shows its target return, term and payout rules before anyone joins, and a savings plan shows its rate, minimum, term, payout interval and any release delay or early-redemption charge.[6] Joining needs an explicit acceptance of the plan's own terms. The wording accepted and the time of acceptance are stored with that subscription, and a later edit to the plan never rewrites what someone already accepted. If a plan's rules change between the moment the customer reads them and the moment they tap to join, the server refuses the subscription and asks them to read and accept the new rules first.

3. The app has the final word

Rates, rewards, fees and limits are set in one place and shown in the app as they currently stand.[1] Behind that sentence is a deliberate piece of engineering. Each of these figures is declared once on the server, together with the values it may take. The route that charges the fee or enforces the limit reads it from that declaration, the app is sent the same value to display, and the public website fills it in as each page is sent. When staff change a figure in the panel, the new value is checked against its declaration, and against the few rules that tie two figures together, before anything is stored.

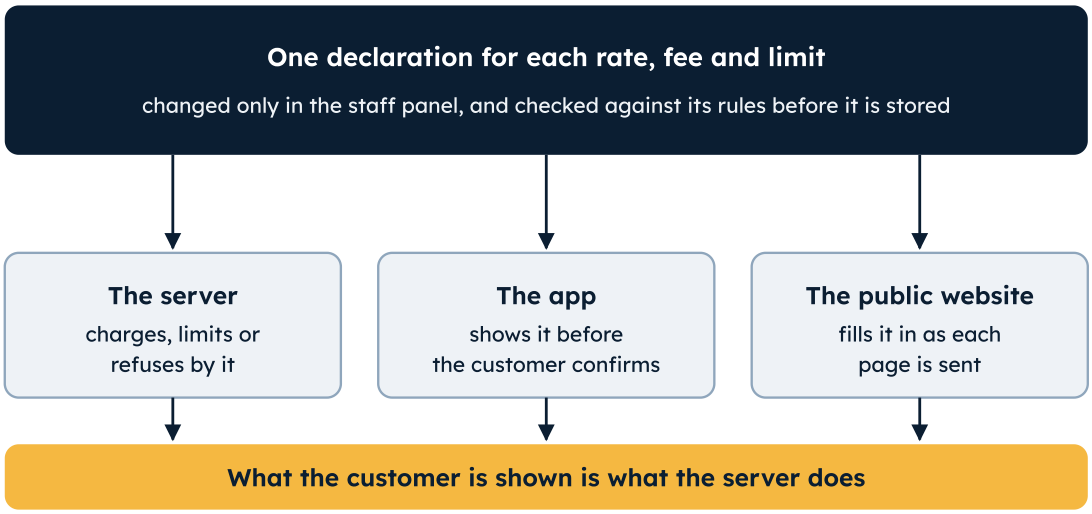


Figure 3.2 One source of truth. A rate, fee or limit is declared once; the server enforces it, the app displays it and the website quotes it from that same declaration, so all three read the same value.

4. Your money needs you

Money leaving an account needs the customer's password or a passkey on top of being signed in.[1] Withdrawing, sending money and adding a new passkey all ask the customer to confirm it is them, unless they did so in the last ten minutes. Buying or selling from an asset's page, depositing, withdrawing and sending are confirmed by holding the button for a second, so a stray tap does nothing. Changing the password signs out every other device and removes every passkey except the one in use, so someone who had the old password cannot stay in.[7]

The rules our engineering is held to

The careers page sets out the rules that anyone who works on Pinnora is held to.[24] They are written for the people who build the product, but they are just as useful to the people who use it, because they say what counts as a defect.

> **The cost is shown before it is paid. A fee nobody saw coming is a bug.**

A fee nobody saw coming is a bug

Treating a surprise fee as a bug, rather than as a pricing decision, changes who is responsible for it. If a customer pays something they were not shown, it is not their job to have read the small print; it is ours to fix the screen or the code that let it happen.

Money that moves exactly once

A retried order is recognised rather than filled twice, a payout can never be paid twice, and money set aside for one thing cannot be spent on another. The table shows what that means when something goes wrong.

Situation	What could go wrong	What Pinnora does
A tap on the Trade page is retried on a slow connection	The same order fills twice	Every order carries a reference the app makes up; the same reference twice is the same order, answered with the first result
The server restarts while plan payouts are due	A period is paid twice, or missed	Each payout is unique per subscription and due time in the database itself; missed periods are caught up and paid as they would have been
A limit order is waiting for its price	The same cash is spent on something else	What the order may spend is set aside when it is placed; a cancellation puts it back exactly where it came from
A deposit or withdrawal is settled	It is settled again, crediting money twice	Settling or failing a transaction happens once; reopening a settled item is refused
A crypto deposit is reported twice or out of order	A double credit	Each deposit is credited exactly once, and its status only ever moves forward
A request tries to set a balance directly	A balance is rewritten	Balances change only through one function inside a database transaction; going negative is refused

Honesty in what we publish

The legal notice states the standard the website is written to: "We write these pages with care and keep them in line with what the app actually does."[4] Several habits follow from it.

- **No tracking.** The website's pages set no cookies and use no analytics, advertising or social-media tools, so no cookie banner is needed. E-mails track no opens or clicks. In the privacy policy's own words: "We buy no data about you and use no outside service to find out more about you."[8]
- **No invented vacancies.** The careers page says plainly that there are no open roles, rather than listing vacancies that are not real, and invites people to introduce themselves to helpdesk@mypinnora.com with the

subject “Careers”.[24]

> **Beware of fake job offers**
> Because Pinnora has no open roles, any job offer in Pinnora’s name that asks someone to pay a fee, buy equipment, move money, or send identity documents or bank details is not from Pinnora. Anyone unsure whether a message really came from Pinnora should write to helpdesk@mypinnora.com and ask before replying.

How to reach us, and how we listen

There is one public address for almost everything, helpdesk@mypinnora.com, and one place in the app, the support ticket. Pinnora never needs a customer’s password or the six-digit code from its e-mails to help them, and identity documents are only ever captured in the app’s own verification steps.[25] The terms of service list the official channels in full: support tickets in the app, helpdesk@mypinnora.com, compliance@mypinnora.com for identity checks, and replies to e-mails Pinnora has sent. Pinnora’s staff never contact customers through social media or private messages, so a message that arrives that way is not from Pinnora.[6]

What you need	Where to go	What happens next
Help with your account	A support ticket in the app, or helpdesk@mypinnora.com from your account’s address, mentioning your @username	A person answers; you are e-mailed when they do, and can rate the answer once it is resolved
A complaint	A ticket or e-mail that says it is a complaint	You receive a reply in writing
A security weakness	helpdesk@mypinnora.com, with what you found and how to see it	Pinnora welcomes the report; the one request is not to test the weakness on other people’s accounts, money or data
A request about your personal data	helpdesk@mypinnora.com	Free of charge; answered within one month, which can be extended by two where the law allows
A complaint about how your data is handled	A data-protection supervisory authority, in particular where you live or work; Pinnora’s is the Berliner Beauftragte für Datenschutz und Informationsfreiheit (Berlin Commissioner for Data Protection and Freedom of Information)	Your right under Article 77 of the GDPR; the privacy policy adds that Pinnora would be glad to hear from you first, to try to put things right

What this means for the reader

Taken together, these beliefs describe a company that would rather say less and be right. This paper follows the same rule. It describes what the app does today, as its code and its public pages show it; it explains how each changeable figure works rather than printing today’s value as if it were fixed; and it names only the people, documents and standards the company has published or relies on. Where a reader wants to check a statement, the numbered references, listed in Chapter 17, point to the public page it comes from.

CHAPTER

04

The platform at a glance

Before the products come the foundations they share: one account with two wallets and one balance, an app that opens in any web browser and installs like a native one, twelve languages, three appearances and a first day designed to take minutes rather than paperwork. This chapter walks through each of them as a customer meets them, and explains what happens behind the screen and why it was built that way.

1 balance

a funding wallet and a trading account, shown apart and added together, with every plan, pledge and open order counted in

3 appearances

light, dark or system, which follows the device and changes with it; each choice is shown with a small picture of the page it gives

3 layouts

phone, tablet and desktop, chosen from the width of the screen and refreshed whenever the window changes or the device turns

Nothing to download

the app opens at mypinnora.com/app/ and can be added to a Home Screen, with no app-store install

One account, two wallets, one balance

Every Pinnora customer has a single account. Inside it, money and investments are kept apart but shown together. The **funding wallet** is where deposits arrive and where withdrawals leave from. The **trading account** is where investments are held. The total balance adds the two up, and everything else a customer does on Pinnora, from a savings plan to a loan, is counted into the same figure.[3]

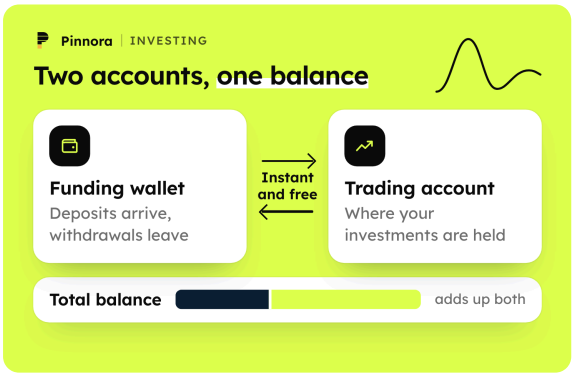


Figure 4.1

Money arrives in and leaves from the funding wallet; investments are held in the trading account. Moves between them are instant and free.

How a purchase is paid for

A customer does not have to move money across before investing. When they buy, cash already in the trading account is used first and the rest is taken from the funding wallet, and the screen says so before the order is placed: *paid from your trading account first, then your funding wallet.* What is bought lands in the trading account, and the proceeds of a sale land there too, ready to invest again or move out.[3]

For example, with round illustrative figures: a customer has $30 of cash in the trading account and $200 in the funding wallet, and buys $100 of an index fund from its page. The order takes the $30 first and $70 from the funding wallet. Afterwards the trading account holds $100 of the fund and no cash, and the funding wallet holds $130. Buying a fund from its page carries no fee, so the total balance is unchanged until the fund's price moves.

What the total balance counts

The balance card on Home answers the first question anybody asks of a balance: how much of it can actually be used. Opened up, it splits the total into two halves that always add up to the figure above them.

- **Spendable**: everything sitting in the two wallets, whatever it is. A coin in a wallet can be saved, invested, sent or withdrawn today, so it counts as spendable. The card shows the two wallets on their own lines beneath.
- **At work**: money in savings and investment plans, valued as capital plus earnings at the current price; holdings pledged as collateral against a loan; and anything set aside by an open limit order. It is still the customer's, so it is in the total, but it cannot be sent while it is committed.
- **Releasing on a date**: a plan redemption waiting out its release delay stays at work, on a row of its own that says when it lands.
- **Unrealised profit and loss** on investments, and, when there is one, the **loan to repay**, each on its own row. A loan is shown beside the balance, not hidden inside it.

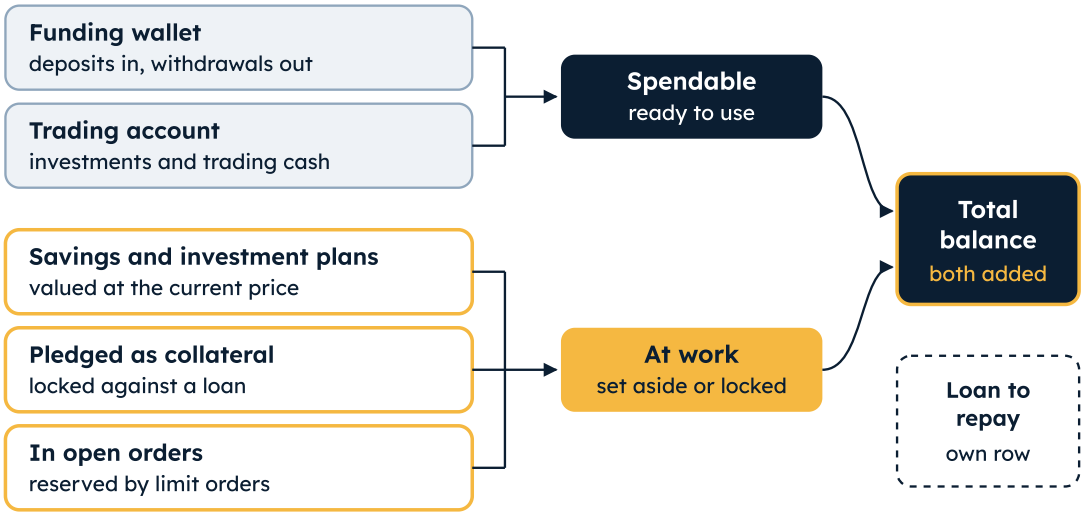


Figure 4.2 How the balance card builds the total. Spendable and At work always add up to the headline figure; a loan to repay is shown on a row of its own.

Shown in your currency, held in dollars

Cash on Pinnora is held in US dollars, and deposits and orders are made in US dollars. Balances, prices and history can be shown in a **display currency** the customer chooses from the currency chip on the balance card or under Settings.[26] Behind the chip, exchange rates come from two free public sources, refreshed every six hours by default. A rate that has moved by a factor of more than 1.35 since the last good set is refused and recorded rather than applied, and a failed fetch keeps the last good set instead of showing nothing. Currency names and the number of decimal places come from the browser's own internationalisation support, so Japanese yen, for instance, is shown without decimals.

Why two wallets, and not one

A single pot would be simpler to describe and harder to read. Separating the money that comes and goes from the money that is invested lets a customer see at a glance what has arrived, what is invested and what is at work. Each flow also reaches first for the money meant for it: a buy uses trading cash before the funding wallet, and a withdrawal or a send uses the funding wallet before the trading account. Making every move between the two instant and free removes the cost of the separation while keeping its clarity.

Who you are on Pinnora

An account carries three identifiers, each designed for a different job. None of them is the customer's e-mail address, which other members never see.[8]

Identifier	What it looks like	How it is made	What it is for
Account number	PN- and eight characters, for example PN-7KQ4MX2D (an illustration)	Random, from an alphabet without 0, O, 1 or I so it can be read off a screen and typed without confusion	Quoting the account to support, or identifying a recipient. Because it is random, it reveals nothing about whether an address banks here
Username	@ followed by 5 to 20 lowercase letters, digits or underscores, starting with a letter	Chosen once by the customer, checked by the server against the rules below	How members find and pay each other, the end of the customer's pay link, and their referral code
Pay link	A link ending in the username	Derived from the username	Opens the app's send screen with the member's name already filled in

The username rules

A username is how other people pay a member, so it has to read as a person's name and must never be mistaken for Pinnora itself. The rules live in one place on the server, and the app mirrors only the simple ones so typing gets an instant answer:

- at least three letters, and no more than two digits for every letter, so a username is never only or mostly numbers;
- an underscore cannot come last or sit next to another one;
- nothing that reads as Pinnora once look-alike digits are read as letters, or that is one letter away from it, since a member called that could take payments meant for the company;
- none of the words staff and systems speak as, such as admin, support or security, and no staff role anywhere in the name;

Opens in a browser, installs like an app

Nothing to download

The whole app is a single page at **mypinnora.com/app/**. It runs in any modern browser on a phone, tablet or computer, and a customer who opens it online gets the current version, because there is no older copy sitting in an app store waiting to be updated.[1] The same address serves the same account everywhere: a customer can start on a laptop and finish on a phone.

Adding it to the Home Screen

1. **On an iPhone**, open mypinnora.com/app/ in Safari, tap Share, then *Add to Home Screen*.
2. **On Android**, open the same address and use the browser's menu to install it or add it to the Home Screen.
3. **Open it from the new icon.** It now runs in its own window, without the browser's address bar, like any installed app.

When the connection drops, or the service is paused

Situation	What the customer sees	Why it works this way
No signal at launch	The app opens, with a *No connection* banner and no figures; it reloads when the connection returns	The app's own files are cached on the device so it can open on a train. Account data never is: in the code's own words, a balance from yesterday is worse than an error. Demo numbers are never shown where real money goes
A slow network	The newest version of the app, or the cached one if the network has not answered within a few seconds	The service worker is network-first with a short timeout, so a stale copy is used only when it has to be
A language pack not yet held offline	The app in English, with a line saying so in the chosen language	Packs are fetched only when a language is chosen and kept by the browser; a missing one never breaks the page
Planned maintenance	A banner saying deposits, orders and withdrawals are paused	The server refuses customer changes during maintenance but still allows reading, signing out and reaching support, so nobody is cut off from help

Finding your way around

Three layouts from one app

The app lays itself out for the screen it is on, and checks again whenever a window is resized or a phone is turned.



Phone
under 760 px
tab bar, bottom sheets

Tablet
760 to 899 px
icon rail

Desktop
900 px and wider
sidebar, centred dialogs

Figure 4.3 One app, three arrangements. The breakpoints are the same in the stylesheet and the script, so the layout and the behaviour always agree.

- **Phone** (under 760 px): a bottom tab bar with Home, Statistics, a central button for quick actions, the transaction history and Settings. Money flows open as sheets that rise from the bottom, within reach of a thumb.
- **Tablet** (760 to 899 px): an icon rail down the side replaces the tab bar, with a dot on the bell when something is unread.
- **Desktop** (900 px and wider): a full sidebar in four groups, *Overview* (Home, Notifications, Trade, Statistics, Transactions), *Money* (Wallet, Withdraw, Savings, Investments), *Grow* (Loans, Empowerment, Referrals) and *Account* (Settings, Security, Support, Help centre), with wider grids and dialogs centred on the screen.

Quick actions

The quick-action menu was deliberately cut down to a few doors, each opening onto what it actually contains, rather than a long list to read to the bottom.

Door	What is behind it
Trade	Buy and sell crypto at live prices on the spot market
Stocks	Buy and sell stocks
Wallet	My wallet, deposit funds, withdraw, and transfer between the two wallets
Savings & investments	Plans that put idle funds to work
Programs	Loans, Empowerment and the referral programme
Cards	Marked *Coming soon* on its face; nothing about the card is promised yet

Twelve languages

The app is written in twelve languages. Each is listed in its own name, so a customer can find theirs without reading English first, and each formats numbers and dates the way its readers expect.

Language	Shown as	Number and date style	Direction
English	English	United States	Left to right
German	Deutsch	Germany	Left to right
French	Français	France	Left to right
Spanish	Español	Spain	Left to right
Portuguese	Português	Brazil	Left to right
Italian	Italiano	Italy	Left to right
Dutch	Nederlands	Netherlands	Left to right
Turkish	Türkçe	Turkey	Left to right
Russian	Русский	Russia	Left to right
Arabic	العربية	Arabic, with Latin digits	Right to left
Chinese (Simplified)	中文 (简体)	China	Left to right
Hindi	हिन्दी	India, with Latin digits	Left to right

Light, dark or system

Under Settings, **Appearance** offers three choices, each with a small picture of the page it gives: **Light**, **Dark** and **System**, the default, which follows the device's own setting and switches with it. The choice is kept on the device, where the page reads it before it first paints, so the app never flashes the other theme while it loads; it is also saved with the account. The colours of every theme are defined once as design tokens and checked for contrast by an automated test, and the app honours a device's request for reduced motion.

The first day, step by step

Opening an account needs no branch and no paperwork. It starts from a phone or a browser and takes a handful of screens. Identity verification, which unlocks money leaving the account, can wait until the customer is ready.[27]



Figure 4.4 The first day. Steps 1 to 4 open the account; everything after that is the customer's own pace.

Each step, on screen and behind it

Step	What the customer does and sees	What happens behind it
1. Open	Goes to mypinnora.com/app/ and taps *Create an account*	A friend's referral link, if one was used, is carried through to the form and names the inviter by @username only
2. Sign up	Enters a full name, e-mail, country, an optional phone number and a password of at least eight characters, then ticks the Terms of Service and the Privacy Policy	The password is hashed with scrypt before it is stored. Sign-ups from one network are capped at 20 an hour to slow automated abuse
3. Confirm	Types the six-digit code from the e-mail, or taps its link on any device	The code works for 15 minutes and five tries; the link for a day. The browser that signed up is signed in the moment the address is proved, whichever way it was proved
4. Username	Chooses an @username, with suggestions offered	The server checks it against the rules above. Until it is saved, nothing else can be changed
5. Explore	Reads the welcome notice, browses markets and plans, deposits and invests	The welcome notice and e-mail are sent once the address is proved, and an inviter is told that someone joined
6. Secure	Optionally adds a passkey, turns on notifications and two-factor, and adds the app to the Home Screen	A passkey's private key never leaves the device; the server stores only its public half
7. Verify	When ready, gives personal details, photographs an ID document and takes a selfie in the app	Pinnora's own staff review the check; the customer is told the outcome, and why if it needs another look

CHAPTER

05

Markets: crypto, stocks, ETFs, mutual funds and IPOs

Pinnora puts US stocks, major crypto assets, exchange-traded and mutual funds and an IPO book side by side, in one trading account that adds up to one balance. This chapter explains what a customer actually holds, how an order is placed and filled, where prices come from and how they are kept honest, and how the Trade page's market and limit orders work. The checks that touch a customer's money, from balances and prices to limits and switches, are run by the server, not merely shown on screen.

5 asset classes

stocks, crypto, funds and IPOs, plus US-dollar cash, held in one catalogue and valued in one balance

From $1

an order is an amount of money, so the price of a single share or coin never decides how much a customer needs

30 seconds

how often a coin with a live price source is re-priced for trading, day and night, every day of the week

1 order per tap

every Trade page order carries its own reference, so a request retried on a slow connection never fills twice

What a customer can hold

The Pinnora catalogue is organised into five asset classes. Four are things a customer can invest in. The fifth, US-dollar cash, is what the other four are bought and sold with, and it is deliberately not an instrument in its own right: an attempt to trade dollars for dollars is refused with the message "Cash is not traded. Use Deposit, Withdraw or Transfer." The table sets out how each class is priced and where it is traded; the sections that follow explain each one.

Class	What it covers	How its price is kept	Where it is traded
Stocks	Positions in large listed US companies	Refreshed on a timer from independent market-data sources, only inside the trading window Pinnora sets	The stock's own page, by the dollar
Crypto	Bitcoin, ether, other major coins and stablecoins such as USDT and USDC	Re-priced every 30 seconds for trading, around the clock, where a coin has a live source	The coin's page and the Trade page
Funds	Exchange-traded funds (ETFs) and mutual funds, held in one "funds" class	Refreshed like shares; a mutual fund is priced once a day	The fund's own page, by the dollar
IPOs	Offerings in Pinnora's IPO book	Entered by Pinnora's team: a price band, not a last sale	The offering's page, at the offer price

Class	What it covers	How its price is kept	Where it is traded
Cash	US dollars, the unit every order settles in	One dollar is always one dollar; it is never re-quoted	Not traded: it moves by Deposit, Withdraw and Transfer

What a customer holds

Pinnora fills every order itself, at its own prices, which follow public market prices. What a customer buys is a position on Pinnora's books, valued at those prices. It is not a share or a coin bought for them at a broker or on an exchange: nothing is sent to an exchange, and a position gives no rights against the company or project that issued the asset. An asset with no public market price, such as an offering in the IPO book, is priced by Pinnora. Section 7.2 of the terms says the same in contractual language.[6]



Figure 5.1

Four kinds of holding, one portfolio: every position counts in the same balance.

Buying by the dollar

An order is an amount of money

Every order on an asset's page is written in US dollars. The customer says how much money to put in, and the position grows by whatever fraction of a share, fund unit or coin that amount buys at Pinnora's current price.[3] The app shows the estimate as the amount is typed, for instance "≈ 0.97 shares", and keeps it up to date while the order sheet is open. The app accepts orders from $1. The largest single order is a setting that the server enforces, and the app states it if a customer reaches it.

The worked example below follows one small holding through a purchase, a price rise and a partial sale. The figures are illustrative and chosen to be round; they are not prices from the app.

For example	Price of one share	Dollar amount	Change in position	Position afterwards
1. Buy	$400	$50	+0.125 share	0.125 share, worth $50
2. The price rises	$440	none	none	0.125 share, worth $55
3. Sell part	$440	$30	about −0.068 share	about 0.057 share, worth $25; $30 in cash in the trading account

Selling by the dollar

Selling works the same way in reverse. The customer chooses how much to sell in dollars, up to everything held. The app will not offer more than the holding is worth, and says "You only hold" the current value if someone types a larger figure; the server, for its part, never sells more than is held, whatever it is sent. The proceeds land in the trading

account as cash, ready to be invested again, moved to the funding wallet or withdrawn.[3]

Placing an order from an asset's page

Every asset has its own page in the app, with its current price, the day's move, a line saying how fresh a live price is, a chart, an About section and Key stats where the data sources supply them, and the customer's own history with that asset. Orders placed from here are market orders: they execute straight away, at the price shown, and the customer's cash and new position change in the same moment. The table follows one order from start to finish.

Step	What the customer sees	What happens behind it
1. Choose the asset	Its price, the day's change, the freshness line and the chart	The app re-reads the account and the catalogue at an interval Pinnora's team sets, so the figures on screen keep up
2. Enter an amount	An amount in US dollars, the quick amounts, and an estimate of what it buys	The estimate is recalculated each time the price refreshes while the sheet is open, so nobody holds on to a stale number
3. Press and hold	The "Hold to confirm" button fills over about a second	Letting go early, sliding away or leaving the page sends nothing
4. The order fills	"Order placed", with the amount, the asset and the price	One database transaction takes the cash, adds the position, writes the history line and the audit entry, and raises the notice
5. The record	A line in Transaction history with an 11-digit reference; a notice and, unless switched off, an e-mail	The Statistics page treats the order as a move inside the account, never as money paid in or taken out

Fees on an asset's page

Buying and selling stocks, funds and IPOs from an asset's page carries no fee; the code sets that fee to nothing for every class except crypto. A crypto order pays the same trading fee as the Trade page, if one is set, and the fee comes out of the dollar figure the customer typed.[5] For example, if a fee of 0.5% applied, a buy of $100 would spend exactly $100: $0.50 would be the fee and $99.50 would buy the coin. A sale for $100 would put $99.50 into the trading account. The fee in force is always shown before the customer confirms and is listed on the public fees page.

When an order cannot go through

Most refusals are caught by the app before anything is sent. The server then checks again everything that touches the account: the balances, the largest order, whether the asset is switched on and, for a coin, its price and the trading switches. The table lists the cases a customer is most likely to meet.

Situation	What the customer sees	Why it works this way
Not enough cash	"You have" the cash available "— deposit more to buy this much"; the hold button stays disabled	Both accounts are counted, but an order never spends money that is not there
Selling more than is held	"You only hold" the current value of the holding	The server never sells more than the customer owns
The asset has been switched off	It is "not available to buy right now"; selling still works	Anyone who holds it can still sell it
Crypto trading is paused	A message that trading is paused and open orders can still be cancelled	Nothing waits to fill later, as the callout "Paused means paused" explains
A share outside its trading window	The order fills at the last price Pinnora quoted	Set out in section 16.2 of the terms; section 14.2 covers a clear mispricing[6]

The IPO book

What the book shows

The IPO book is the list of offerings a customer can subscribe to through Pinnora. It appears under the IPO filter on the Home screen. Each offering shows its offer price range, its status, such as Open or Upcoming, when it closes or opens, and how much of the book has been filled. When nothing is on offer, the list says “No offerings are open” rather than leaving an empty space. This paper names no offering: the book changes as offerings open and close, and the app is where it is kept current.[3]

Live prices: where they come from and how they stay true

Every figure that depends on a price is only as true as that price: a portfolio’s value, an order, a loan’s collateral, a savings plan held in a coin, the Statistics page. Pinnora therefore treats keeping prices current, and refusing prices that are probably wrong, as core engineering. Two loops on the server feed one catalogue, and everything else reads from it.

The safeguards on every price

Automatic prices are only useful if a bad one cannot slip through. The table lists the checks a price passes before it is written, and why each is there.

Safeguard	How it works	Why it matters
Leap guard	A quote that moves an asset’s price by a set multiple or more, never less than twofold, is set aside, counted and written to the audit log instead of being applied	Usually a bad tick, a symbol collision or a split needing a person; a refused coin goes stale, pausing its trading until someone looks
Provider back-off	After repeated failures a source is asked less and less often, up to half an hour apart; both loops share one record	A failing source is not hammered
Quarter agreement	A coin is taken from a live source only once that source’s price agrees with the price on record to within a quarter	Two different coins can share one ticker symbol
Trading freshness	A coin with a live source is traded only while its last quote is no more than two minutes old	One missed request is not a reason to stop trading; two minutes of silence is
Run log	The control panel keeps the 200 most recent refresh passes and shows how fresh every asset’s price is	Staff can see what happened, when and to which asset

What the customer is told about a price

The page of an asset with a live price says how old that price is: for example “Live · quoted 5 min ago” while it is current, and “Last quoted” with its age once it passes a threshold the team sets, so a stale figure never passes for a live one. The Trade page shows Live, Prices delayed, Prices paused or Reconnecting beside the market’s name. Ages are measured against the server’s clock, not the phone’s, so a phone whose clock is an hour out cannot call an old price live. With no connection at all, the app shows a “No connection” banner saying that nothing on screen is live, and the freshness line is hidden.

Charts that only draw what was quoted

Every chart in the app is drawn from real price history. A line that merely had the right shape would be fine for a picture and wrong for anybody deciding whether to buy, so the code asks the data sources for history and draws only that. The table shows what each kind of asset gets.

> Whatever is shown is a price somebody actually quoted.

Asset information: About and Key stats

Beneath the chart, each stock, fund and coin can show an About section, saying what the company or project does, with its sector, industry, exchange and website, and a Key stats section with the figures people look for before buying.[3] Only fields that the data sources actually supplied are shown; a field with no value is left out rather than filled with a dash or a guess. The section ends with a line naming where the figures came from and how old they are.

Asset	Key stats shown when supplied
Shares	Market value; P/E ratio with earnings per share; 52-week range; volume, with the session it is for, and average volume; dividend yield and dividend per share; ex-dividend date
ETFs	Market value or assets under management; expense ratio; 52-week range; volume; dividend yield; beta
Mutual funds	Expense ratio; 52-week range; dividend yield; share class; category; type; how often it is priced; minimum first investment
Crypto	Rank by market value; market value; 24-hour volume; 24-hour range; amount in circulation; maximum supply; all-time high and its date; launch date

The spot market: the Trade page

The Trade page is where crypto is traded against crypto as well as against the dollar, with a choice of market or limit orders.[23] It shows one market at a time: its live price and status, its 24-hour change, high and low, a chart, an order panel, and the customer's open orders and past trades. On a phone it is a single column in that order; from a width of 900 pixels the chart and the order panel sit side by side.

5 quote assets
markets are quoted in US dollars, USDT, USDC, bitcoin or ether

2 minutes
the oldest live price a market order or a new limit order will accept

1% price stop
if the price moves further than this against the customer while they confirm, the order stops and asks again

50 open orders
the most limit orders one customer can have waiting at once

Markets quoted as pairs

Each market is a pair, written BASE/QUOTE, such as BTC/USDT or ETH/BTC. The first asset is the one bought or sold; the second is what it is paid for with or paid out in. Which pairs exist follows simple rules in the code, applied to every coin that is switched on:

- every coin is quoted against the US dollar;
- every coin is quoted against USDT and against USDC, while those stablecoins are switched on;
- every coin that is not a stablecoin is also quoted against bitcoin and ether;
- stablecoins are not quoted against each other, with two exceptions, USDT/USD and USDC/USD, which are how a customer moves into or out of a stablecoin.

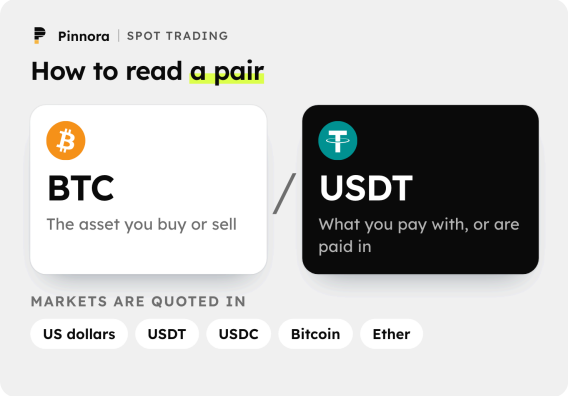


Figure 5.2

Reading a pair: in BTC/USDT, bitcoin is what changes hands and USDT is the currency it is priced and settled in.

Market orders

A market order fills straight away at the current price. Everything it touches, meaning the price, the customer's balances and the order itself, is read and written in one database transaction, so the figures it checks are the figures it uses.[23] The confirmation sheet sends the price and fee the customer was shown, so the server can compare them with the figures it is about to use. The diagram shows the checks in the order they run.



Figure 5.3 The checks a market order passes on the Trade page, in the order the server runs them. A refusal or a stop changes nothing in the account; passing every check fills the order in one transaction.

Limit orders

A limit order waits for a price the customer chooses and only ever fills at that price. A buy limit is set below the current market price and a sell limit above it. A limit that would fill straight away is really a market order wearing a limit's name, so the server refuses it with the price it has to beat, and the app points the customer to Market instead; the app shows the same message under the price field before the order is ever sent.[23] The life of a limit order has four stages.

A worked example shows the stages together. The figures are illustrative.

1. **Place.** For example, with BTC/USD at $60,000 and no trading fee set, a customer places a buy limit for 0.01 BTC at $57,000. The limit is below the market and inside the band of $30,000 to $120,000, so it is accepted.
2. **Set aside.** $570 is debited at once, from the trading account first and then the funding wallet, and held on the order. The notice confirms that the order is open and that $570 "is held for it until it fills or you cancel it".
3. **Wait.** The matcher checks the order every 15 seconds and after every price pass. A price of $57,400 does not reach the limit; a later price of $56,900 does.
4. **Fill.** The whole order fills at exactly $57,000, not at $56,900, and 0.01 BTC lands in the trading account. Had a fee been set when the order was placed and lowered before the fill, the difference would come back to the customer with the fill.
5. **Or cancel.** Had the customer cancelled before the price reached $57,000, the $570 would have gone straight back to the accounts it came from.

One order per tap

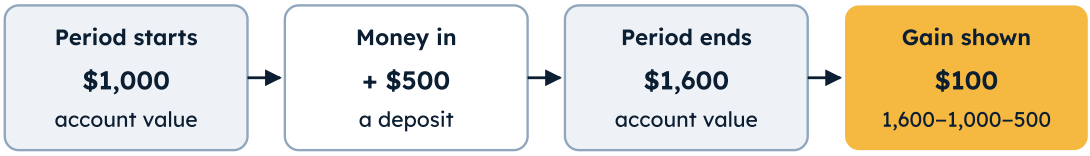
Every order on the Trade page carries a reference that the app creates when the confirmation is drawn. The same reference twice is the same order: the second request is answered with the first one's result, and nothing moves again.[23] This matters most on a weak connection: if the answer never arrives, the sheet says "We couldn't reach Pinnora, so we can't tell whether this went through. Press the button again to check — it will never be placed twice." Pressing again sends the same reference, and the server either places the order for the first time or returns the result it already has. The app also sends every order through the same queue as every other change to the account, so an order can never overtake a transfer on the way to the server.

> **Paused means paused**
>
> When Pinnora's team pauses all trading or closes a single market, new orders there are refused rather than queued to fill later at a price nobody has seen. Switching automatic prices off has the same effect on coins with a live price once their last quote is two minutes old. Orders already open stay where they are, keep their reservations and can still be cancelled at any time. The refusal says what has happened, and when all trading is paused or live prices are off it adds that open orders can still be cancelled, so a customer is never left guessing whether something is waiting in the background.[23]

Following a portfolio: Statistics

The Statistics page shows how a portfolio is doing over a period the customer chooses: the last 7 days, 1 month, 90 days, the year to date, 1 year, or all time. Its sections cover the total balance, the profit and loss for the period, the best day, how the money is split between asset classes, traded volume, holdings, cash flow, activity and the top movers, with any open loans listed with their loan-to-value.[3]

For example (illustrative figures)



A deposit raises the balance but is never counted as profit; a withdrawal is never a loss.

Figure 5.4 How a period's gain is worked out: the change in value, less the money paid in and plus the money taken out in between.

Deciding what counts as money in or out is the careful part. The code draws the line at the edge of the account, as the table shows.

Movement	How Statistics counts it
A deposit	Money in, on the day it was credited, and only if it was; a crypto deposit at the price its coins were credited at
A withdrawal	Money out, the moment it is asked for; if it is refused, the refund counts back on the day of the refusal
A member transfer, sent or received	Money out or in, immediately
A loan or a facility paid out, a loan repaid	Money in or out for the amount borrowed; the interest paid is a cost, so it counts as a loss
Trades, conversions and moves between the two wallets	Not money in or out: they happen inside the account, and their fees and price moves are real gains and losses
Money into or out of a plan	Not money in or out; a plan's profit is earnings, and an early-redemption charge is a loss

Markets move, and the value of stocks, funds and crypto assets can go down as well as up. Pinnora shows the price, the fee and the result before a customer confirms; what to buy, and when, remains the customer's own decision, and nothing in the app or in this paper is personal investment advice.[6]

CHAPTER

06

Investment and savings plans

Alongside the assets customers choose for themselves, Pinnora offers plans: investment plans that run for a fixed term and aim for a target return, and savings plans of four kinds that pay a stated rate on money a customer is not using. Every plan sets out its rules before anyone joins, and a single payout engine pays every plan by those rules, period by period, on the record. This chapter explains the plan kinds, how each payout is worked out, where it goes, how rates can change and how money comes back out.

Two families on one engine

A plan on Pinnora is defined by its rules: what it pays, how often, for how long, and what happens if the customer takes the money out early. Pinnora's team sets those rules for each plan in one place. The app writes them out in full before anyone joins, the customer accepts them explicitly, and from then on the server carries them out. There are two families of plan.[28, 3]

- **Investment plans** run for a fixed term and aim for a target return, which the app labels a *targeted APR*. Profit is paid on the plan's schedule into the funding wallet (or, where the plan offers it and the customer chooses, added to the plan), and the capital is paid back when the term ends. They have a screen of their own, Investments.
- **Savings plans** pay interest at a stated rate on a balance, in the same asset that was put in. They come in four kinds (flexible, fixed-term, floating-rate and mixed) and live on the Savings screen.

Underneath, both work the same way. Each deposit into a plan opens a **lot**: a record with its own start, payout schedule, end date (if the plan has a term), choice of where profit goes, and a copy of the rules the customer accepted. One payout engine pays every lot, so both families share the same arithmetic, history lines and redemption rules.

4 kinds of savings plan

flexible, fixed-term, floating-rate and mixed; every plan says which kind it is

4 payout intervals

hourly, daily, weekly or monthly, where a month is exactly 30 days

7 rules on every plan

rate or target, payouts, term, redeeming, penalty, what a later change can do, and the minimum, all shown before joining

1 lot per deposit

each deposit has its own start, schedule and end, so adding money never restarts anyone's term

A plan is not the same as buying an asset

An asset bought from its page is worth what its price says, and the customer decides when to sell it. A plan runs under rules agreed in advance and pays on its schedule.[3] Investment plans have a screen of their own, apart from Savings, and wherever an investment appears, on its page, in a notice or in the history, it is called an investment and its yearly figure a target. The terms say plainly what a target is:

> **A plan's return is its target rather than a promise.**

The four kinds of savings plan

Every savings plan says which of four kinds it is. The kind settles two questions: when money can come out, and whether the rate can change after the customer has joined.[28]

Flexible

There is no lock-up: the money can come out whenever the customer likes, together with the interest already credited to it. On a flexible plan with a fixed rate, each deposit keeps the rate it opened at, so a later change to the plan's rate reaches only money put in after the change.

Fixed-term

The plan runs for a set number of days and keeps the rate it opened at. When the term ends, the last interest is paid and the capital goes straight back to the funding wallet with no delay and no charge. The money can still be redeemed before the end, under the plan's stated release delay and early-redemption penalty, if it has them.

Floating-rate

The plan is flexible, but its rate can change for money already saved as well as for new money. When it changes, every holder is told the old rate, the new one and the moment it changed, to the minute in UTC. The next payout pays the old rate up to the change and the new rate after it. It is the only savings kind whose rate is not fixed for a deposit, and the app marks it "Floating rate".

Mixed

One deposit is split into two parts, in a proportion the customer chooses from the shares the plan offers. The *flexible part* can be taken out at any time. The *fixed part* runs for a set term and is paid back at the end of it, not before. Each part earns its own rate, kept from the day of the deposit. Mixed plans have no compounding and no early-redemption penalty; a later section covers them in detail.

Kind	Money out	Rate after joining	Compounding	Early-redemption penalty
Flexible	Any time	Kept at the opening rate	Only if the plan offers it	Only if the plan's rules have one
Fixed-term	By itself at the end; earlier under the plan's rules	Kept at the opening rate	Only if the plan offers it	Only if the plan's rules have one, within its window; never at maturity
Floating-rate	Any time	Follows the plan's rate, with notice	Only if the plan offers it	Only if the plan's rules have one
Mixed	Flexible part any time; fixed part at the end of its term	Both parts kept, each at its own rate	Never	Never

Plans in dollars and in digital assets

Savings plans are offered in US dollars and in digital assets such as USDT, USDC and bitcoin, so a customer can earn on what they already hold without converting it first. A plan earns in the asset that was put in: a bitcoin plan pays bitcoin and a USDT plan pays USDT. Its value in dollars therefore moves with that asset's price, and the app shows that value live.[28] The rate is paid in units of the asset, not in dollars.

What every plan tells you before you join

A plan's card shows its name, its rate or target as a yearly figure, its term, how often it pays, its minimum and its asset; a savings card also says "Floating rate" or "Mixed" where that applies, and an investment plan's own page adds how redeeming works, any pool and its features. The full rules appear beside the amount, under *Rules and terms of this plan*, written out from the plan's own settings rather than typed by hand, so what the customer reads is what the engine will do.

Rule	What it says	Why it matters
Rate or target	A yearly figure, marked “Simple”	Every payout is a share of this one figure
Payouts	The interval, when the first payout comes, and, if the term is not a whole number of intervals, how many days the last payout covers	Tells the customer when money will arrive
Term	A number of days, or open-ended; the capital comes back straight after the last payout, with no delay and no penalty	When the money returns by itself
Redeeming	Any time; released straight away or a stated number of days after the request, earning nothing while it waits	The cost in time of changing one’s mind
Early-redeem penalty	None, or a percentage of the capital, only within a stated number of days of joining; never taken when the term ends by itself	The cost in money of changing one’s mind
If the plan changes	Whether the rate is fixed for this deposit or follows the plan; the delay and penalty can only change in the customer’s favour	What a later edit can and cannot do to this money
Minimum	The smallest amount, in the plan’s asset (on a mixed plan, for the whole deposit before it is split)	Whether the customer can join

Joining a plan, step by step

Joining takes place on one sheet in three marked steps, *Amount*, *Review* and *Done*. Nothing is sent to the server until the customer presses Confirm on the review.

1. **Choose the plan.** The customer opens Savings or Investments (Savings & investments in Quick actions) and taps a plan; an investment plan opens on its own page with an Invest button.
2. **Enter the amount**, always in the plan’s own asset, with chips for 25%, 50%, 75% and Max. On a mixed plan the customer also chooses the split, and a line below says what each part would hold, at what rate and for how long.
3. **Choose what pays for it.** Holdings are listed in the order they will be used, with what each would give; unticking one leaves it out. Anything that is not the plan’s asset is converted on the way in at Pinnora’s current prices, with no conversion fee.[5]
4. **Read and accept the rules**, beneath the amount. Confirm stays disabled until everything required is in place.
5. **Review.** The summary leads with the amount and the estimated earnings, then the choice of where profit goes (if offered), then one row per fact: what pays for it, the yearly rate marked “Simple”, when the first payout falls due, and the date the term ends, “when your capital comes back to your funding wallet”.
6. **Confirm.** The server checks everything again, opens the lot, records any conversions and writes the history line, all in one transaction.
7. **Done.** The sheet shows the server’s own answer (amount, plan, first payout, end date, where profit goes and the transaction’s reference) and the lot appears on its screen at once. If nothing was opened, the sheet says so and offers a way back.

How a payout is worked out

Every plan pays one simple yearly rate, shared out evenly over its payout interval: hourly, daily, weekly or monthly, where a month is exactly 30 days. The sum is the same for every plan and every interval:

profit for a period = capital × yearly rate × length of the period ÷ 365 days

Unless the customer chose compounding, each full period pays the same amount for as long as the rate stays the same. The app’s estimate uses the same sum the server pays by, so the figure on the screen and the figure in the wallet cannot drift apart.[28]

Interval	Length of a period	Each payout, for example on $1,000 at an illustrative 7.3% a year
Hourly	1 hour	about $0.0083
Daily	1 day	$0.20
Weekly	7 days	$1.40
Monthly	30 days	$6.00

Over a whole year of daily payouts the plan in this example pays $73, which is 7.3% of $1,000. The interval changes how often money arrives, not the yearly rate. An hourly payout on a small sum can be less than a cent; the app then says “Under $0.01” rather than a misleading “+$0.00”, and the payout is still made, since assets are held to a hundred-millionth of a unit.

Terms that are not a whole number of payouts

When a term does not divide evenly into payout intervals, the last payout is cut short to end on the term’s final day, so a whole term pays exactly the yearly rate × the term ÷ 365. The rules say so in advance, for example “The last payout, at the end of the term, is for the 10 days left over.”

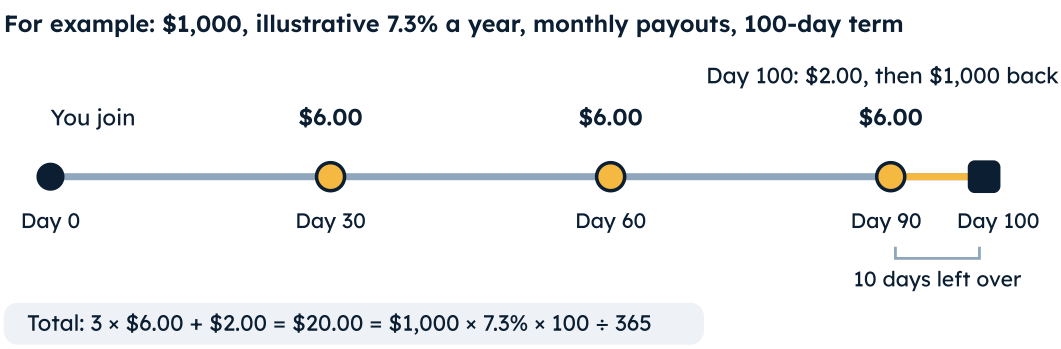


Figure 6.1 A 100-day term paid monthly: three full 30-day payouts, then a shorter last payout for the 10 days left over, with the capital coming back straight after it. Figures are illustrative.

Where the money goes: wallet or compounding

By default, each payout lands in the funding wallet as it is paid. Some plans also offer **compounding**: each payout is added to the capital, so the next one is worked out on more. The choice is made once, on the review step:

- *Pay my profit to my wallet.* “Each payout lands in your funding wallet, ready to use.” This option is ticked to begin with.
- *Add my profit to the investment (compounding).* “Each payout is added to your capital, so the next one is worked out on more. It all comes back with your capital.”

Each deposit is its own lot

Adding money to a plan never tops up an existing holding: it opens a new lot. When a customer presses Add funds, the amount step says so before anything is entered.

For example, a customer joins a 90-day plan on day 0 with $1,000 and adds $500 on day 30. Lot A holds $1,000 and matures on day 90. Lot B holds $500, starts on day 30, has its own payout schedule and matures on day 120. Neither term is restarted or cut short, each lot is redeemed on its own, and any early-redemption window runs from each lot’s

own start. One position per plan would mean either restarting the term for money already in, or giving new money a shorter term than advertised.

The payout engine

All of this rests on the payout engine, which runs on the server and pays every lot in every plan. Its design aims above all for one property: each period is paid exactly once.

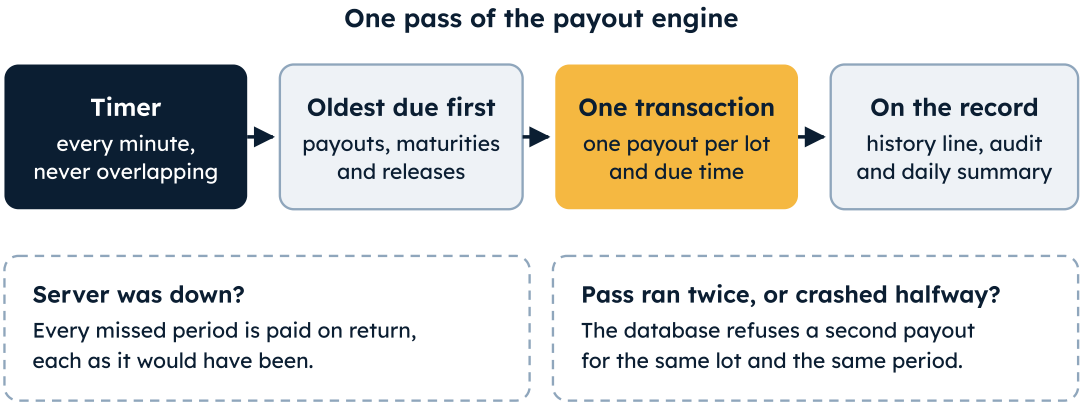


Figure 6.2 The payout engine handles everything that has fallen due, oldest first, each event in a transaction of its own. A period can be paid only once, because the database itself refuses a second payout for the same lot and due time.

Catching up, and bringing a lot up to date

If the server is down, nothing is lost: on its return the engine pays every missed period exactly as it would have been. For example, after three hours offline, an hourly lot receives three payouts, each for its own hour. Likewise, a redemption quote, a redemption, a staff action or a rate change first brings the lot up to date: periods already due are paid, and a lot whose term has ended is matured. No action can throw away a payout owed, or treat an ended term as an early redemption with a delay and penalty.

When rates change

Pinnora sets its rates and can change them, so it matters exactly what a change can reach. That depends on the lot, not only the plan.[28, 6]

Lot	Rate after joining	Told about a change?
Fixed-term savings	Kept at the opening rate	No, because nothing changes for it
Flexible savings, fixed rate	Kept at the opening rate	No
Mixed savings, both parts	Each kept at its own opening rate	No
Floating-rate savings	Follows the plan, from the moment of the change	Yes: the old rate, the new rate and from when
Investment plan	Follows the plan's target, from the moment of the change	Yes: the old target, the new target and from when

When Pinnora's team saves a new rate, the server first pays every period already due at the rate it ran at, then records what each following lot has earned so far in the current period at the old rate, and only then starts the new rate. A change, up or down, applies from the moment it is saved and never to time already run. The holders it reaches are told in the bell and by e-mail (one e-mail per holder per change, even if the save is retried), with the plan, the old and new figures and the minute of the change in UTC.

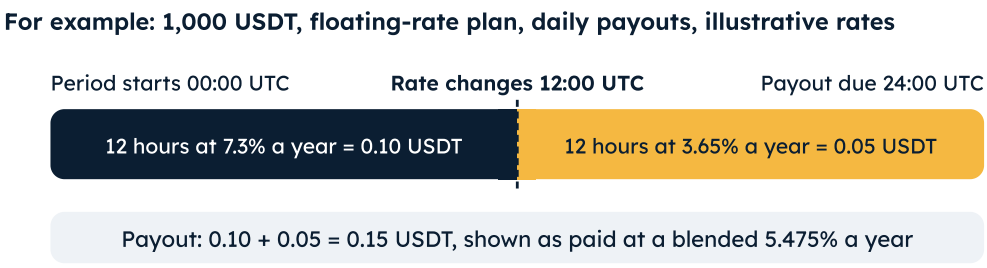


Figure 6.3 A rate change in the middle of a period. Time already run is paid at the old rate and the rest at the new one; the payout's detail shows the blended rate it was actually paid at. Figures are illustrative.

Pools and capacity

Some plans take only so much in total. Such a plan has a **pool**, a capacity in US dollars, and says when it is full.[28] Its figures are counted, never typed in:

- **Filled** is every open position in the plan, valued at Pinnora's current price for the plan's asset. For a plan in a digital asset, the filled figure therefore moves with that asset's price.
- **Members** is the real number of customers holding the plan.
- **Left** is the pool minus what is filled, rounded down to the cent so it is never overstated.

Mixed plans in detail

A mixed plan suits a customer who wants part of their money available and part earning a fixed-term rate, in one deposit that becomes two lots.

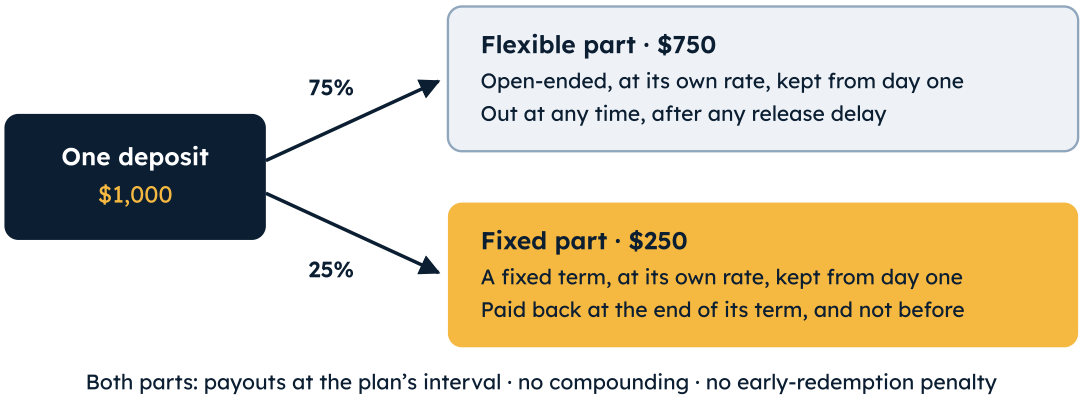


Figure 6.4 A mixed deposit, for example $1,000 with the customer choosing 25% for the fixed part. The two parts are separate lots that open in the same transaction: both open with the money taken, or nothing happens.

- **The split is the customer's to choose.** The plan offers up to five shares for the fixed part, in whole per cent from 5% to 95%, and the panel will not save a mixed plan without the even 50% split, which the app ticks to begin with. A deposit that does not state a split is refused, never split on the customer's behalf, so nobody's money is put away for a fixed term without their having seen it.
- **Each part is its own lot**, paid, matured and redeemed like any other at its own locked rate, and named "(flexible part)" or "(fixed part)" in the history and notices.
- **The fixed part stays in until its term ends.** A request to take it out is refused with the date it will be paid back: "The fixed part of … is paid back on …, at the end of its term. You can take out the flexible part at any time." Staff can still close a fixed part from the panel.

Taking money out: redemption

A customer can redeem any lot at any time, except the fixed part of a mixed deposit.[28, 6] Redeeming is never a single stray tap: the Redeem button first opens a question inside the holding, filled with the server's own figures.

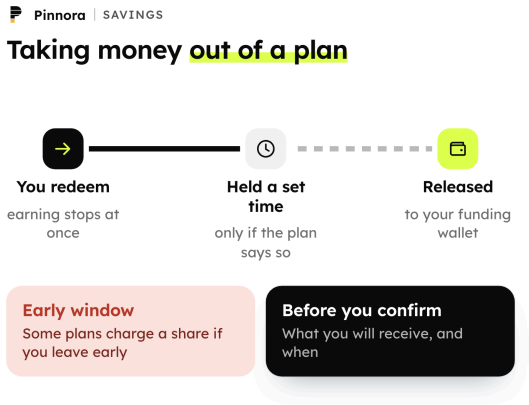


Figure 6.5

Redeemed money stops earning at once. Some plans hold it for a few days or charge a share if the customer leaves early; the app shows exactly what will be received, and when, before anything is confirmed.

What the redemption quote shows

Row	What it says
Earning stops	"Now", with a note that interest or profit for a part-finished period is not paid
Capital	What the lot holds, including any compounded payouts
Credited with it	Any return Pinnora has credited to the lot, paid back with the capital
Early-redeem penalty	"None", or the amount, with the reason: "x% of your capital, as it is less than N days old"
You receive	The exact amount, in the plan's asset
Released	"Straight away", or the date and time, "N days after you confirm, to your funding wallet"

What happens after Redeem

1. **The lot is brought up to date:** periods due are paid, and a lot whose term has already ended is matured instead.
2. **The confirmed quote is honoured.** If the penalty would now be higher, or the wait longer, the redemption is refused and the new figures shown: "The terms changed while you were deciding. These are the new figures — confirm again to go ahead."
3. **Earning stops and the penalty is fixed.** The lot moves to *releasing*, and a notice says it stopped earning just now, when it will be released, any penalty and what the customer will receive. With no release delay, the money is released at once.

4. **Release.** When the delay ends, the engine pays the money into the funding wallet. The notice “Your … money is released” and the history line “Savings released” or “Investment released” show any penalty separately, as a fee.

The kinder of two rule books

A lot’s release delay and penalty are fixed when the customer joins, and a later change reaches the lot only in the customer’s favour: the server compares the accepted rules with the current ones and applies the shorter delay and the smaller penalty. For example, a customer accepted a 3-day delay and a 2% penalty within 30 days; the plan later moves to a 7-day delay and a 1% penalty. Redeeming now, the customer gets the 3-day delay they accepted and the 1% penalty now in force. Section 8.3 of the terms puts it in one line: Pinnora “may ease these rules, but a stricter one applies only to money put in later”.[6]

Design choices, and why

Choice	Why it was made
One simple yearly rate, shared out evenly	Any payout can be checked with a calculator, and the rules show exactly what each period pays
A lot for every deposit	Adding money never restarts or shortens anyone’s term
Only an explicit yes counts as acceptance	Nothing can be taken later under a rule nobody agreed to
The kinder of the accepted and current rules	Rules can be eased for everyone but never tightened retrospectively
One payout per lot and due time, enforced by the database	No period is paid twice, even after a crash or a repeated pass
Bring the lot up to date before any action	A quote, a redemption or a close never loses a payout that is owed

CHAPTER

07

Loans and Empowerment

Pinnora offers two kinds of borrowing for two different needs. A loan lets a customer borrow US dollars against a stock, fund or crypto holding without selling it, at a rate fixed when the loan opens. Empowerment offers facilities for businesses, applied for in the app, decided by people and repaid in equal instalments. This chapter takes each apart: the flows, the sums behind them, worked examples, and what happens when something goes wrong.

Two kinds of borrowing

Where the two products differ is in who they serve and how a decision is reached. A loan is for the customer personally. Nobody reviews a loan request, because what can be borrowed is set by the value of the holding pledged and by fixed rules that treat everybody the same way: the highest loan-to-value, the smallest and the largest loan. An Empowerment facility is for a business. It is applied for with details of that business, and people at Pinnora decide each application.[29]

Question	Loan	Empowerment facility
Who it is for	The customer, personally	A business the customer applies for
What it rests on	One stock, fund or crypto holding, locked until repaid	An application describing the business, within the facility's requirements
How it is decided	Fixed rules, the same for everyone; opens at once	People at Pinnora decide; approved or declined
The rate	Shown before confirming; fixed when the loan opens	Quoted on the application form; fixed when the business applies
How interest works	Simple interest on the amount borrowed, paid on repayment	Total to repay fixed at draw-down, spread over equal instalments
How it is repaid	The whole loan in one go, whenever the customer chooses	Equal instalments every 30 days over the chosen term
Reference	The 11-digit reference on each history line	A reference beginning "EMP-", quoted on every repayment

Loans: borrowing without selling

Why borrow instead of selling

Someone who needs cash but does not want to give up an investment has two choices. They can sell it, which ends the position and may mean selling at a bad moment, or they can borrow against it. A Pinnora loan does the second. The holding is locked, not sold, for as long as the loan is open, and it remains the customer's: if its price rises while the loan is open, the rise is theirs to keep. Repay the loan and the same holding comes straight back, worth whatever the market says it is worth that day.[30]

What can be collateral

- **Stocks, funds and crypto.** The collateral picker lists the stocks, funds and crypto assets the customer holds, with the quantity held and its current value. IPO subscriptions are not offered as collateral.
- **One holding per loan.** Each loan is secured on one holding. To borrow against a wider portfolio, a customer opens a loan on each holding they choose, and each loan then has its own loan-to-value, health and liquidation price.
- **Locked means locked.** Pledged collateral cannot be sold, sent or withdrawn until the loan is repaid. It still counts in the customer's total balance, under "At work" on the balance card, because it still belongs to them.

1 holding
secures each loan; borrow against more by opening a loan per holding

Up to 3 steps
of loan-to-value: 25% and 50% where below the highest, and the highest itself

60 seconds
a repayment quote is held, so the figure shown is the figure taken

No fees
for arranging a loan or repaying it early: a loan costs its interest

Taking out a loan, step by step

Step	What the customer sees	What happens behind it
1. Choose collateral	Their stocks, funds and crypto, each with quantity and value	Cash and IPO subscriptions are not offered
2. Choose a step	Loan-to-value chips: 25% and 50% where they sit below the highest, and the highest, marked "max"	A loan-to-value above the highest is refused, never quietly lowered
3. Enter the amount	The range they can borrow at that step, or why not: below the smallest loan, above the largest, or above their limit	The amount is rounded to whole cents and checked against the panel's smallest and largest loan
4. Review	Collateral to be locked, loan-to-value, rate, a day's interest, when interest is paid, and the price at which the collateral would be sold	The locked quantity is worked out exactly as the server will lock it
5. Confirm	"Loan approved", with the dollars in the funding wallet	One database transaction locks, credits, records, notifies and audits

How loan interest works

Interest on a Pinnora loan is simple interest on the amount borrowed, at the loan's own yearly rate, counted from the moment the loan opens:

interest = amount borrowed × yearly rate × time open ÷ 365 days

- **Simple.** It is charged on the amount borrowed, never on interest already owed.
- **Continuous.** It is counted by the millisecond and shown to the cent. While the Loans screen is open, the interest so far and the total to repay update once a second.
- **Paid at the end.** There is no schedule of interest payments and nothing is taken while the loan is open; the interest is paid together with the loan on repayment.
- **Nothing else.** There is no arrangement fee and no early-repayment fee, so what a loan costs is its interest, and the app shows what that comes to before the customer confirms.[5]

Worked example: what a loan costs over time

For example, suppose a customer holds ten shares worth $200 each, $2,000 in all, and borrows $500 against them at the 25% step. Assume an illustrative rate of 10% a year; the rate that applies is always the one the app shows before confirming. A day's interest is then $500 × 10% ÷ 365, about $0.14.

Days open	Interest so far	Total to repay	Loan-to-value if the shares stay at $200
0	$0.00	$500.00	25.0%
30	$4.11	$504.11	25.2%
90	$12.33	$512.33	25.6%
180	$24.66	$524.66	26.2%
365	$50.00	$550.00	27.5%

Loan-to-value, health and the liquidation price

Loan-to-value is what the customer owes compared with what the collateral is worth. Borrow $500 against investments worth $2,000 and the loan-to-value is 25%. Collateral is valued at Pinnora's current price, so loan-to-value rises when that price falls, and, as the worked example shows, it rises slowly as interest builds. The lower it is, the more room the collateral's price has to fall.[30]

The liquidation price

Each loan also shows its liquidation price: the price at which the loan would reach the liquidation level, the loan-to-value at which the collateral can be sold. It is worked out as what is owed divided by the quantity locked and by the liquidation level. The price is on screen before the customer confirms and on the loan's card afterwards, and the loan's details state the level itself. Because what is owed includes interest, the liquidation price rises a little over time.

When collateral is sold

If the collateral's value falls until the loan reaches the liquidation level, the collateral can be sold at Pinnora's price to repay the loan. There is no automatic selling engine. A liquidation is an action Pinnora's staff take in the panel, under the terms, and it needs a written reason, which is sent to the customer. If the asset has no price at that moment, it cannot be sold until it is quoted again.[6]

Repaying a loan

Each loan has its own Repay button, which repays the whole loan and its interest in one go, whenever the customer likes:

1. The customer presses Repay. The app asks the server what repaying takes now: the amount borrowed, the interest to the cent, the total, and which wallets the money will come from.
2. The app shows exactly that figure. The server holds it for one minute, with a signed quote naming the loan, the customer and the moment it was quoted.
3. The customer confirms. Within the minute, the interest is charged as it stood when quoted, so the figure on the screen is the figure taken.
4. The collateral is released into the trading account at once. A "Loan repaid" line records the principal and the interest separately, and the notice reads, for example, "You repaid your $500.00 loan with $12.33 of interest, $512.33 in all".

The life of a loan

Every loan ends in one of two ways. Almost always, the customer repays it when it suits them and the collateral comes back. If instead the collateral's price falls far enough, the collateral can be sold to repay the loan. The diagram follows both paths from the moment of confirming.

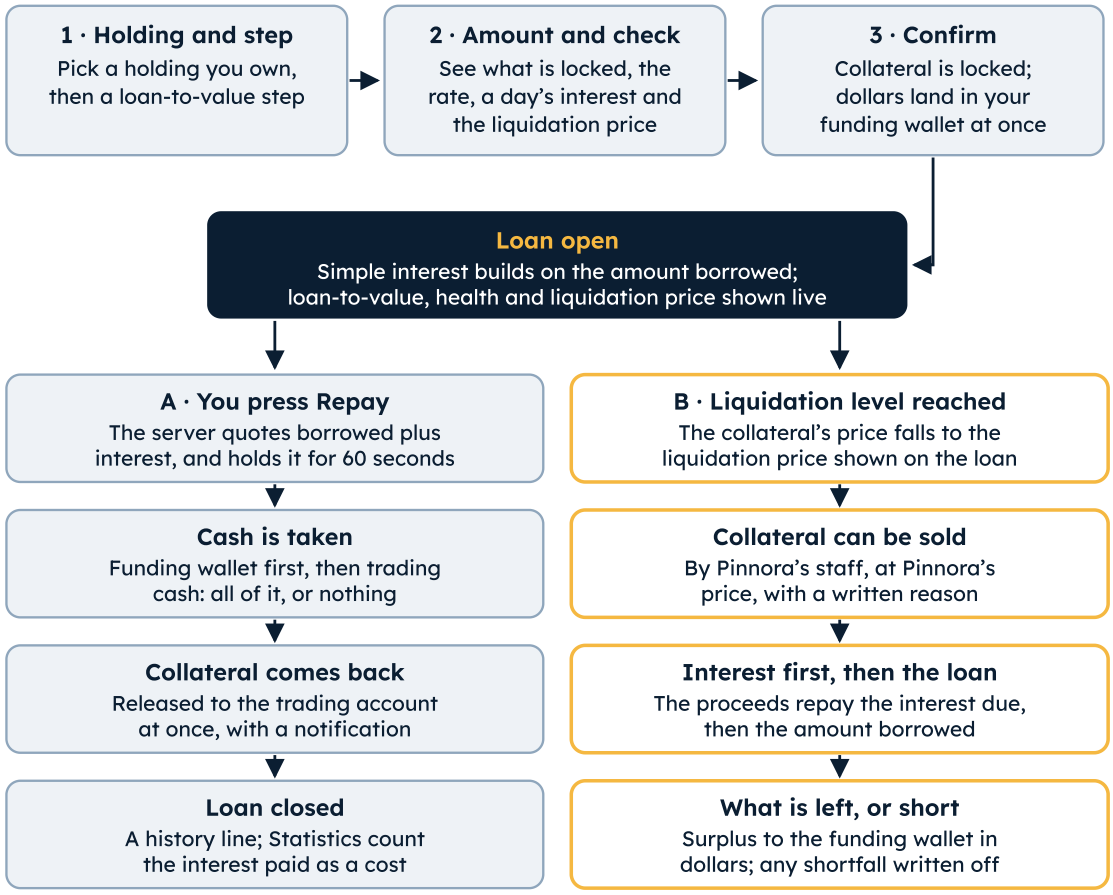


Figure 7.1 Path A is the usual end of a loan and can be taken at any moment. Path B applies only if the collateral's price falls to the liquidation price; repaying first takes that risk away.

Empowerment: capital for businesses

Empowerment is Pinnora's programme of capital for businesses. It offers facilities for firms at different stages. Each facility sets out, on the Empowerment screen, its amount range, its rate, the terms in months a business can choose and what it asks of a business, such as how long it has been trading. The facilities themselves are kept in one table in the panel, so the screen, the application form and the server's checks all read the same figures.[29]

A facility is a loan to the business, paid into the funding wallet and repaid in equal instalments. No share of the business is taken, and the rate is fixed at the moment the business applies.

EMP-…
the reference each application receives the moment it is submitted, quoted on every repayment

Equal instalments
one every 30 days, counted from the day the money is paid out, fixed for the whole term

1 application
in review per facility at a time; the business can apply again once the first has been decided

People decide
every application is approved or declined by Pinnora's capital team

After submitting

1. The server re-checks every field, records the application with the rate the facility had at that moment, and issues a reference beginning "EMP-".
2. A notice in the app gives the reference and says how long a decision takes, a figure set in the panel; its e-mail adds the facility, the amount and the business.
3. Pinnora's capital team reviews the application. No decision is made by automated means alone.[8, 31]
4. If it is approved, the notice says "Open Empowerment to draw it down". If it is declined, the notice gives the reason or asks the business to contact support.

Drawing the money down

Once an application is approved, the business opens Empowerment and presses "Draw down". The whole approved amount is paid into the funding wallet at once. The amount comes from the application the capital team approved, never from the request the app sends, and a facility can be drawn down only once: a second attempt is refused with "That facility has already been drawn down." Pinnora's capital team can also pay an approved facility out from the panel. Either way it is paid out once, through the same step that fixes what is owed, and a facility already paid out cannot be reopened and paid again.

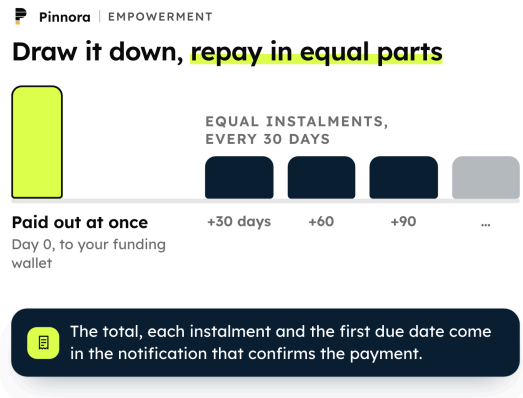


Figure 7.2

Once approved, the whole amount is paid out at once and what is owed is fixed. Equal instalments fall every 30 days from the day it was paid out.

How instalments are worked out

Unlike a personal loan, which charges simple interest until the day it is repaid, a facility is an amortising loan with a fixed schedule. Each instalment is the same, and part of each one pays interest while the rest pays down the amount drawn. The instalment uses the standard formula, with a monthly rate equal to the yearly rate divided by twelve:

instalment = A × r ÷ (1 − (1 + r)$^{-n}$), where A is the amount drawn, r the monthly rate and n the number of months.

Worked example

For example, take a facility of $10,000 at an illustrative 12% a year, which is 1% a month. The rate that applies is always the one the application form quotes.

Term (for example)	Each instalment	Total to repay	Cost of borrowing	Final instalment
12 months	$888.49	$10,661.85	$661.85	$888.46
24 months	$470.73	$11,297.63	$1,297.63	$470.84

Repaying a facility

Each instalment is collected from the cash in the customer's Pinnora account, or the business can pay it by bank transfer quoting the facility's reference, the one beginning "EMP-". Pinnora's capital team records every repayment against the facility, noting whether it came from Pinnora cash, taken from the funding wallet first and then the trading account, or arrived from outside. A repayment larger than what is still owed is refused.

Responsibilities on both sides

A facility must be repaid in full however the business does, so the business should borrow only what it can comfortably repay from its own income. Everything said in an application must be true and complete: a facility obtained with false or misleading information may be cancelled, and what was paid out then becomes repayable at once. On Pinnora's side, the rate quoted is the rate the facility is repaid at, every decision is made by a person, each repayment is recorded and announced, and only the owner can write off what is still owed, with a written reason sent to the business.[6]

> **The rate you are quoted is the rate you repay at.**

CHAPTER

08

Moving money

Money comes into Pinnora by bank transfer or crypto. It moves freely between a customer's own two accounts and to other members, and it leaves to a bank account or a crypto address. This chapter follows each of those journeys step by step: what the customer sees, what the server checks, and why it was built that way. One idea runs through all of it: money moves only when the money behind it is real, and it moves only once.

2 ways in

Bank transfer or crypto. There is no card deposit, because there is no card processor behind one.

1 address per network

Each customer gets a crypto deposit address of their own on each network, never shared with another customer.

8 networks

understood by the deposit code; which coins are open on each is decided by Pinnora's team and shown in the app.

11 digits

Every transaction has a random 11-digit reference to quote, search and copy.

How money moves on Pinnora

Four rules behind every movement

1. **A deposit is a request, not a timer.** Whatever the method, no deposit is credited because time has passed; it is credited only once the money behind it has been checked.
2. **The browser never decides what money is worth.** Amounts, prices, fees and limits are worked out on the server, from its own records, at the moment they apply.
3. **The cost is shown before it is paid.** Every fee is on screen before the customer confirms, and the notice that follows repeats it.
4. **Money leaving needs the customer.** Being signed in is not enough: withdrawals and sends ask for the password or a passkey. Deposits, withdrawals and sends are confirmed with a one-second press and hold, so a stray tap moves nothing.[7]

Movement	What it carries	Pinnora fee	Verified identity	Daily limit	How it completes
Bank transfer in	US dollars	None	Not needed	No	Credited once matched to the money received
Crypto in, own address	Coins open for deposit on that network	None	Not needed	No	Credited once confirmed and verified
Funding wallet ↔ trading account	Any asset	None	Not needed	No	Instant
To another member	Any asset	None	Needed	No	Instant and final

Movement	What it carries	Pinnora fee	Verified identity	Daily limit	How it completes
Withdrawal to a bank account	US dollars only	Withdrawal fee	Needed	Yes	Checked and sent by our team
Withdrawal or send to a crypto wallet	Crypto, on its own network	Withdrawal fee	Needed	Yes	Checked and sent by our team
Shares and funds out of Pinnora	Not possible: sell them first, or send them to another member				

Deposits: the principles

Every deposit is a request

When a customer asks to deposit, Pinnora opens a Deposit line in their history marked In progress. That line records an intention, not money. It is credited to the funding wallet only after the payment behind it has been checked against what actually arrived; until then it moves nothing. No timer credits an account because a minute has passed, and no customer-facing route can settle a deposit. The reason is simple: an account credited because time has passed would be credited with money that may never have arrived.[5]

> **Every deposit is a request, checked against the money that actually arrived before it is credited.**

Paying in by bank transfer

Bank transfers are offered once Pinnora's receiving bank details have been set in the panel, and the Deposit screen offers only the methods open to the customer. The customer's part takes a minute in the app. The matching happens on Pinnora's side once the money has arrived.[27, 26]

Step	What the customer does and sees	What happens behind it
1	Opens Deposit and chooses Bank transfer	Only the methods currently offered are shown.
2	Enters the amount in US dollars and sees that there is no fee	The amount is checked against the smallest and largest deposit.
3	Presses and holds to confirm	A Deposit line opens In progress. A "Deposit request received" notice and e-mail follow, with the transaction reference.
4	Sees the account to pay, the account name, the amount and a reference beginning "PN-", each with a copy button	The account shown is stored with the request, so the payment can be matched even if Pinnora's receiving account changes later.
5	Pays from their own bank account, quoting the reference	Nothing yet: Pinnora waits for the money.
6	Taps "I've sent it" and may close the app	The customer's word is recorded and the queue is ordered. No money moves.
7	Is notified when it is credited	The payment is matched to the request, the dollars are credited to the funding wallet and the line turns Completed.

Paying in crypto: an address of your own

For crypto, Pinnora gives each customer an address of their own on each supported network. The first time a customer opens Deposit, then Crypto, Pinnora sets up their account with our crypto deposit and custody service provider, with one address for each network. Only an internal customer number is passed to the provider for this, never the customer's name, e-mail address or any reference.[8] Until the address is ready, the app shows a calm "We're preparing your own deposit address" step and keeps asking in the background; if the address is still not ready, it says so and offers a Try again button. It never shows an address that is not the customer's.

What the screen shows, and what it leaves out

The rule for this screen is that it says one thing, clearly, for the coin and network chosen and for no other.

On the screen	Shown?	Why
One line: "Only send {coin} on the {network} network to this address."	Yes	The single instruction that matters, said once, above the address.
The address, its QR code and a copy button	Yes	Copying or scanning avoids typing errors.
A memo, where the network needs one	Yes, only then	Some networks route a payment by memo as well as address.
The minimum deposit for that coin on that network	Yes	A deposit below it is not credited.
"Deposit fee: Free"	Yes	Pinnora charges nothing to pay in.
"Arrives after N network confirmations."	Yes	Says before sending how long Pinnora will wait.
One warning about the wrong asset, network or amount	Yes	Short enough to be read, not skimmed.
Other coins the same address accepts	No	One coin per screen keeps the instruction single.
Token contract addresses	No	A customer could pay to a contract by mistake.
Any suggestion that a wrong deposit can be recovered	No	It would encourage risks that cannot be undone.

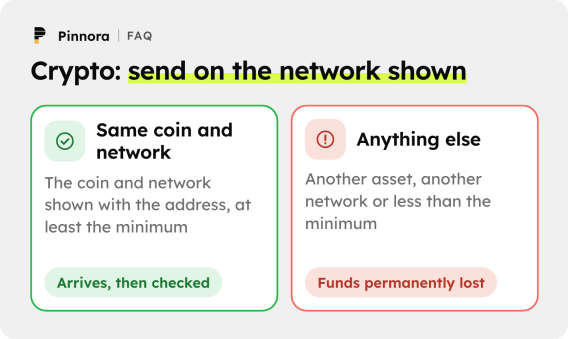


Figure 8.1

Each deposit address accepts only the coin and network shown with it, and at least the minimum. Another asset, another network or less than the minimum, and the funds are lost for good.

Networks

The deposit code understands eight networks. Which coins are open on each is decided in the panel and shown in the app at the time. A coin is accepted only once it is listed, switched on and open for deposits.

Network	Token standard shown	The network's own coin	Status
Ethereum	ERC20	ETH	As shown in the app
BNB Smart Chain	BEP20	BNB	As shown in the app

Network	Token standard shown	The network's own coin	Status
TRON	TRC20	TRX	As shown in the app
Polygon	ERC20	POL	As shown in the app
Base	ERC20	ETH	As shown in the app
Arbitrum One	ERC20	ETH	As shown in the app
Solana	SPL	SOL	Suspended at the time of writing (October 2026)
Bitcoin	Native SegWit	BTC	As shown in the app

A network can be suspended as a whole, or for a single coin on it. At the time of writing (October 2026), Solana and TON are shown as Suspended, greyed out and not selectable, because the provider lists them as not active. Pinnora reads this status from the provider again every six hours, so it can change without an app update. A coin whose every network is suspended is listed after the others and marked Suspended. TON, Dogecoin and the XRP Ledger are known to the app only so that their coins are recognised; Pinnora takes no deposits on them.

Confirmations, in plain words

A blockchain records transactions in blocks, one after another. A transaction's confirmations are the blocks recorded on top of the one that holds it, counting that block itself. Each new block makes it harder for the network to rewrite the history beneath it. Waiting for several confirmations is therefore how anyone receiving crypto gains confidence that a payment is final. Networks add blocks at different speeds, so the number Pinnora waits for is set per network.

From the network to the wallet: verified before credit

The most important decision in crypto deposits is what counts as proof. A message saying a deposit has arrived is easy to send. Proof that a specific, confirmed payment belongs to a specific customer is harder to come by, and Pinnora credits only on that proof.

The path, step by step

1. **The customer sends.** They send the coin, on the network shown, to their own address.
2. **The provider notifies Pinnora.** The message is signed. Pinnora checks the signature and a timestamp that must be within 300 seconds of its own clock before it reads anything, stores the message by its event id and acknowledges it at once. A repeat of the same message is acknowledged but not acted on again. The customer's history gains an In progress line with its confirmation count.
3. **Pinnora asks for verification.** When the network has confirmed the deposit and the provider reports it credited, Pinnora asks the provider to verify that exact deposit, quoting every detail it holds: network, transaction, account, address, asset and amount.
4. **Only a clear answer goes forward.** The deposit moves on only if the answer clears that very deposit for crediting. A check that fails or times out never credits; it is asked again later. An answer that does not match holds the deposit and flags it for staff.
5. **Pinnora's own rules apply.** Depending on how the service is configured, a deposit is then either credited automatically or waits for an administrator's approval. Some deposits are always held for a person: one worth more than the largest automatic amount; one to an account that is not fully open (not active, its e-mail address unconfirmed or no username chosen yet); one that arrives during maintenance; and one in a coin, or at a token contract, that Pinnora does not accept on that network. When an administrator approves a held deposit, Pinnora checks it with the provider once more just before crediting.
6. **The credit happens exactly once.** It is made through the same code an administrator's approval runs, keyed on the deposit's id. The funding wallet, the history line, the statistics, the referral rule, the bell and the e-mail all follow from that single credit.[8]

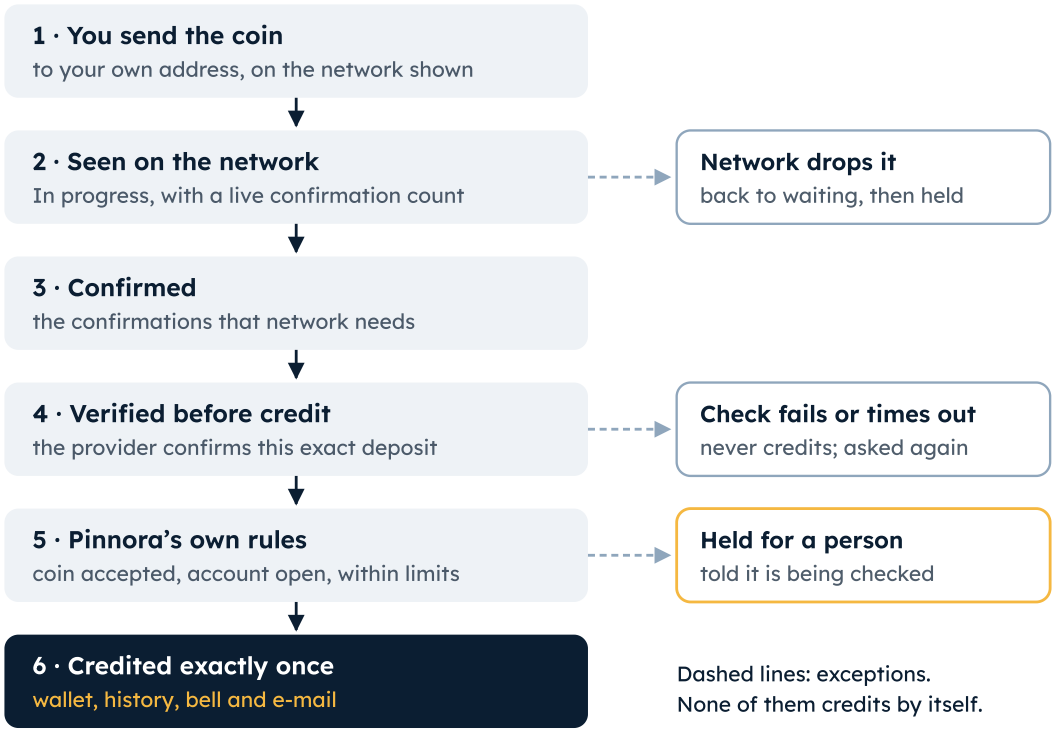


Figure 8.2 The path of a crypto deposit to a customer's own address. Each exception stops short of a credit; only a person can release a held deposit.

> **A notification is not proof**
>
> Pinnora never credits a crypto deposit from the provider's notification alone. The notification starts the process. The credit waits for the network's confirmations and for a direct answer from the provider about that exact deposit.

Exactly once, however often it is reported

The same deposit can be reported many times: by retries, with rising confirmation counts, or out of order. Pinnora keeps one record per deposit, identified by its network, its transaction, its position within that transaction, the address, any memo and the coin, and it handles every report inside a single database transaction. The deposit's id is claimed in the same transaction that credits it, so two reports arriving at the same moment cannot credit it twice.

Nothing missed

Notifications can fail to arrive. Pinnora reconciles with the provider when the server starts and every six hours after that, and it processes anything it missed exactly as if the notification had been delivered.

Withdrawals: money leaving Pinnora

What can leave, and where to

Withdrawals need a verified identity. Dollars go to a bank account. Crypto goes to a crypto address, on a network that coin travels on. Shares and funds cannot leave Pinnora, because what a customer holds is a position on Pinnora's books with no outside home;[6] they can be sold, or sent to another member. The server enforces the same

rule, not just the app's menus, so a request made outside the app cannot queue a share for a bank account or dollars for a blockchain. Sending to an address outside Pinnora from the Send screen is a withdrawal in everything but name, with the same fee, limit and review.

Five steps in the app

1. **What.** The customer chooses the asset. Only dollars and crypto are offered, and the screen explains that shares and funds must be sold, or sent to a member, first.
2. **How.** They choose a bank account or a crypto wallet. Paying another member is also offered here, but that is a free transfer, not a withdrawal.
3. **How much.** The screen shows what is available, with 25%, 50%, 75% and Max. A "Daily limit" bar shows how much has already gone out today against the limit. The line under the amount says "You receive …" with the fee already taken off, or it says plainly why the amount cannot go: it is over the daily limit, it is more than is held, or it is too small once the fee is applied.
4. **Where.** For crypto, the customer picks the network first and then enters the address. For a bank, they enter the account number or IBAN, which must be for an account in their own name.
5. **Review and confirm.** The review shows the network, the amount, the fee and what arrives, in that order. The customer then presses and holds for one second. If they have not confirmed it is them in the last ten minutes, the app asks for the password or a passkey.[7]

Addresses checked by each network's own rules

A crypto address that is wrong by one character is money nobody can get back. Pinnora therefore checks each address by the rules its own network uses, not by a pattern that merely looks right. These checks were written in-house, including the Keccak-256 hash that Ethereum's checksum relies on.

Network	The rule applied	What it catches
Bitcoin	Base58Check (addresses starting 1 or 3) or bech32 and bech32m (bc1q…, bc1p…), main network only[32, 33]	Mistyped characters; test-network addresses, refused by name
Ethereum, BNB Smart Chain, Polygon, Base, Arbitrum One	0x and 40 hexadecimal digits; an address written in mixed case must carry a valid EIP-55 checksum[34]	A single wrong character in a checksummed address
TRON	Base58Check with TRON's version byte: 34 characters starting with T	Mistyped characters and addresses from other networks
Solana	Base58 that decodes to exactly 32 bytes	Truncated or padded addresses and addresses from other networks

The fee, worked out

Each way out has three figures: a flat fee, a percentage of the amount and a smallest fee. The fee is the flat fee plus the percentage, or the smallest fee if that comes to more. It is worked out in dollars at Pinnora's current price and taken in the asset withdrawn, out of the amount sent. Some assets have figures of their own. The figures in force are set in the panel, shown in the app before you confirm and listed on the fees page.[5] The table below uses invented figures to show how the rule works.

For example: a method set at a flat $1, plus 0.5%, at least $3 (illustrative figures, not Pinnora's)	Flat + percentage	Fee charged	What arrives
$200 to a bank account	$1 + $1.00 = $2.00	$3.00 (the smallest fee is more)	$197.00
$2,000 to a bank account	$1 + $10.00 = $11.00	$11.00	$1,989.00
0.05 BTC, at an illustrative price of $60,000 (worth $3,000)	$1 + $15.00 = $16.00	0.00026667 BTC (worth $16.00)	0.04973333 BTC
$2.50 to a bank account	$1 + $0.0125 = $1.0125	$3.00	Refused: "Too small once the fee is applied."

Why a password, when you are already signed in

A signed-in session can look at an account, but on its own it cannot move money out of it. Withdrawals and sends need the password or a passkey within the last ten minutes. A session copied to another device, or a phone left unlocked, is therefore not enough by itself to send money away.

In progress, sent, or returned in full

Our team checks and processes each withdrawal, and while it does, the line shows In progress.[6] When the withdrawal has been sent, the customer is notified ("Withdrawal sent"). A withdrawal that cannot be completed is declined and returned in full to the funding wallet, and the notice gives the reason wherever our team has written one. The return works even if the asset has since been switched off, so money is never stranded. Once a withdrawal has been paid out it cannot be recalled, which is why the review step repeats the destination before the hold.

Paying other members

Sending money to another member is a different thing from a withdrawal, even though both start from the Send button. A member transfer moves an asset between two entries in Pinnora's own ledger, and nothing leaves Pinnora. That is why it is instant and free, and why it is switched on and off separately from withdrawals: an administrator who pauses withdrawals during an incident is not necessarily trying to stop members paying each other.

Send route	What it carries	What it is
To a Pinnora member	Any asset, by @username or pay link	An instant, free, final transfer inside Pinnora
To a bank account	US dollars only	A withdrawal: fee, daily limit and review apply
To a crypto wallet	Crypto only, on its own network	A withdrawal: fee, daily limit and review apply

Shown before anything moves

Before money moves, the app shows who will receive it. The aim is to show enough to be sure it is the right person, and no more.

The sender sees	The sender never sees
First name and last initial, such as "Ada L."	The recipient's full name
The recipient's @username	Their e-mail address
Their account number	Their balance or history
Whether their identity is verified	Anything else in their profile

Instant, free and final

A member transfer cannot be recalled, so the terms ask the sender to check the recipient first.[6] The short name, username and verified status shown before the hold are there for exactly that check.

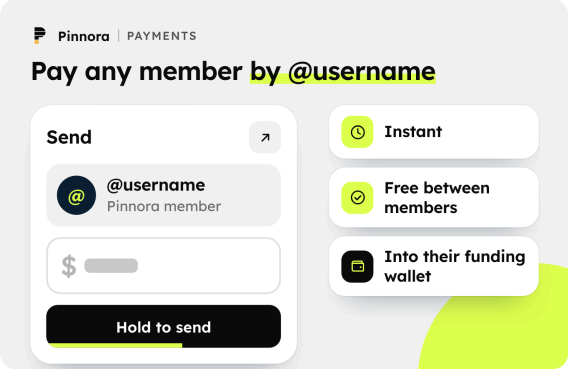


Figure 8.3

Send money to any member by their @username. It is instant and free, and lands straight in their funding wallet.

Receiving money and pay links

Pay links

A pay link opens the app's send screen with the member's name already filled in.[1] When it is shared in a chat app, the preview card names only the @username. Nothing is looked up to draw that preview: a name that nobody holds gets exactly the same page, so the preview cannot be used to discover whether a username exists, and the page is not indexed by search engines.[8]

References, history and records

The 11-digit reference

Every transaction carries a reference: an eleven-digit number, for example 38206482992. Each part of its design answers a practical problem:

- **Digits only.** It can be read down a telephone and typed into a search box without mistakes.
- **Never starts with 0.** A spreadsheet or a phone keypad cannot drop a leading zero.
- **Random, not counted.** It reveals nothing about how many transactions there are or how quickly they are being made.
- **Unique.** The database holds each reference to one transaction, and a writer that draws a number already taken simply draws again.

Reference	What it looks like	Where it is used
Transaction reference	11 digits, never starting with 0	Transaction details, notices and e-mails; quoted to support; searchable in history
Bank deposit reference	"PN-" followed by five characters	Quoted on a bank transfer so it can be matched
Account number	"PN-" followed by eight characters, without 0, O, 1 or I	Identifies an account; shown in the recipient check
Support conversation	"T-" followed by a number	Support tickets
Empowerment application	"EMP-" followed by letters and digits	Applications, and repayments by bank transfer

Reference	What it looks like	Where it is used
Transaction hash	The network's own identifier	Crypto deposits seen on the network; opens the public block explorer

Pauses, restrictions and what never happens

Pinnora may pause deposits, withdrawals, transfers, trading or sign-ups for a valid reason, such as maintenance or security, and only for as long as needed.[6] The switches are enforced by the server, not only displayed. During maintenance the app shows a banner, and the server refuses new deposits, orders and withdrawals while still letting customers sign in, read their accounts and reach support. A pause refuses new requests rather than queueing them, and it never affects balances. An account can also be restricted while a check is open, for example with withdrawals held. Any restriction is in proportion to its reason, and the customer is told by e-mail.

Many of the choices in this chapter turn down a shortcut that would have been quicker to build. The table sets them side by side.

A common shortcut	Why it is tempting	What Pinnora does instead
Credit a deposit after a fixed time	It feels fast	Credit only once the money has been checked
Credit a crypto transfer the moment it is seen	It is the fastest option	Wait for confirmations, then verify with the provider
Trust a token's name	Names are easy to read	Accept a token only at its listed contract
One shared address for everyone	It is cheap to run	An address of the customer's own on each network
Let a signed-in session withdraw	Fewer prompts	Password or passkey within ten minutes
Write a transfer as two separate steps	Simpler code	Debit and credit in one database transaction
Number transactions in sequence	It is easy	Random 11-digit references that reveal nothing

Two things cannot be undone, and the app says so plainly where they happen. Crypto sent on another network or in another coin than the app shows, or below the minimum the deposit screen states, may be lost for good; and a withdrawal cannot be recalled once it has been paid out.[27, 26, 6]

CHAPTER

09

Security architecture

Security at Pinnora is built into the server rather than wrapped around it: how a password is stored, how a session is opened, what a signed-in browser may do, and what is written down whenever something changes. This chapter walks through each layer in turn, from signing in to the audit trail, and explains what it does, why it was built that way and what a customer sees. Every control described here is something the code does today; where a control has a limit, we say so.

The principles behind the design

Security for a money app has two jobs that pull in different directions. It must make an account hard to enter and hard to misuse for anyone but its owner, and it must stay easy for the owner, who should never be shut out of their own money by a stranger's actions. A small set of rules settles that tension across the whole server.

- **Layers, not a wall.** No single control is trusted to hold on its own. A stolen password still meets a device check, a stolen session still meets a check before money leaves, and an edited record still meets a keyed audit chain.
- **Keep nothing worth stealing.** Passwords, session tokens and codes are stored only as hashes; the few secrets the server must read back are sealed with keys held outside the database.
- **Reveal nothing by accident.** Response times, block lengths, account numbers and references are designed so that they do not tell an outsider who holds an account or which defence fired.
- **Tell the owner.** Every new sign-in, every change to how the account is entered and every run of attempts to break into it is reported to the account holder in words a person can act on.

7 layers

between a request and an account, each built on the assumption that the one before it may already have failed

256-bit tokens

for every session, kept in a cookie that page scripts cannot read and stored on the server only as a hash

15-minute blocks

after too many failed sign-ins, always the same length, so the wait never reveals how many attempts an account has seen

4 staff roles

checked by the server on every change, whatever the staff panel shows



Figure 9.1 The seven layers a request meets, from the outside in. Each is built on the assumption that the one before it may already have failed.

> Every password is treated as something that may one day leak.

Passwords

A password is the weakest part of any sign-in, so Pinnora treats every password as something that may one day leak, and plans for that day.

How a password is kept

The server never stores a password as typed. It stores a hash made with scrypt[35], a deliberately slow, memory-hard function, with a fresh 16-byte random salt for every account and the cost parameters N = 32,768, r = 8 and p = 1. Each guess against a stolen copy costs real memory and time, and because every account has its own salt, two customers with the same password have different hashes: cracking one says nothing about the other.

Passkeys

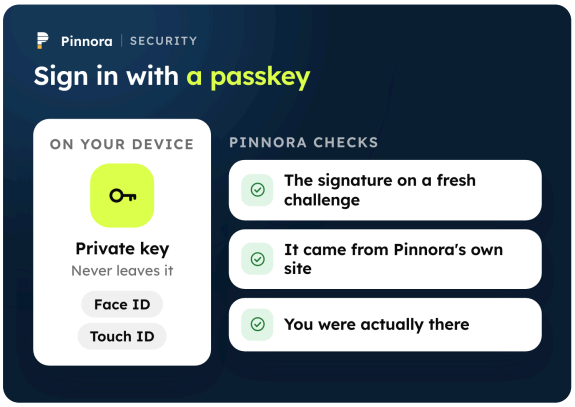


Figure 9.2
The passkey flow as Pinnora's security page draws it: a key pair made on the device, unlocked by the customer, signs a fresh challenge that Pinnora checks.

A passkey replaces the password with a key pair made on the customer's own device, following the W3C Web Authentication standard[36]. The private half never leaves the device and is unlocked with Face ID, Touch ID, the device passcode or an Android passkey provider; Pinnora stores only the public half. There is nothing to type, nothing to reuse elsewhere and nothing a look-alike site could collect. An account can hold up to ten passkeys, one per device, and the app lists each with its name, the date it was added and when it was last used, so an unfamiliar one stands out and can be removed.

Signing in with a passkey

Sign-in is plain public-key cryptography: the device signs a fresh challenge, together with data naming the site and recording that the person was verified, and the server verifies the signature against the stored public key. Several checks surround that one, each closing a specific gap.

Check	What it stops
Each challenge is single-use and expires after five minutes	A recorded sign-in being replayed
Origin and relying-party identifier must be Pinnora's own	A look-alike site relaying the prompt (phishing)
The device must report that it verified the person, not merely that somebody was present	Sign-in by whoever is holding the device
The signature counter must move forward with every use	A cloned authenticator (counters that always stay at zero, as some providers keep them, are accepted)
Only ES256, RS256 and Ed25519 signatures are accepted	Weak or unknown signature schemes
The sign-in challenge names no credentials	Learning whether an e-mail address has an account

> **Never locked out**
>
> A passkey is a shortcut, never the only way in. The password, followed by the six-digit code when two-factor is on, always signs in whatever passkeys the account holds, and the app's lock always offers "Use password instead". Losing the phone that holds a passkey costs a convenience, not the account.

Two-factor authentication and backup codes

Customers can add a second factor from the Security centre: a six-digit code from an authenticator app, generated under the time-based one-time password standard (TOTP)[37], with a new code every 30 seconds. With it on, the right password alone no longer opens the account.

Signing in with two-factor on

When the password is right, the server opens no session. It gives that browser a pending sign-in, held in a cookie only the sign-in routes receive and valid for ten minutes, and the session opens only when the same browser sends a valid code or unused backup code. Every route by which a password reaches the server passes through this step, including the dedicated sign-in host and the e-mail confirmation that signs in a new browser.

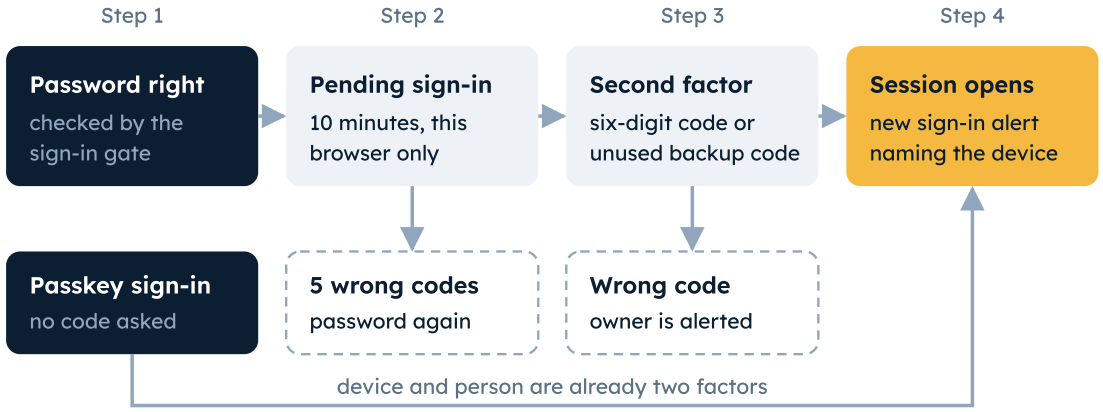


Figure 9.3 Signing in with two-factor on. The right password opens only a pending sign-in for that browser; the session opens when a valid code or unused backup code follows. A passkey sign-in needs no code.

Step-up: a check before money leaves

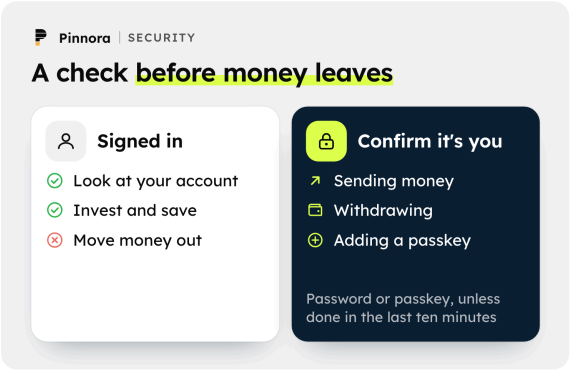


Figure 9.4
The check sits between a signed-in session and anything that takes money or access away: one prompt, then ten minutes in which the customer is not asked again.

The central rule of Pinnora's security model is that a session cookie on its own cannot move money out. Cookies can be lifted from a shared computer, a compromised browser extension or an unlocked laptop, so every action that takes money or access away from the owner asks again for the password or a passkey, unless the owner gave one in the last ten minutes. The window keeps everyday use smooth, since a customer who has just signed in is not asked twice, while making a lifted session close to worthless for theft.

Action	What is asked	Why
Withdraw to a bank account or crypto address	Password or passkey within 10 minutes, then press and hold	Money leaves Pinnora and cannot be recalled once paid out
Send to a member or an outside address	Password or passkey within 10 minutes, then press and hold	Member transfers are instant and final
Add a passkey	Password or passkey within 10 minutes	A passkey is a new way in that needs no password
Set up two-factor	Password or passkey within 10 minutes	An intruder could otherwise lock the owner out
Switch off two-factor, make new backup codes	As above, plus a current code	Removing a factor must need that factor

Action	What is asked	Why
Change the password	The current password	Proves knowledge before every other device is signed out
Buy or sell from an asset's page, or request a deposit	Press and hold for a second	A stray tap does nothing

Sessions and devices

At sign-in the browser receives a session token of 256 random bits, in a cookie that page scripts cannot read (HttpOnly), that other websites cannot make the browser send (SameSite=Strict) and that travels only over encrypted connections. The server keeps only the SHA-256 hash of the token, so a database copy holds no cookie that works, and a fresh session identifier is issued at every sign-in, so a session planted in advance by an attacker can never be inherited.

Bound to the browser and the network

Each session records a hash of the identifying string of the browser that opened it (its user agent) and the network it came from: the /24 block for IPv4 or the /64 block for IPv6, rather than the exact address, so a phone moving between mobile masts stays signed in. If the same cookie arrives from a different browser or network, the server ends the session, so whoever presented it and the owner must both sign in again. It also records a suspected hijack, which staff see on the panel's security tab. The IPv6 network is computed from the address's numerical value rather than its written form, so nobody can pose as a "new" network on every request just by spelling an address differently.

Guessing, flooding and automated attacks

Attacks on sign-in take three main shapes: one person guessing at one account; credential stuffing, in which username and password pairs leaked from other websites are tried in the hope that people reused them; and password spraying, in which one common password is tried across many accounts[38]. Pinnora's sign-in gate counts failures per account and per network over a rolling 15 minutes and answers each shape differently.

Rule, over a rolling 15 minutes	Customers	Staff
Failures against one account before it is blocked	8	5
Failures from one network, across any accounts	30	12
Networks failing against one account (credential stuffing)	5	3
Accounts one network fails against (password spraying)	20	3
Length of every block, whatever triggered it	15 minutes	15 minutes
Delay after the second failure	0.25 s per failure, at most 2 s	The same

Storing nothing worth stealing

A sound working assumption is that any copy of a database may one day leave the building, through a mistaken backup, a lost disk or an intruder. Pinnora's records are designed so that such a copy is as close as possible to useless for taking over accounts.

What is stored	How it is kept	What a database copy alone gives
Password	scrypt hash with its own salt	Only slow guessing, one account at a time

What is stored	How it is kept	What a database copy alone gives
Session and request tokens	Hashes	No working cookie, nothing to forge requests with
E-mail confirmation codes and links	Keyed hashes; key outside the database	No usable code or link
Sign-in hand-off code	Hash, valid 60 seconds	Nothing
Two-factor secret	Sealed with a key outside the database	No way to generate codes
Backup codes	Keyed hashes, spent on use	No usable code
Passkeys	Public key only	Nothing that can sign in
Outgoing-mail password	Sealed in two layers, key in two halves	A sealed value with neither half of its key
Identity photos	Files only the server's own user can read	Not in the database at all

Sealing the secrets the server must read back

A few secrets cannot be hashed away because the server needs the original; the clearest case is the password of the mail account Pinnora's server sends from. It is sealed so that no single thing a thief might carry off opens it.

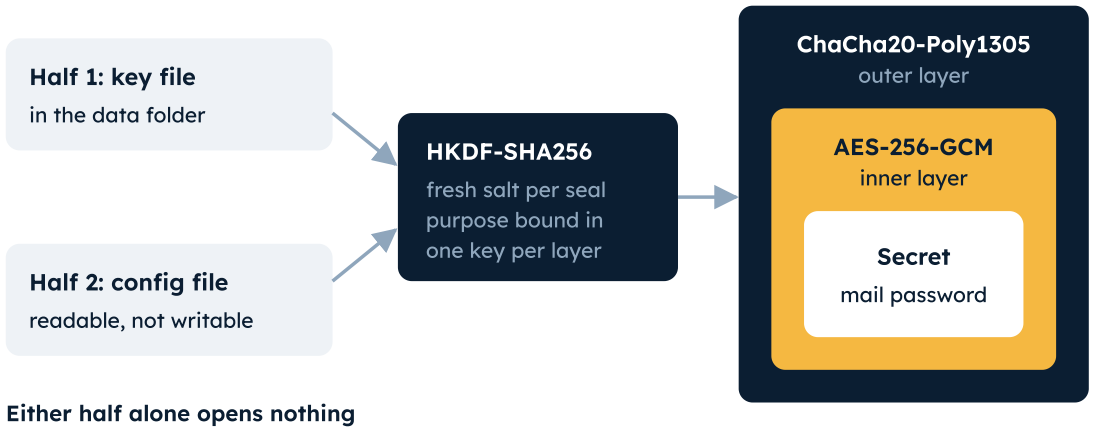


Figure 9.5 How a secret is sealed. The key comes from two halves kept in different places, and the secret is wrapped in two complete authenticated ciphers, each with a key of its own.

The audit trail

Every staff action, and every security-relevant customer action, is written to an audit log: sign-ins and failed attempts, password, passkey and two-factor changes, money movements and settings changes, each with who acted, what they did, when, from which network and device, and the values before and after.

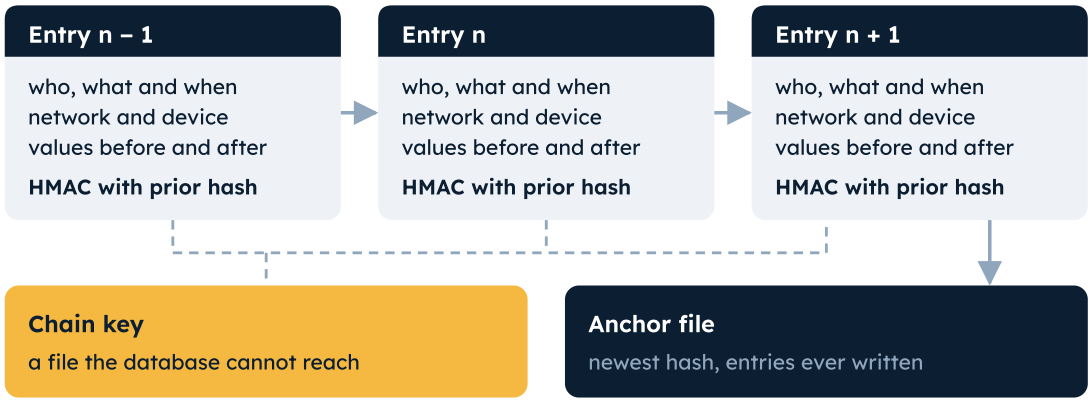


Figure 9.6 Each entry commits to the one before it with a keyed hash. The key lives outside the database, and an anchor file outside it mirrors the newest hash and the number of entries ever written.

How tampering shows

- **A keyed chain.** Each entry carries an HMAC[39] over the previous entry's hash and its own contents, so editing or deleting any entry breaks the chain from that point. The key sits in a file the database cannot reach: someone able to write to the table could recompute an ordinary hash chain, but not this one.
- **An anchor.** The newest hash and the count of entries ever written are mirrored outside the database, so cutting entries off the end shows too, even if activity carries on.

> **A limit we state plainly**
>
> The keyed chain defends against tampering that reaches only the database. It does not defend against someone who already controls the server's file system and therefore holds the key. We state the limit because a description of security that hides its boundaries is not worth reading.

Content security and transport

The browser is where most attacks on web applications land, so Pinnora tells browsers precisely what its pages may do. The site is served over HTTPS only and tells browsers, through HTTP Strict Transport Security[40], to use nothing else for a year, subdomains included. Every page carries a Content Security Policy[41] that starts from "nothing is allowed" and opens only what the page needs.

Control	Setting	What it stops
Scripts	default-src 'none'; scripts only from Pinnora's own origin or carrying a fresh nonce per response	Injected scripts running in the page (cross-site scripting)
Framing	X-Frame-Options DENY; frame-ancestors 'none'	The app shown inside another site to trick taps
Content type	nosniff	A file being run as something it is not
Referrer	no-referrer; the bare origin only on pages with sign-in forms	Addresses leaking to other sites
Isolation	Cross-origin opener and resource policies: same-origin	Other windows and sites reaching into Pinnora's
Permissions	Geolocation, microphone, payment, USB off; camera for Pinnora's own pages only	Features used without need; the camera serves identity capture

Control	Setting	What it stops
Search engines	App and staff panel not indexed or archived	Private screens being found or cached

Staff access and the admin panel

The tools used to run Pinnora (approving deposits, processing withdrawals, reviewing identity documents) are the most valuable target in the system, so they are kept apart from everything customers use and held to stricter rules.

- **Not on the customer site.** The staff panel is served only on a separate host, under an unpublished path and only to approved networks. Anyone else gets a plain “not found”, so the panel does not announce itself, and the attempt is recorded.
- **Stricter sign-in.** Two-factor is mandatory for every staff account, with ten one-time recovery codes stored only as hashes; sessions end after 20 minutes idle or eight hours at most; and the sign-in limits are tighter (see the table above).
- **Roles checked by the server.** The panel hides what a role cannot do, and the server refuses it regardless. Every staff action is audited with its before-and-after values.

Alerts: telling people what happened

An alert is useful only if it arrives, names something a person recognises and does not drown in repetition. It must also never become a weapon: an attacker should not be able to flood an inbox or exhaust the e-mail allowance that sign-up codes depend on.

Event	In the bell	By e-mail
New sign-in, by password, passkey or password and code	Every time, naming the device	At most hourly per kind of device
App unlocked with Face ID, Touch ID or passcode	Once within any two minutes	No; it happens at every opening
Password sign-in paused after wrong passwords	Once while it lasts	At most daily
Attempts from many networks	At most every 15 minutes	At most daily
Right password, wrong two-factor code	At most every 15 minutes	At most once per clock hour
Password, passkey or two-factor changes; backup code used	Yes	Yes
Withdrawal or outside send requested, then sent or declined	Yes	Yes, unless money e-mails are turned off

Backups, operations and recovery

- **Nightly backups** of the database are kept for 14 days, so a failure need not lose anyone’s account, and deleted data leaves the backups within that time. The database holds no key: the keys that open sealed secrets and check keyed hashes are kept outside it.
- **Switches the server enforces.** In maintenance mode every customer change is refused except signing out, reading and contacting support, and the app shows a banner rather than pretending money moved; withdrawals and member transfers can each be paused on their own.

- **Catching up.** After downtime the payout engine pays each missed period exactly once, crypto deposit records are reconciled with our crypto deposit and custody service provider at start-up and every six hours, and e-mails are written to an outbox in the same transaction as their event, so a restart loses nothing and a rolled-back action sends nothing.

What customers can do

Add a passkey on the phone you use most, use a password you use nowhere else, turn on two-factor, read every sign-in alert, and open Pinnora only at mypinnora.com/app/ or from your Home Screen. Never share your password or the six-digit code from our e-mail, and never approve a passkey prompt you did not start: Pinnora never needs your password or a code to help you. If you think someone else has used your account:

1. Change your password; this signs out every other device and removes every other passkey.
2. Check the Security centre's sign-ins, devices and changes, and sign out all other devices if anything looks wrong.
3. Turn on two-factor authentication if it is not already on.
4. Open a support conversation in the app so our team can look at the activity with you.

What we do and do not claim

This chapter describes controls that exist in Pinnora's code. It claims no external certification, audit or penetration test, and none should be read into it. No system is perfectly secure; if a breach of personal data is likely to put customers at risk, Pinnora will tell the data-protection supervisory authority and the customers affected, as Articles 33 and 34 of the GDPR require[31]. Anyone who believes they have found a security weakness is welcome to write to helpdesk@mypinnora.com with what they found and how to see it, and asked not to test it on other people's accounts, money or data[4].

CHAPTER

10

Identity, compliance and privacy

A service that holds people's money has to know who its customers are and watch for misuse, and it still has to respect their privacy. Pinnora treats these as one design problem, not three. This chapter follows the identity check screen by screen and sets out the compliance rules in the terms of service and how they are applied. It then shows what "collect less" means in practice: what is kept, who can see it, how long it stays and how customers use their rights.

3 phases

Personal details, documents and a selfie, in one guided flow inside the app.

3 photos

The front of the document, the back (for a licence or ID card) and the customer's face, taken with the camera in the app. Where the camera can't open, a photo from the phone's camera app or the device is used instead, and reviewers see which.

18+

Pinnora is for adults only. The app does not accept a date of birth under 18.

1 month

The time Pinnora has to answer a request to use a data-protection right. Answering is free of charge.

Three principles

Three ideas shape everything in this chapter.

1. **Know who takes money out.** Any adult who meets the terms can open an account, explore the app, deposit and invest. The identity check sits in front of the actions where fraud and money laundering do their damage: money leaving the account, and money passing to someone else.
2. **People make the decisions that matter.** No decision with a legal or similarly significant effect on a customer is made by a machine alone. Pinnora's own staff review identity checks, credit deposits, send withdrawals, decide business-capital applications and decide suspensions. Each of those decisions is recorded.
3. **Collect less, and say what is kept.** Pinnora collects what it needs to run an account and to meet its legal duties. It buys no data about customers and uses no outside service to find out more about them. Its privacy policy names its real cookies, its real retention periods and the real categories of recipients.[8]

What verifying unlocks

Verification is not a gate at the front door. A new customer confirms an e-mail address, chooses a username and can then use most of Pinnora straight away. The check is asked for when it becomes necessary, before the first action that sends value out of the account or to another person.[27, 26]

What the customer wants to do	Before verifying	After verifying
Explore the app, prices, plans and help articles	Yes	Yes
Deposit by bank transfer or crypto	Yes	Yes
Buy and sell stocks, crypto, funds and IPOs	Yes	Yes
Join savings and investment plans	Yes	Yes
Withdraw to a bank account or a crypto address	No	Yes
Send money to another member by @username	No	Yes
Apply for Empowerment business capital	No	Yes
Ask to link a bank account	No	Yes
Qualify for a referral reward after joining through a friend's link	No	Yes, once approved deposits reach the qualifying amount

The verification flow, step by step

Verification is one guided flow called "Identity verification", with a three-part progress bar. It opens from Settings → Personal information, where a status chip reads Unverified, In review, Verified or Needs another look. It also opens from the Identity verification button on the profile, and from any screen that needs a verified identity. The first screen lists the three phases and ticks those already done.[27]

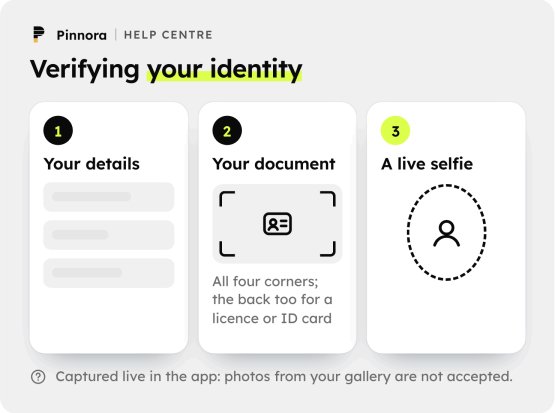


Figure 10.1

Have a passport, driving licence or ID card to hand. The document and a selfie are captured live in the app, not uploaded from your photos.

Submitting

1. **The customer finishes.** The screen shows "Verification submitted", and the status chip changes to In review.
2. **The server checks each capture.** It accepts only a JPEG, PNG or WebP image of at most 3 MB. It stores the image as a file beside the database, one per customer for each slot, and replaces it if the customer captures it again. The file can be read only by the server's own user account. Each capture is written to the audit log with its size.
3. **Staff are alerted.** An e-mail tells the team that a new submission is waiting, naming the document type and the country.



No outside identity-check service: Pinnora's own staff review every submission.

Figure 10.2 The customer works through three phases and a summary in the app. A person at Pinnora then decides, and the customer is told either way.

Review by people

Pinnora uses no outside identity-check service. Its own staff review every submission, and the documents are sent to no one else.[8] This was a deliberate choice. The documents stay in one place, under Pinnora's own access rules and its own audit trail, and no third party builds a profile of the customer from them. The trade-off is that a review depends on people's time. For that reason Pinnora does not promise how long a review takes. The customer is notified when the decision is made, and does not need to keep the app open while waiting.

Compliance: the rules the terms set

Who can hold an account

Section 2.1 of the terms lists the conditions. A customer must:

- be at least 18 and have full legal capacity;
- open the account in their own name and for themselves, never for someone else or as a nominee;
- hold no other Pinnora account;
- give true, complete and current information;
- not be subject to EU, UN or other sanctions that apply to Pinnora, nor be owned or controlled by someone who is;
- not live in, or use Pinnora from, a country where using it is prohibited by law.

Checks, restrictions and what customers can expect

Rule	Terms	What it means in practice
Further information on request	4.2	Proof of address, where money and wealth come from, the purpose of a payment, or proof that a bank account or wallet belongs to the customer. Requested by support ticket or e-mail.

Rule	Terms	What it means in practice
Measures while a check is open	4.3	While a check is open, or if requested information is not provided, a deposit, withdrawal or send may be delayed or declined, an application held, or the account restricted or suspended, for as long as the check reasonably needs. Money received and not credited goes back to its source unless the law requires otherwise.
Reporting	4.4	Pinnora reports to the authorities where the law requires. Where the law forbids it to tell the customer about a report or the reason for a measure, it will not.
Own money, own accounts	5.1, 5.3	Pay in only from the customer's own account. Withdraw only to a bank account or address that is the customer's own.
Official channels	12.1	Support tickets in the app, helpdesk@mypinnora.com, compliance@mypinnora.com for identity checks, and replies to e-mails Pinnora sent. Staff never make contact through social media or private messages.

Monitoring: people decide, fixed rules apply to everyone

> **No decision with legal or similarly significant effect on you is made by automated means alone.**

That sentence from the privacy policy reflects Article 22 of the GDPR, and Pinnora's processes are built around it.[8, 31] People decide the things that change a customer's position. Separately, a small set of fixed rules runs automatically to keep the service and its customers out of harm's way. Those rules are the same for everybody and use no profile of anyone.

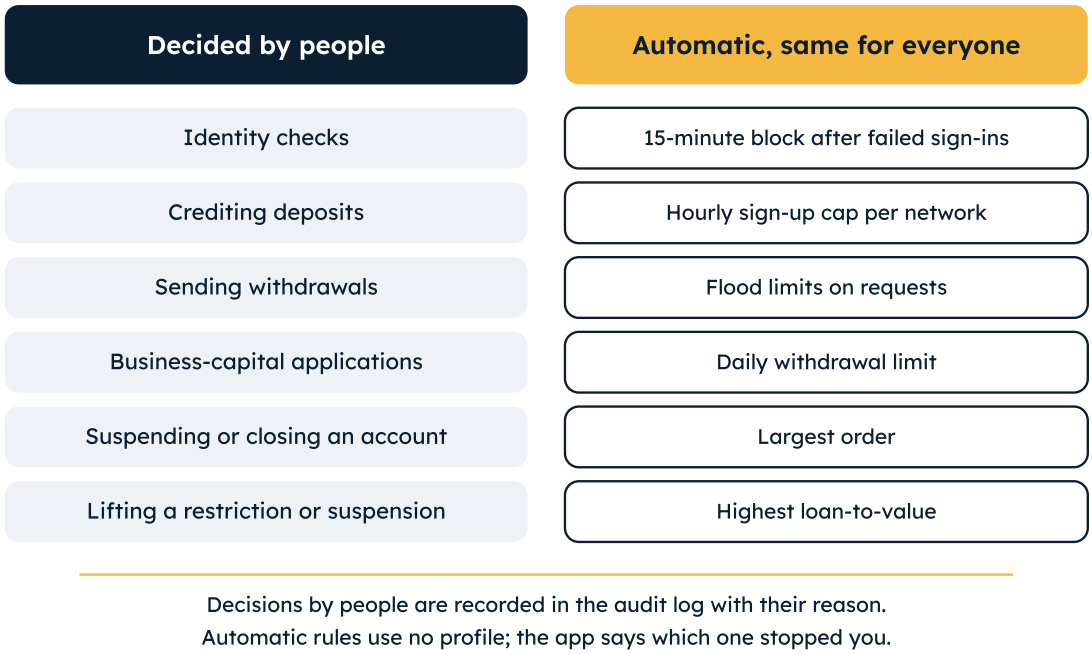


Figure 10.3 People decide anything that changes a customer's position. The automatic rules are few and fixed, and they treat every customer the same way.

Collecting less: data minimisation in practice

Data minimisation is easy to promise and hard to show. The table lists specific places where Pinnora holds or shares less than it could, and why.

Where	What Pinnora does	Why it matters
The website	Pages set no cookies and use no analytics, advertising or social-media tools. Fonts are hosted on Pinnora's own server.	Reading about Pinnora tells no one else that you did
E-mails	No tracking of opens or clicks. Images come from Pinnora's site and are the same for everybody.	An e-mail opened is not a data point
Crypto deposit provider	Receives a customer number and the blockchain data of deposits to your addresses, never a name, e-mail address or reference	The provider can route deposits without knowing who you are
Other members	See your username, account number, first name and last initial, and whether you are verified. Never your e-mail address.	Paying someone does not hand over their contact details

The privacy policy in practice

The controller of personal data is Pinnora Technologies Limited, 4 Güldenhofer Ufer, Treptow-Köpenick, 12437 Berlin, Germany, represented by its director, Sergio Mayo Rieken. The policy covers the website, the app, the e-mails and notifications Pinnora sends and anything customers tell support. It was last updated on 10 October 2026.[8] For each use of data, it states the purpose, the legal basis under Article 6(1) of the GDPR and how long the data stays. The table summarises it. "(a)" is consent, "(b)" the contract, "(c)" a legal obligation and "(f)" legitimate interests.[31]

Purpose	Basis	How long it stays
Opening and running the account	(b)	While the account is open; notifications until cleared
Confirming the e-mail address	(b), (f)	Code 15 minutes, link a day, waiting browser two hours; an unconfirmed account holding nothing goes after seven days
Signing in and protecting the account	(b), (f)	Sessions about 30 days, attempts about a day, a network 30 days after the last sign-in from it, passkeys until removed
Identity checks, fraud and money laundering	(c) where the Money Laundering Act requires it, (f) otherwise	While the account is open
Payments, investing, plans, loans and capital	(b); (c) for records required by tax and commercial law	While the account is open; daily portfolio values up to a day longer
The security log	(f); (c) where the law requires a record	Not shortened (explained below)
News and offers	(a)	Until switched off or unsubscribed
Backups	(f)	14 days

Who receives data

Pinnora never sells data or shares it for advertising. If personal data leaves the EU or EEA, it does so only with the safeguards Articles 44 to 49 of the GDPR require, such as an adequacy decision or standard contractual clauses, and customers can ask for details of the safeguard that applies. If a breach is likely to put customers at risk,

Pinnora will tell the supervisory authority and the customers affected, as Articles 33 and 34 require.[8, 31]

Retention: deletion, and what stays

The table above gives each period. Two parts need more explanation: deleting an account, and the one record kept after it.

Deleting an account, step by step

1. **The customer asks.** They write to helpdesk@mypinnora.com from the account's address, or open a support ticket. Pinnora may ask them to confirm it is them.
2. **Open items are settled.** Pending payments, plans, loans and the remaining balance are dealt with as the terms describe. The usual withdrawal fee and daily limit apply to taking the balance out, and plan money is paid back under each plan's rules.
3. **The account is deleted at once.** Its balances, history, plans, loans, applications, identity data, tickets, notifications, passkeys, push details, e-mails and review are removed from the database. Only the owner role can carry out a deletion, and the staff member must type the account's e-mail address to confirm it.
4. **A last e-mail confirms it.** It goes to the address the account had, and only if that address was proved.

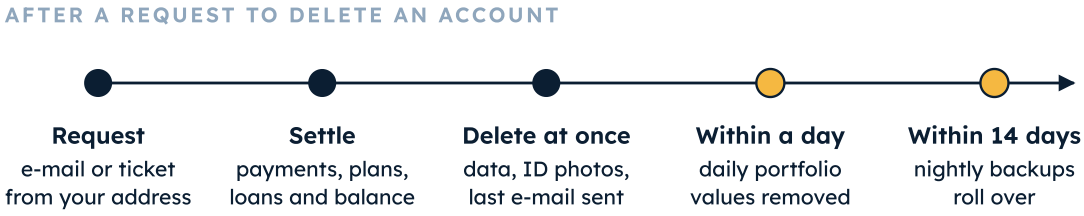


Figure 10.4 Most of an account goes at once. What stays is listed in the privacy policy, with the reason for each item.

Why the security log is not shortened

The privacy policy is open about one exception: the security log is never shortened. Each entry is sealed to the one before it, so removing one would break the chain that proves the log unaltered. Entries about a deleted account therefore stay, with what they recorded: the e-mail address, IP addresses and browsers and, where logged, the name, phone number, country, username, withdrawal and send destinations, and identity details staff corrected.[8] Pinnora states this rather than claim a more complete deletion than the system performs. The reserved username has a reason of its own: a name is never given to anybody else, and the security log still records which account held it.

Your rights, and how to use them

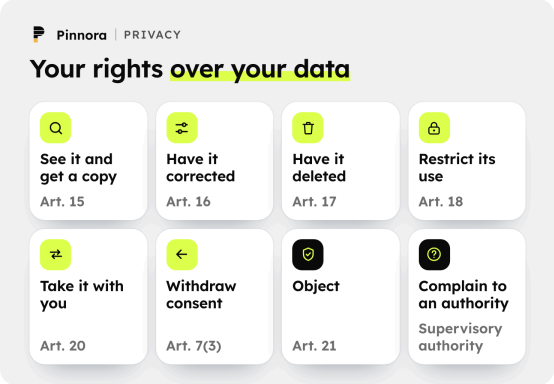


Figure 10.5

You can see, correct, delete or restrict your data, take it with you, withdraw consent, object, and complain to a supervisory authority.

Right	GDPR	What it means at Pinnora
Access	Art. 15	Know whether Pinnora holds data about you, see it and get a copy, with its purposes, recipients and retention
Correction	Art. 16	Have wrong or incomplete data put right. Many details can be changed in the app; a change to a verified detail is checked again.
Deletion	Art. 17	Have data deleted where it is no longer needed, consent is withdrawn, you object, or it was used unlawfully
Restriction	Art. 18	Have data only stored while its accuracy or its use is checked, or kept for a legal claim
Portability	Art. 20	Receive the data you gave under the contract or consent in a structured, machine-readable format, or have it sent to another provider where technically possible
Withdrawing consent	Art. 7(3)	At any time, without affecting what was done before. Push, news and offers, reviews and machine translation all rest on consent.
Objection	Art. 21	Object at any time to uses based on legitimate interests, and to direct marketing without giving a reason
No solely automated decisions	Art. 22	Not to be subject to a decision based solely on automated processing that significantly affects you
Complaint	Art. 77	Complain to a supervisory authority, in particular where you live or work

The rules in this chapter are written down in the terms of service and the privacy policy, both dated 10 October 2026, and both promise notice before a change that affects customers. The aim is that they keep describing exactly what the system does: who decides, what is kept, and for how long.

CHAPTER

11

Technology and reliability

Pinnora runs on a deliberately small technology stack: one server program built only on the modules that ship with Node.js, one database file and one installable web app. This chapter explains how those pieces fit together, how prices reach the app, how a request that moves money is made to happen exactly once, and how the system recovers when something stops. It closes with the testing and release discipline behind every change, and says plainly where the design has limits.

The engineering principles

Reliability in a money app is less about speed than about never being wrong. A balance that arrives a second late is a nuisance; a balance that is wrong is a breach of trust. The choices described in this chapter follow from a short list of rules that the code states in its own comments and enforces in its own checks.

- **Small and owned.** The server uses only the modules that come with Node.js. Everything else, from passkey verification to the e-mail client, is written and tested in-house, so no outside package update can change how money moves.
- **The server decides.** The app hides what a customer cannot do; the server refuses it anyway.
- **Show only what is true.** Charts draw only prices that were actually quoted, an offline app shows no figures rather than old ones, and a price that leaps implausibly is held for a person to look at rather than applied.
- **Fail closed, then catch up.** When a source, a provider or the server itself stops, nothing is guessed. When it returns, every missed payout, deposit report and e-mail is processed as if nothing had happened.

1 database file

holds every record, opened through the SQLite module built into Node.js

3 doors

the website, the app and the staff panel, all served by one server program

2 price loops

one for the whole catalogue, one that re-prices coins with a live source every 30 seconds; the same checks apply to both

14 days of backups

nightly copies of the database, the copy the service would be restored from

Architecture: one program, three doors

Everything Pinnora serves comes from a single server program. The public website, the customer app at mypinnora.com/app/, the API the app talks to and the staff panel are all answered by the same Node.js process, which also runs the background engines that keep prices current, match limit orders, pay plan returns and send e-mail. One process means one set of rules: the code that decides whether a withdrawal is allowed is the same code whichever door the request came through.

What runs where

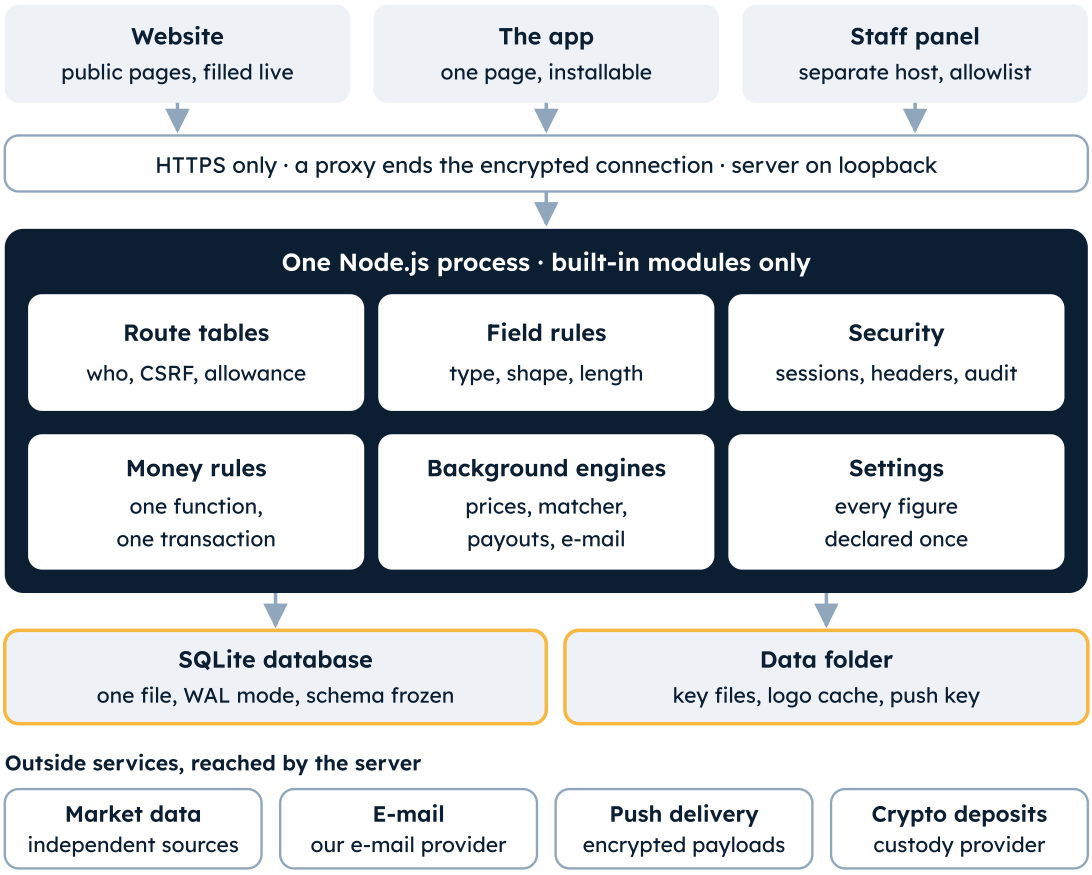


Figure 11.1 Three doors, one process. The website, the app and the staff panel reach the same program, which keeps every record in one database file and is the only part of Pinnora that talks to outside services.

Why there are no third-party packages

Most web servers are assembled from hundreds of open-source packages, each maintained by someone else and each able to change with an update. That is efficient, but every package is code that runs with the server's full rights. In March 2024, malicious code was found embedded in versions 5.6.0 and 5.6.1 of XZ Utils, a widely used open-source data-compression library: a reminder of how a trusted dependency can be turned against the systems that rely on it.[42] Pinnora's server declares no dependencies at all; its package description says so in as many words, and it relies on Node.js's own HTTP, cryptography and SQLite modules.[43]

The cost of that choice is that more code has to be written, owned and tested. Pieces that usually come from a library are built in-house:

Component	Usually	What Pinnora does instead
Passkey verification	A WebAuthn server library	Verifies signatures with Node's own cryptography and reads only the small part of the registration data it needs
Push notification encryption	A web-push library	Encrypts each notification to the device and signs each request to the push service itself
Sending e-mail	SMTP and MIME libraries	Its own SMTP client over TLS and its own message builder, tested against local stand-in mail servers

Component	Usually	What Pinnora does instead
Crypto address checks	Blockchain libraries	Each network's own checksum rules: Keccak-256 for Ethereum-style addresses, base58check, bech32 and bech32m [34, 33]
QR codes for deposit addresses	A QR library or web service	Generated inside the app to the ISO/IEC 18004 standard, so an address is never sent anywhere to be drawn
Logo inspection	An image library	Reads PNG files with Node's built-in decompression to decide which background a logo needs
Shrinking the app for delivery	A build toolchain	A deliberately conservative minifier that removes only what it can prove is removable

The data layer

One database file, opened with care

All of Pinnora's records live in one SQLite database, opened through the SQLite module built into Node.js, so there is not even a native database driver to compile or update.[43] The settings the server applies when it opens the file are each chosen for a reason:

The database as the last line against duplicates

Some things must happen exactly once however often they are attempted. Rather than relying only on the code that does them, each has a rule underneath that refuses a second copy, in most cases enforced by the database itself:

What must happen once	Enforced by	What a second attempt meets
A plan payout for one period	One payout per lot and due time	A second pass for the same period writes nothing
A spot order	One order per customer and order reference	A retried tap finds the original order
An e-mail about one event	A unique de-duplication key	The same notice is queued once
A crypto deposit report	One event per network, transaction, output, address and coin	A report delivered twice is recognised
Settling a transaction or paying out a facility	A settled item can never be reopened	Approving twice never credits twice

One door for money

Balances change through a single function, always inside one of those transactions. It refuses an unknown wallet or asset, refuses a result below zero and refuses a result too large for the computer to represent. It also treats rounding honestly: a shortfall smaller than a hundredth of a cent, converted into units of the asset, counts as zero rather than as an overdraft.

The market-data pipeline

Prices drive almost everything a customer sees: the value of a portfolio, the fill of an order, the health of a loan and the gains on the Statistics screen. Pinnora keeps them current with two loops that read from independent market-data sources and pass every answer through the same checks before anything is written (chapter 5 describes what customers see).

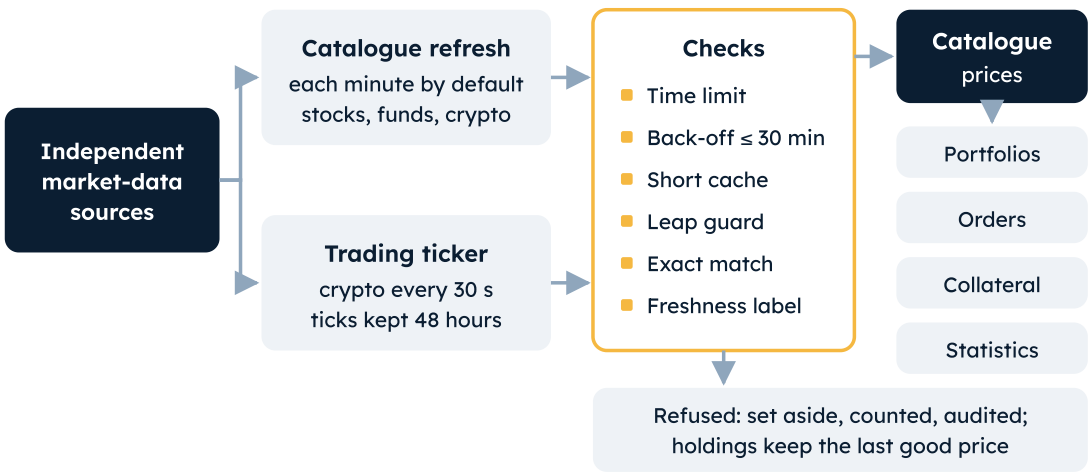


Figure 11.2 Two loops, one set of checks. A price reaches the catalogue, and with it every portfolio, order, loan and statistic, only after passing every check; anything refused is set aside for a person.

The life of a money-moving request

Every request that changes something passes the same sequence of gates. The diagram follows one, a withdrawal for example, from the moment it reaches the server, with what happens at each gate if the answer is no.



Figure 11.3 The gates in order. Each “no” on the right leaves the account exactly as it was; only a request that passes all of them changes anything, and then all at once.

When the outcome is unknown

A phone can lose signal between sending a request and hearing the answer. The app does not guess what happened; it lets the server's record decide. When a savings or investment request goes unanswered, the app takes off the screen the new balance and plan figures it had drawn in anticipation, and says "We couldn't reach Pinnora to confirm it. Your history will show whether it went through once you're back online." On the Trade page it says "We couldn't reach Pinnora, so we can't tell whether this went through. Press the button again to check — it will never be placed twice." That promise rests on the order reference: the app makes one up for each order, and the server answers a repeat with the first result instead of placing a second order.

> A balance from yesterday is worse than an error.

Background engines and catching up

Several jobs run on the server's own clock. Each is a chain of timers rather than a fixed interval, so a pass that runs long can never have a second one start on top of it, and each is written to catch up after downtime rather than skip what it missed.

Engine	Rhythm (defaults)	What it ensures	After downtime
Catalogue refresh	Every minute; first pass 15 seconds after start	Prices that passed every check	Resumes; old prices are labelled by age until then
Trading ticker	Every 30 seconds	Crypto prices for trading; ticks for 48 hours	Trading waits for fresh prices, then resumes
Limit-order matcher	After every tick and every 15 seconds	Fills in full, at exactly the limit price	Orders wait; nothing fills on an old price
Plan payouts	Every minute, within a budget of 2 seconds or 20,000 events a pass	One payout per lot and period	Every missed period paid, oldest first
Statistics close	Just after each UTC midnight	One end-of-day value per account	A close more than an hour late is skipped, never mis-dated
Deposit reconciliation	At start-up and every 6 hours	Our records match the provider's	Missed reports are processed as if delivered

The installable app and working offline

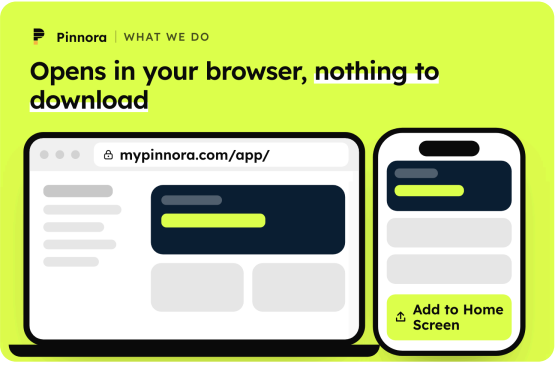


Figure 11.4

One app for every device: it opens in the browser at mypinnora.com/app/ and installs to the Home Screen, with nothing to download from a store.

The app is an installable web app: a web page described by a standard web app manifest, so a phone can add it to the Home Screen and open it in its own window, and accompanied by a service worker, a small script the browser runs alongside it.[44, 45] Pinnora's service worker has two jobs and deliberately no more: showing push noti-

fications, and letting the app open when there is no signal.

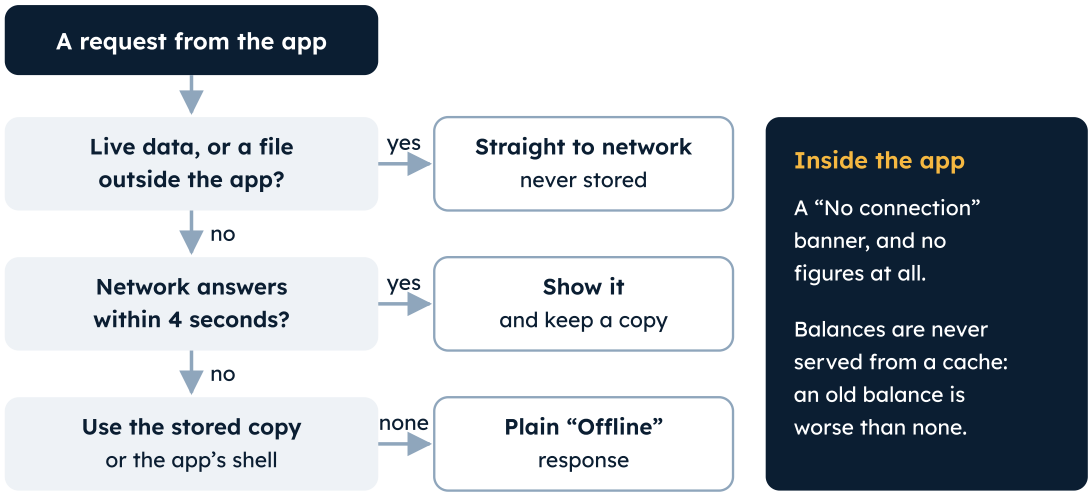


Figure 11.5 Network first, cache only for opening. An online customer always gets the current app; an offline one gets the app's shell, clearly marked as offline, and never an old balance.

Offline is shown as offline. The app opens with a "No connection" banner and no figures, and never shows demonstration numbers or yesterday's balance where real money is concerned.

Languages and accessibility

Accessibility measures in the code

- **Calmer motion.** Eighteen rules in the app's stylesheet reduce or remove animation for customers whose device asks for reduced motion.[46]
- **Screen readers.** Fifty-four live regions in the app's markup announce form errors, price warnings, step changes and estimates as they appear, and controls drawn as icons carry labels that are read aloud.
- **Contrast, tested.** Every colour in the app is a named token with a light and a dark value. The test suite checks that each pairing of text and background reaches a contrast ratio of 4.5:1, and edges and chart lines 3:1, in both themes: the minimums WCAG 2.1 sets at level AA.[47]

These are engineering measures rather than a certificate: Pinnora claims no formal accessibility conformance, and reports of anything that gets in a customer's way are welcome at helpdesk@mypinnora.com.

Testing discipline

Owning every line of the server makes testing part of the design rather than an afterthought. At the time of writing (October 2026), the server's automated tests run to roughly as many lines as the server code they test, about 37,000 lines each, organised in 25 suites.

Area	What the suites hold the system to
Sign-in and sessions	Passwords, sessions, CSRF, brute-force limits, two-factor, staff roles, the audit chain, the hand-off sign-in, proving an e-mail address
The customer API	Every route the app uses, and the money rules: nothing can go negative, no asset can be invented, a deposit credits only the amount the server stored, and one customer can never touch another's ticket, deposit or device

Area	What the suites hold the system to
Security hardening	One regression check for each weakness our own security review found, each with a line on the attack it keeps shut
Injection fuzzing	Every customer and staff route, signed in and out, hit with SQL payloads, control characters, oversized text and the wrong data types
Money engines	Plan payouts period by period, savings kinds, loan interest to the cent, market and limit orders with matching and fees, the Statistics figures
Deposits	The deposit webhook, the address plan and the provider integration, run against a stand-in for the provider
Languages and themes	A complete catalogue, right to left, number formats, theme tokens and their contrast

How tests run

- Suites run against isolated copies of the server, never the live service, and each must be told explicitly which copy to test, so none can reach a live address by accident.
- Suites such as the customer API suite create their own staff and customer accounts and delete them afterwards.
- Tests are never deployed: the release script leaves them on the build machine and removes any copy it finds on the server.

Deployment and recovery

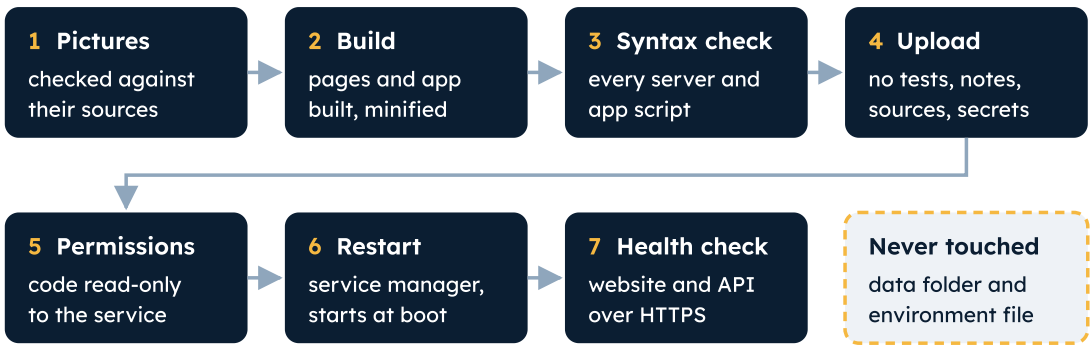


Figure 11.6 A release, step by step. Any step that fails stops the release there, and the live data and configuration on the server are never overwritten from the build machine.

A release follows the same steps every time, run by a script rather than from memory, and any step that fails stops it there.

1. **Build.** The website's pages and the app are built from their sources; the app's language catalogue is regenerated and the app minified.
2. **Syntax check.** Every server script, the e-mail templates the server loads at start-up, the staff panel's scripts and the built app's script are checked before anything leaves.
3. **Upload.** The release goes up without tests, annotated sources, notes, the translation catalogue, editor folders or any secrets. The server's data folder and its environment file are never overwritten or deleted by a release.
4. **Restart.** The service is restarted under the operating system's service manager, which also starts it again after a reboot.

5. **Health check.** The website and the public API are requested over HTTPS. The script also warns if the live configuration lacks a setting that e-mail depends on.

When something goes wrong

Situation	What the system does	What a customer sees
The server restarts	Engines resume; payouts, deposit reports and e-mail catch up	A short interruption; nothing paid or credited twice
A market-data source fails	Backs off up to half an hour; keeps the last good prices, labelled by age	“Last quoted…” or “Prices delayed”; crypto trading waits for fresh prices
A price leaps implausibly	Refused, counted and audited	Holdings keep the last good price
A deposit report is missed	Reconciliation at start-up and every six hours	The deposit is still found and processed as usual, a little later
The phone loses signal mid-action	The server’s record decides; order references stop duplicates	“We couldn’t reach Pinnora to confirm it…”
Work on the service is needed	Maintenance mode refuses changes but allows reading, signing out and support	A banner saying deposits, orders and withdrawals are paused for a few minutes

Nightly backups of the database, kept for 14 days, are the copy the service would be restored from after a failure. A backup on its own opens no sealed secret, because it holds only one half of the key (chapter 9).

Honest limits

Every design has trade-offs, and we prefer to state ours plainly.

- **One server.** Pinnora runs as one server process with one database file. That keeps every balance in a single, strictly ordered record and removes whole classes of synchronisation error, but there is no second machine standing by: if the server stops, the service is unavailable until it restarts, and recovery is by restart and catch-up, with the nightly backups as the last resort.
- **No external certification.** The controls in this chapter and in chapter 9 are what the code does. Pinnora claims no third-party certification, audit or penetration test of its systems.
- **Independent market data.** Prices follow public market prices from independent sources, which can be slow, busy or occasionally wrong. The checks every price passes, set out in Chapter 5, exist for exactly that reason: when a source misbehaves, Pinnora pauses or labels rather than guesses.

CHAPTER

12

Customer care and community

Money raises questions, and a financial app is judged as much by what happens when someone asks one as by its features. Pinnora's answer is a set of plain channels: support conversations in the app answered by a person, notifications that say what happened in the bell, on the phone and by e-mail, a reviews page that publishes what customers say whatever their rating, and a referral programme that pays both sides at once. This chapter sets out how each of them works and the rules they keep.

6 categories
for a support conversation, from Account to Something else, each conversation with its own reference beginning T-…

11 e-mail groups
the customer chooses between; only security and identity e-mails cannot be switched off

4 reasons
are the only grounds for taking a review down, and being negative is not one of them

4 stages
a referred friend passes through: joined, verified, qualified and rewarded

The principles behind care

Four rules shape every channel described here. Each is something the service does, not a promise of what it might do.

- **A person answers.** Support conversations are read and answered by Pinnora's own team, and so are e-mails to the helpdesk.[25]
- **One record per question.** A conversation keeps every message, picture and status change in one place, so nobody has to repeat themselves and both sides can see the whole history.
- **No promise we cannot keep.** Pinnora has no telephone line, and its public pages give neither opening hours nor a promised reply time. What they do say is that a person reads and answers.
- **Official channels only.** Support conversations in the app, helpdesk@mypinnora.com, compliance@mypinnora.com for identity checks, and replies to e-mails Pinnora sent are the official channels. Pinnora's staff never contact customers through social media or private messages.[6]

Support conversations

The quickest way to reach a person is a support conversation, also called a ticket, in the app. It comes from the signed-in account, so Pinnora knows whose it is without asking for proof of identity, and it keeps the whole exchange together.[25]

Starting a conversation, step by step

1. **The customer opens Support** and taps *New conversation*. The same screen lists earlier conversations, filtered by All, Open, Replied or Closed.

2. **They fill in three fields** and press *Start the conversation.*
3. **The server opens it in one step.** The conversation, its first message and the notice that it arrived are written together or not at all, so a conversation can never exist without its message or be confirmed without being saved. It is given the next reference beginning “T-”.
4. **The customer is told at once**, by a bell notice and an e-mail quoting their message with its reference, and the app opens the conversation under the reference the server gave it.
5. **Pinnora’s team is alerted** by an internal e-mail, and the creation is written to the tamper-evident audit log.

The life of a conversation

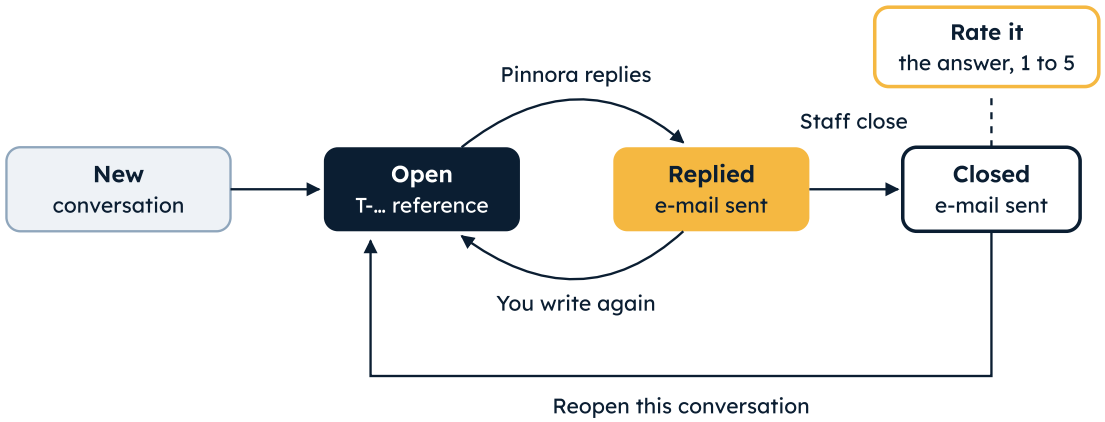


Figure 12.1 A conversation moves between three states. Every reply and every closing reaches the customer by notice and e-mail; a closed conversation can be rated and reopened at any time.

Writing a good request, and what never to send

The contact page asks for what makes a question answerable on the first reply:[25]

- what happened and when, in the customer’s own words, and what they expected instead;
- any reference the app gave them: a transaction’s 11-digit reference, a conversation’s number beginning “T-”, or an Empowerment application’s reference beginning “EMP-”;
- for crypto, the network used and the transaction hash;
- a screenshot of the screen or message they saw.

Equally clear is what never to send: a password, or the six-digit code from a Pinnora e-mail, to anyone, including someone claiming to be from Pinnora. Support never needs either. Nobody should approve a passkey prompt they did not start, and identity documents are only ever captured in the app’s own verification steps, never sent by e-mail.[25]

Help centre and FAQ

Many questions never need a conversation. The app’s **help centre**, under Settings, holds short articles grouped by topic, with a chip for each topic and a search box that looks through questions and answers as the customer types; an answer opens in place. The articles are kept on Pinnora’s server and maintained by its team, so a corrected answer reaches every app at once, with no update to install. On the website, the public help centre gives step-by-step guides to the things people do most, from opening an account to withdrawing money,[27] and the FAQ answers common questions grouped by topic, from Pinnora and the company behind it to deposits, withdrawals and sending, identity, plans, loans, trading, referrals, security and the account.[26]

Notifications: bell, push and e-mail

Everything that happens to an account is announced in the same way. A single function writes every notification, so there is one place where the rules are applied and one place to get them right.

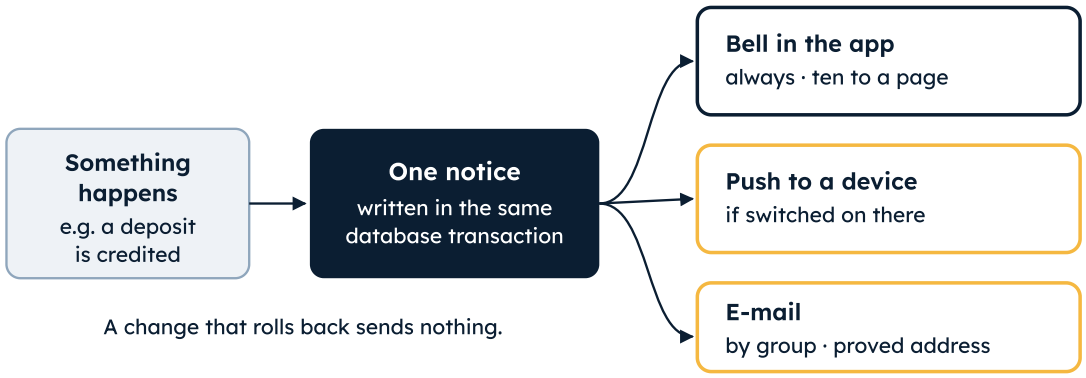


Figure 12.2 One event, up to three channels. The notice is written with the change it describes, and the push and e-mail go only once that change is final.

The bell

- **Sorted and filtered.** Notifications are listed newest first, ten to a page under a numbered pager, with chips for All, Deposits, Withdrawals, Security and Support.
- **Live.** An open app looks at the bell at least every 25 seconds, cheaply when the full refresh is spaced further apart, and at once when a push arrives, so a new notification appears without a reload.

E-mail, by the customer's choice

Every bell notification can also arrive by e-mail. The customer chooses which kinds on the **E-mail preferences** screen, and every optional e-mail carries the one-click unsubscribe that mail apps show beside the sender's name.[48]

E-mail group	Starts	Can be switched off
Security and sign-in	On	No
Identity verification	On	No
Deposits, withdrawals and transfers	On	Yes
Trades and orders	On	Yes
Savings and investments (one daily summary of payouts)	On	Yes
Loans and Empowerment	On	Yes
Referrals and rewards	On	Yes
Support conversations	On	Yes
Announcements from Pinnora	On	Yes
Requests for feedback	On	Yes
News and offers	Off until switched on	Yes

The two groups that stay on are how somebody learns that a stranger has signed in, or that withdrawals wait on an identity check; an account that could silence them could be taken over quietly. Behind the preferences:

Reviews: what customers say, published as they say it

The reviews page at mypinnora.com/reviews/ is where anyone can read what Pinnora's customers think of it. Its rules are written so that a reader can trust the page more than a marketing claim. They are set out as the disclosure German unfair-competition law asks of a business that makes consumer reviews available: whether and how it makes sure the reviews come from people who actually used the service.[49] Each of those rules describes something the server does, not an intention.[50]

Writing a review

1. Any account holder can review Pinnora once, in the app under Settings, Support, **Rate Pinnora**.
2. The review has a rating from one to five stars, an optional title of up to 80 characters and a text of 20 to 2,000 characters.
3. It is published at once, dated and signed with the reviewer's first name and last initial. The e-mail address, account number and the rest of the account are never shown.
4. The author can change or delete it at any time. A later change is marked as edited; one within a minute of writing counts as putting a typo right.

The Verified customer badge

Every review written on Pinnora comes from an account holder. Some also carry a **Verified customer** badge, meaning the account has a verified identity and at least one completed deposit of the customer's own money. A balance adjustment or a referral reward does not count. The badge is worked out each time the page is shown, from the account as it stands then; it is never stored, so it cannot outlive the facts behind it, and there is no switch that gives it to a review.[50]

When, and only when, a review comes down



Figure 12.3
A review is taken down only if it is abusive, contains personal data, is spam or is not about Pinnora. Never for being negative or for a low rating.

The reason is recorded, written to the audit log and shown to the author in the app. A hidden review cannot be brought back by deleting it and posting the same words again: the account's next review waits, hidden for the same reason, until Pinnora looks at it again. An author who thinks the decision was wrong can open a support conversation and ask for it to be reconsidered.[50]

> A review is never taken down for being negative.

Referrals: invite a friend, both are rewarded

When a friend joins with a member's link, verifies their identity and pays in enough to qualify, both receive a reward in their funding wallets at the same moment, once per friend, with no limit on how many friends a member invites. The reward and the qualifying amount are set by Pinnora, can change, and are always shown on the app's **Referral program** screen.[51]

The link and the share kit

A member's referral code is their @username, and their link is **mypinnora.com/r/** followed by it.[51] The Referral program screen has it ready to copy, with a QR code and three ready-made images, square, tall and wide, drawn in the member's own browser rather than on Pinnora's servers. Shared in a chat app, the link's preview names the inviter by @username only; nothing is looked up to draw it, and a name nobody holds gets the very same preview, so previews cannot reveal who banks with Pinnora.

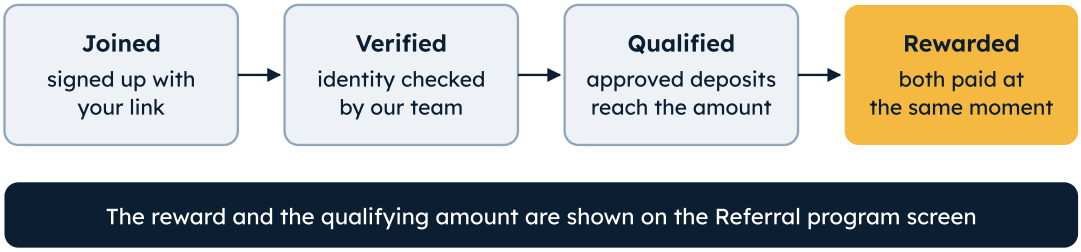


Figure 12.4 The four stages the Referral program screen shows for each friend. Verifying and paying in can happen in either order; the friend qualifies, and both are rewarded, the moment both are done.

How a referral qualifies and is paid

1. **The friend opens the link** and signs up with the inviting member named. The link must be used when the account is opened; a code cannot be added later, and one pointing back at the account itself is ignored.
2. **The friend verifies their identity**, the same check that lets any member withdraw or send money.
3. **Their approved deposits add up to the qualifying amount.** Only money the friend actually pays in counts: deposits that have been approved, added together. A deposit still waiting counts once it is approved; a balance adjustment by staff and the referral reward itself never count.
4. **Both are paid at once.** The check runs whenever a deposit is approved, inside the same database transaction as the approval, and again whenever an identity check is approved. The friend's account is marked as settled before any money moves, so two approvals landing together can never pay twice. Each side sees a *Referral reward* line in their history, *for inviting* or *for joining on* the other's code, and both are told.

<

CHAPTER

13

Fees and transparency

Most of what a customer does on Pinnora is free. Where something does carry a cost, the app shows the exact figure before anything is confirmed, next to what will arrive, and repeats it afterwards. This chapter sets out what is free, what is not and how each charge is worked out, with worked examples, and explains the engineering and contractual rules that keep the figure a customer is shown and the figure they are charged the same.

The principles

The first of the four rules Pinnora works by is “You see the cost before you pay it”, and the third is that “the app has the final word”: rates, rewards, fees and limits are set in one place and shown in the app as they currently stand.[1] The rules Pinnora’s own work is held to put the first one more bluntly:[24]

> **A fee nobody saw coming is a bug.**

In practice, four commitments follow from those rules.[5]

- **Shown first, repeated after.** Every fee appears on the screen where the customer confirms, beside what will arrive. It then reappears in the notice that confirms the request and in the transaction’s details in the history. A free action says so too: the notice a member receives with a transfer ends “there was no fee”.
- **Never more than was shown.** On the Trade page, if the fee rises while a customer is confirming, the order stops and asks again rather than charging more.
- **Changes reach only the future.** Fees and limits may change for transactions not yet made, never for one already confirmed.

For the same reason, this paper prints no current fee levels. They are settings that Pinnora can change, and every page of the website carries the same line: “Rates and fees are shown in the app before you confirm.” The figures below are for illustration only.

1 place
where each rate, fee and limit is set; the same code that shows a figure applies it

3 figures
for each way of taking money out: a flat fee, a percentage and a smallest fee

1% ceiling
on the crypto trading fee, fixed in the server’s code rather than in a setting

30 days’ notice
in the app before a change to the terms applies, with the right to object

What is free

Free	What to know
Opening and keeping an account	Nothing to pay to join or to keep the account open
Paying in by bank transfer or crypto	Pinnora charges nothing; the sender's own bank, or the network the crypto is sent on, may charge for sending
Buying and selling shares, funds and IPOs from an asset's page	No commission
Moving money between the funding wallet and the trading account	Instant, in either direction
Sending money to another member by @username	Instant and final, and both sides are told there was no fee
Converting holdings to fund a savings plan	Valued at Pinnora's current prices, with each conversion shown as its own history line
Repaying a loan early	No arrangement fee and no early-repayment fee
Closing the account	Free; the usual withdrawal fee applies to taking the balance out

What carries a fee

What	How it is charged	Where it is shown first
A withdrawal to a bank account or crypto address, or a send outside Pinnora	A flat fee plus a percentage of the amount, or a smallest fee if that is more; set per method, and for some assets per asset	The withdrawal screen, beside what will arrive; repeated in the confirmation notice
A crypto trade, on the Trade page or a crypto asset's page	A percentage of the trade, the same in both places; it may be none, and can never exceed 1%	The order ticket, beside what the customer will receive
A loan against holdings	Simple interest at the loan's own yearly rate, fixed when it opens; no other charge	The loan screen before confirming: the rate and the daily interest
An Empowerment facility	The rate quoted at application, repaid in equal instalments every 30 days	The facility's rate on the Empowerment screen before applying; then the draw-down notice: total to repay, instalment and first due date
Leaving some plans early	A percentage of the capital, only within the plan's early window	The plan's rules before joining; the exact amount before confirming a redemption

The withdrawal fee, worked through

Each way of taking money out (to a bank account, or to a crypto address) has three figures: a flat fee, a percentage of the amount and a smallest fee. The fee is the flat fee plus the percentage, or the smallest fee if that comes to more. It is worked out in dollars at Pinnora's current price and taken in the asset being withdrawn, out of the amount sent, so the screen can show exactly what will arrive. A few assets have figures of their own, and the screen always uses whichever apply.[5]

For example, with illustrative figures of $1 flat, 0.5% and a $3 smallest fee	Flat + percentage	Fee charged	What arrives
$200 to a bank account	$1 + $1.00 = $2.00	$3.00 (the smallest fee is more)	$197.00
$1,000 to a bank account	$1 + $5.00 = $6.00	$6.00	$994.00
$5,000 to a bank account	$1 + $25.00 = $26.00	$26.00	$4,974.00
0.02 BTC, at an illustrative $50,000 (worth $1,000)	$6.00	0.00012 BTC (worth $6.00)	0.01988 BTC

The trading fee

A crypto trade can carry a trading fee, set as a percentage of the trade. It is the same whether the customer buys from a crypto asset's own page or on the Trade page. Shares, funds and IPOs bought from their pages carry none. The fee in force is shown on the order ticket as "Fee (x%)", or "No fee", and listed on the public fees page, which fills it in live and says "none" when it is zero.[5, 23] Whatever the setting, the server's code caps the fee at 1% of a trade; the panel cannot set more.

Borrowing, plans and business capital

Loans cost their interest and nothing else. Interest is simple, on the amount borrowed, at the yearly rate fixed when the loan opens: amount × rate × time ÷ 365 days, from opening to repayment. For example, $1,000 borrowed at an illustrative 10% a year and repaid after 73 days costs $20 in interest. There is never interest on interest, no arrangement fee and no charge for repaying early, and the Statistics page records interest paid as a cost.[30] A later change to the rate for new loans leaves open loans as they are.

How fees and limits can change

Section 6.2 of the terms sets the boundary: Pinnora may change fees and limits for the future, never for a transaction already confirmed, and what a customer agreed for an open plan or loan changes only as its rules or the terms allow.[6] Section 21 governs the terms themselves. Without the customer's agreement, Pinnora may change them only where a law, a court or an authority requires it, to replace an invalid clause, for purely technical or organisational reasons, or in the customer's favour, and such a change can never concern prices, interest, fees or Pinnora's main obligations; any other change needs the customer's agreement in the app. Every change is announced in the app at least 30 days before it applies, showing what changes, and by e-mail unless the customer has switched off announcements. A customer who objects before the date is not bound by the change, although Pinnora may then end the contract under section 15.4, and the customer can close their account at any time under section 15.1.

> **Why the figures live in the app**
>
> A fee printed in a document is out of date the moment the setting behind it changes. Pinnora keeps each figure in one place and shows it where the decision is made: on the screen where the customer confirms. The website reads the same settings as each page is sent, and this paper points to them rather than copying them.

CHAPTER

14

Roadmap

A roadmap is the easiest part of a whitepaper to fill with promises, so this one is deliberately narrow. It lists only what the Pinnora app or website already shows as coming, and what the code already supports while it waits on a condition outside the app. No item carries a date, because none has been set.

3 features
marked “coming soon” in the app today: cards, Apple and Google sign-in, and password reset by e-mail link

6 hours
how often Pinnora reads the status of each crypto deposit network again

2 networks
shown as Suspended for deposits at the time of writing (October 2026): Solana and TON

No dates
none has been announced for any item in this chapter, so none is given

1. Marked “coming soon” in the app

Pinnora cards

Where you see it. The last row of Quick actions is “Cards”, tagged “Coming soon”. A tap shows the message “Pinnora cards are coming soon.” and nothing more.

What can be said. Nothing about the card itself has been decided, so nothing is promised here: not its type, its fees, its limits or where it will be available. We will describe it when those decisions are made, and not before.

Signing in and signing up with Apple or Google

Where you see it. Apple and Google buttons appear under “or continue with” on the sign-in screen and under “or sign up with” on the sign-up screen. The buttons carry no tag of their own; each tap shows a message such as “Sign in with Apple is coming soon.” or “Sign up with Google is coming soon.”, and no account is created or opened.

Resetting a forgotten password by e-mail

Where you see it. “Forgot password?” on the sign-in screen, which answers: “We’ll e-mail you a reset link — coming soon.”

What works today. A forgotten password is handled like this:

1. If you have added a passkey on your device, it still signs you in without the password.
2. Otherwise, write to helpdesk@mypinnora.com from your account’s e-mail address, mentioning your @username. An administrator at Pinnora can reset the password; the reset is recorded in the audit log.
3. A reset signs out every device and removes every passkey on the account, so a passkey somebody else might have added cannot outlive the reset. You are told in the app and by e-mail, and can add your passkey again from Settings once you are back in.
4. Where the administrator sets a temporary password and asks for a new one to be chosen, the app takes you straight to choosing your own the first time you sign in with it.

2. Built, and waiting on a condition outside the app

Linking a bank account

In Settings, under Account, the Bank accounts row reads “Link account”. Linking is not offered yet, and rather than show a form that leads nowhere, the app says why. This is what happens when a customer taps it:

1. **Identity not verified:** the app asks the customer to complete identity verification first, with a button to start it. Nothing is recorded.
2. **Identity check in review:** the app explains that once the check is verified, it will look at whether linking a bank account is available where the customer lives.
3. **Identity verified:** the app asks the server, which records the request (who asked, the country on the verified account, and when; asking again updates the same record instead of adding another) and answers that bank transfers are not supported for that country due to regulatory restrictions, that the customer will be e-mailed as soon as they are, and that other payout methods can be used meanwhile. If the customer holds crypto that can leave Pinnora, the same screen offers a button to send it to a wallet instead.

The condition is regulatory, and the answer is given for the country on the customer’s verified account. We publish no list of countries and no dates. The e-mail promised in step 3 is the commitment: when the answer changes for a customer’s country, that customer is told.

Deposit networks shown as Suspended

Our crypto deposit and custody service provider publishes, for each network, whether it is active. Pinnora reads that list when the server starts and every six hours after. A network that is not active, or a single coin listed as not active on an otherwise active network, is shown in the app’s coin and network pickers as Suspended: greyed, not selectable and never with an address. A coin whose every network is suspended is listed after the others, and its Receive screen says that deposits of it are suspended.

At the time of writing (October 2026), the Solana and TON networks are shown as Suspended. Solana is one of the eight networks Pinnora’s deposit code takes deposits on, so when the provider lists it as active again, it returns to the pickers at the next read, with no app update. TON is different: the app knows the TON network only so that its coin is recognised for what it is, and Pinnora does not take deposits on it, so the label is not a sign that TON deposits will open.

3. Ongoing work

Languages

The app is available in 12 languages: English, German, French, Spanish, Portuguese (Brazil), Italian, Dutch, Turkish, Russian, Arabic, Chinese (Simplified) and Hindi. Arabic is laid out from right to left; every language writes amounts with the same Latin digits and follows its own plural rules; a language’s words are fetched only when it is chosen; and a phrase not yet translated shows in English rather than as a gap. For any other language, the app offers optional third-party machine translation. It first explains what that means: the text of each screen, figures and names included, is sent to that service to be translated; machine translation can get figures, names and legal wording wrong; and it can be switched off at any time in Settings → Language. It is switched on only when the customer presses Continue. No further languages have been announced, so we name none here.

What is not on this roadmap

> **Things we are not announcing**
>
> A Pinnora token, coin or ICO: Pinnora has none, and nothing in this chapter is one. Dates, quarters or seasons for any item. Features that are not yet visible in the app or present in its code. Figures for the items above, such as card fees or limits, which have not been decided.

How you will hear when something changes

When an item launches, it appears in the app. Because Pinnora is a web app, a new release reaches a customer the next time the app is opened with a working connection; there is no app-store update to wait for or install. Beyond that:

- **In the app:** Pinnora's team can send an announcement to the notification bell of every open account.
- **By e-mail:** to customers who keep the Announcements e-mail group switched on, as it is by default.
- **The terms:** a change is shown in the app at least 30 days before it applies, with what changes, and sent by e-mail unless announcements are switched off. A customer who objects before then is not bound by the change, though Pinnora may then end the contract as the terms allow.

Summary

Item	Where it shows today	What you can do now	What has to happen	Date
Pinnora cards	Quick actions: "Cards", Coming soon	Pay in by bank transfer or crypto; pay out to a bank, a crypto address or a member	Product decisions, not yet made	None set
Apple and Google sign-in and sign-up	Buttons on the sign-in and sign-up screens	E-mail and password, passkeys, optional two-factor	Not yet announced	None set
Password reset by e-mail link	"Forgot password?" on sign-in	Passkey sign-in; a reset by support	Not yet announced	None set
Linking a bank account	Settings → Account → Bank accounts	Request recorded; e-mail when available	Regulatory availability where the customer lives	None set
Solana deposits	Coin and network pickers: Suspended	Deposit on the other networks shown	Our provider lists Solana as active	None set; returns at the next read
Further deposit coins	The Deposit coin list	Deposit the coins listed there	Added to the catalogue by Pinnora's team	None set
More languages	Settings → Language	12 languages; optional machine translation	None announced	None set
Open roles	The careers page	Introduce yourself by e-mail	Roles to fill	None set

CHAPTER

15

Glossary

The words this paper uses, as Pinnora uses them. Each definition describes what the app and the server actually do, in plain language, and the chapter that covers the subject in depth is the place to read more. Where a figure can change, the definition says where the current one is shown rather than printing it.

Accounts and balances

Account number. An account's identifier: "PN-" followed by eight random characters, drawn from an alphabet without 0, O, 1 or I so it can be read off a screen and typed. Because it is random, it reveals nothing about the holder's e-mail address.

At work. The part of the total balance in plans, in open limit orders or pledged against a loan. It still belongs to the customer but cannot be spent until it is released. *See also Spendable.*

Display currency. The currency in which the app shows balances, prices and history. Cash is held and orders are placed in US dollars; the display currency changes only how figures are shown.

Funding wallet. The wallet where deposits arrive and from which withdrawals leave. Plan payouts, loans, Empowerment draw-downs, member transfers and referral rewards are paid into it.

Profit and loss (P&L). On the Statistics screen, the change in an account's value over a period less any money paid in or taken out, so a deposit is never shown as profit. Unrealised P&L is the gain or loss on investments still held.

Spendable. The part of the total balance sitting in the two wallets, ready to save, invest or send.

Total balance. Everything in the account at Pinnora's current prices: both wallets, plans (capital plus earnings), collateral pledged against loans and money reserved by open limit orders.

Trading account. The wallet where investments are held. Moves between it and the funding wallet are instant and free, and a buy uses its cash first, then the funding wallet.

Username. A member's @name: 5 to 20 lower-case letters, digits or underscores, starting with a letter. It is chosen once, and a name given up is retired for ever, so an old pay link can never pay a stranger.

Markets and orders

Buying by the dollar. Placing an order as an amount of money rather than a number of shares. The position grows by whatever fraction that amount buys at Pinnora's current price, so the price of one share does not decide how much is needed.

ETF and index fund. An exchange-traded fund is a fund whose units trade on a stock exchange like shares; an index fund aims to follow a market index. In the app both sit in the funds class.

IPO book. The list of initial public offerings in the app. Each shows its price band (the range the offer price is expected to fall in), its status and how much of the book is filled, as entered by Pinnora's team. Buying in fills at the offer price.

Limit order. An order on the Trade page to buy below or sell above the current price. It fills in full, at exactly the limit price, the first time a later price reaches it, and can be cancelled until then. *See also Reservation.*

Market order. An order that fills at once at the live price shown. Every order placed from an asset's own page is a market order.

Position on Pinnora's books. What a customer holds after buying. Pinnora fills every order itself, at its own prices, which follow public market prices; nothing is sent to an exchange. A position is not a share or coin bought at a broker and gives no rights against the issuer.[6]

Trading fee. A percentage charged on crypto trades, the same on an asset's page and the Trade page, and possibly none; it is shown before confirming. It is set in basis points (hundredths of a per cent), and the code caps it at 100 basis points, which is 1%.

Savings and investment plans

APY. The yearly rate the Savings screen shows for a savings plan. Each payout is that rate shared out over the payout interval; where the customer chose to add payouts to the savings, later payouts are worked out on the larger amount.

Compounding. Adding each payout to the plan instead of the funding wallet, so it earns in turn. Only some plans offer it, and the customer chooses it when joining.

Early-redemption charge. A charge some plans make when money is redeemed within a set window after it was added. Both are in the plan's terms, and the exact amount is quoted before a redemption is confirmed.

Fixed-term plan. A savings plan that runs for a set number of days at the rate it opened with. At the end, the money comes straight back to the funding wallet.

Flexible plan. A savings plan with no lock-up: money can be redeemed at any time.

Floating-rate plan. A flexible plan whose rate can change. Every holder is told the old rate, the new one and the moment it changed.

Investment plan. A fixed-term plan that aims for a target return, pays on its schedule into the funding wallet under its own rules and pays the capital back when the term ends.

Lot. One subscription to a plan, with its own start, schedule, end and choice of where profit goes. Adding money opens a new lot, so nobody's term restarts, and the plan's terms as accepted are stored with it.

Mixed plan. One deposit split into a flexible part and a fixed-term part, in one of the shares the plan offers, chosen by the customer. The fixed part cannot be redeemed early.

Pool. The total a plan holds, counted from what is actually in it at the current price, never typed in. Some plans accept only so much in total and say when they are full.

Release delay. The number of days some plans hold redeemed money before releasing it to the funding wallet. The money stops earning at once.

Target return. The return an investment plan aims for, also shown as a targeted APR. It is a target under the plan's rules, not a promise.[6]

Loans and Empowerment

Collateral. The stock, fund or crypto holding a loan is secured on, one holding per loan. It is locked, so it cannot be sold, sent or withdrawn, until the loan is repaid. Cash cannot be collateral.

Empowerment facility. Capital for a business: a loan to the business, decided by people, repaid in equal instalments every 30 days from payout at a rate fixed at application. No share of the business is taken.

Liquidation price. The collateral price at which a loan would reach its liquidation loan-to-value. The collateral can then be sold at Pinnora's price to repay the loan and interest; anything left goes to the funding wallet, and any shortfall is written off.

Loan-to-value (LTV). What is owed, borrowed plus interest, divided by the collateral's value: $500 owed against $2,000 of collateral, for example, is 25%. A new loan is opened at a chosen step, from 25% up to the highest allowed.

Simple interest. Interest worked out only on the amount borrowed, at the loan's own yearly rate, for the time the loan is open, and paid with the loan. There is never interest on interest.

Moving money

Deposit address. A crypto address for one customer on one network, shown with a single coin, the network and that coin's minimum. Sending another asset, using another network or sending less than the minimum results in the permanent loss of the funds.

"I've sent it". The button that tells Pinnora a bank transfer is on its way. It puts the deposit in order in the queue and moves no money. A deposit to a customer's own crypto address needs no such step.

Member transfer. Sending money to another member by @username, account number or pay link: instant, free and final, recorded for both members in one transaction. Like a withdrawal, it needs a verified identity.

Network. The blockchain a crypto deposit or withdrawal travels on, such as Ethereum, Tron or Bitcoin. Tokens follow its standard: ERC20 on Ethereum and similar networks, BEP20 on BNB Smart Chain, TRC20 on Tron and SPL on Solana. A withdrawal address is checked against the network's own rules before anything moves.

Network confirmation. Each block that records a transaction or is added on top of it counts as one confirmation. Each network needs a set number before a deposit counts; the deposit screen says how many, and an arriving deposit shows its count as it climbs.

Suspended network. A network shown greyed out and not selectable for deposits while the provider lists it as inactive. At the time of writing (October 2026), Solana and TON.

Transaction reference. An 11-digit random number, never starting with 0, that identifies one transaction. It is not a counter, so it reveals nothing about volumes.

Withdrawal fee. A flat fee plus a percentage of the amount, or a smallest fee if that is more, worked out in dollars and taken in the asset withdrawn. It is shown before confirming and repeated in the notice.

Security

Audit log. The security log of staff actions and of what is done on each account: who, when, from which IP address and browser, and what changed. Each entry is chained to the one before by a keyed hash, so altering or deleting entries in the database can be detected. It is never shortened, because removing an entry would break the chain.

Backup code. One of six single-use codes shown once when two-factor authentication is switched on, for signing in without the authenticator app.

CSRF token. A separate secret sent with every request that changes something, so that another website cannot make a signed-in browser act without its owner.

Passkey. A sign-in credential created on a device under the WebAuthn standard and unlocked with Face ID, Touch ID or the device passcode. Its private half never leaves the device, and it works only on Pinnora's own site.[36]

scrypt. The deliberately slow, memory-hard function used to store passwords, so every guess against a stolen copy costs real time and memory.

Sealing. Encrypting the one secret the server must read back under a key split between two places, so neither a backup nor a leaked configuration file opens it alone.

Session. The signed-in state of one browser, held in a cookie scripts cannot read. It is bound to that browser and network, ends after 7 days idle or 30 days at most, and ends at once if the cookie turns up elsewhere.

Sign-in alert. A notification and e-mail naming the device whenever someone signs in, and after repeated failed attempts or any change to how the account is entered.

Step-up. Asking for the password or a passkey before money leaves, a passkey is added or two-factor changes, unless the customer confirmed in the last ten minutes.

Two-factor authentication. An optional second step at password sign-in: a six-digit code from an authenticator app, changing every 30 seconds under the TOTP standard, each code usable once.[37] A passkey sign-in needs no extra code.

Technology

Installable web app. A website that a phone or computer can add to its Home Screen and open in its own window like an app, with nothing to download from a store.

Prepared statement. A database command whose values travel separately from its text, so nothing a customer types can ever be read as part of a command.

Service worker. A small script the browser runs beside the app. Pinnora's shows push notifications and keeps a copy of the app's own files so it opens offline; it never stores balances or other account data.

Identity, privacy and care

Data controller. The organisation responsible for personal data under the GDPR: for Pinnora, Pinnora Technologies Limited, 4 Güldenhofer Ufer, Treptow-Köpenick, 12437 Berlin, Germany.[8]

GDPR. The EU's General Data Protection Regulation. It gives customers rights to access, correct, delete, restrict and move their data, to object, and to complain to a supervisory authority; the one Pinnora's privacy policy names is the Berlin Commissioner for Data Protection and Freedom of Information.[31]

Identity verification. The check, often called KYC ("know your customer"), that unlocks withdrawals, sending money and Empowerment: personal details, photos of an identity document and a selfie taken in the app, reviewed by Pinnora's own staff.

Referral link. mypinnora.com/r/ followed by a member's username. When a friend joins with it, verifies their identity and makes approved deposits that reach the qualifying amount, both are rewarded at the same moment.

Support conversation. A support ticket opened in the app, with a reference beginning T-…. It keeps the whole exchange, screenshots included, in one place, and is answered by a person.

Verified customer. The badge on a review whose author has a verified identity and at least one completed deposit. It is worked out each time the page is shown, and nobody can switch it on.

CHAPTER

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Frequently asked questions

Short, plain answers to the questions customers, partners and journalists are most likely to ask, grouped by topic. Each answer describes what the app and the server do today; the earlier chapters explain each subject in depth. Where a rate, fee or limit matters, the answer says where the current figure is shown rather than printing one that may change.

Pinnora and the company

Who is behind Pinnora?

Pinnora Technologies Limited, a company registered in Germany, at 4 Güldenhofer Ufer, Treptow-Köpenick, 12437 Berlin. It was founded by Idse Pen and by Sergio Mayo Rieken, its director, and Zubayr Jamal al Din Daher is the chairman of its board; the company is led by its founders, the chairman and 13 other board members. It was incorporated in 2018, and the Pinnora app and its service launched in 2026.[4, 1]

Does Pinnora have its own token or coin?

No. Pinnora has no token or coin of its own and has never held a token sale. The crypto assets in the app, such as bitcoin and ether, are existing assets whose prices follow public markets. So anything offered as a “Pinnora token” or “Pinnora coin” is not issued by Pinnora.

Do I need to download anything?

No. Pinnora opens in a web browser at mypinnora.com/app/, on a phone or a computer, and can be added to the Home Screen to open like any other app. On an iPhone, notifications and Face ID sign-in work once it is installed.

Does Pinnora give investment advice?

No. Nothing in the app or on the website is personal investment, tax or legal advice, or a personal recommendation; the product pages explain how each product works so that customers can decide for themselves. Customers are responsible for any tax on their gains and income, and for reporting it.[6]

Your account and identity

Who can open an account?

An adult of at least 18 with full legal capacity, opening it in their own name and for themselves. Each person may hold one account, must give true and current information, must not be subject to sanctions that apply to Pinnora, and must not live in, or use Pinnora from, a country where using it is prohibited.[6]

What does verifying my identity involve, and what does it unlock?

Personal and financial details, photos of a passport, driving licence or national ID card, and a selfie, taken with the camera in the app (where the camera can’t open, with the phone’s camera app or as a photo from the device; reviewers see which). Pinnora’s own staff review each check, with no outside identity-check service. Verifying unlocks withdrawals, sending money and applying for Empowerment. Before then, a customer can still explore the app, deposit and invest.

What if I forget my password?

A self-service reset by e-mail link is marked in the app as coming soon. Until then, a customer who has added a passkey can still sign in with it, without the password. Otherwise support can reset it with a temporary password, which must be replaced at the next sign-in before the account can do anything else.

Investing and trading

What do I own when I buy a share or a coin?

A position on Pinnora's books. Pinnora fills every order itself, at its own prices, which follow public market prices; nothing is sent to an exchange. The position is not a share or coin bought for the customer at a broker or on an exchange, and it gives no rights against the issuer.[6]

Where do prices come from, and how fresh are they?

From independent market-data sources. Crypto is re-priced every 30 seconds for trading, day and night; shares and funds update on a regular timer during their trading hours. Each asset's page says how fresh its price is. A quote that would move a price by an implausible multiple is refused and recorded, never applied to anybody's holdings.

What is the difference between a market order and a limit order?

A market order fills at once at the live price; on the Trade page it is refused on an out-of-date price, and stops to ask again if the price moves against the customer beyond a small margin or the fee rises. A limit order names a price. What it may spend is set aside when it is placed, and it fills in full at exactly that price once the market reaches it, unless cancelled first.

Is there a trading fee?

Shares, funds and IPOs bought or sold from an asset's page carry no fee. Crypto trades may carry a percentage fee, the same on an asset's page and the Trade page, shown on the order ticket before anything is placed. The code does not allow it to exceed 1% of the trade.[23]

Savings and investment plans

Is a plan's target return a promise?

No. A plan's return is its target rather than a promise, and markets can go down as well as up. Each plan shows its rate or target, minimum, term, payout interval and charges before joining. The customer accepts its terms explicitly, and the wording and time of acceptance are stored, so a later edit never rewrites what they agreed to.[6]

Can I take money out of a plan early?

Yes, except the fixed part of a mixed deposit. Earning stops at once. Some plans hold redeemed money for a set number of days, or keep a share of it within an early window; they say so before joining, and the app quotes the exact amount and date before the customer confirms. At maturity, capital comes back at once, with no charge.

Loans and Empowerment

What happens if my collateral falls in value?

The loan-to-value rises and the loan's health label moves towards At risk. If the collateral reaches the liquidation price shown on the loan, it can be sold at Pinnora's price: the proceeds repay the interest, then the amount borrowed; anything left is paid to the funding wallet in dollars, and any shortfall is written off. Repaying in full at any time takes that risk away.

What does a loan cost, and can I repay part of it?

A loan costs its interest: simple interest on the amount borrowed, at the rate fixed when it opens, paid with the loan. There is no arrangement or early-repayment fee. Repay settles the whole loan and its interest in one go; partial repayment is not offered.

Who decides an Empowerment application, and how long does it take?

Pinnora's capital team decides every application; none is decided by automated means alone. The business receives a reference beginning "EMP-" at once, with a notice saying how long a decision takes. A decline gives the reason or asks the business to contact support.

Moving money

How long does a deposit take?

A deposit is a request until the money behind it has arrived and been checked; nothing credits itself on a timer. A bank transfer is matched by the reference the app gives, so it must be quoted. A crypto deposit must also be confirmed on its network, and the app counts the confirmations as they arrive. The customer is notified when the money lands.[5]

What does the crypto deposit screen show, and what if I use the wrong network?

Only the coin and network the customer chose: the address to send to, with a QR code and a copy button, the minimum deposit, "Deposit fee: Free" and the number of network confirmations the deposit needs. Sending another asset, using another network or sending less than the minimum results in the permanent loss of the funds, so all three are worth checking before sending. Networks our crypto deposit and custody service provider lists as inactive are shown as Suspended and cannot be chosen; at the time of writing (October 2026), these are Solana and TON.[6]

Can I pay in by card?

No. Money comes in by bank transfer or crypto only, and Pinnora charges nothing for either, though the sender's bank or network may. Pinnora cards appear in the app as "coming soon"; nothing about them has yet been decided.

Why is my withdrawal "In progress", and is there a limit?

Pinnora's team checks and processes each withdrawal, and one that cannot be completed is returned in full. Withdrawals and sends to outside addresses count towards a daily limit, shown in the app, that resets at midnight UTC; transfers between members do not. The fee is shown before confirming and repeated in the notice.[5]

Is sending money to another member free?

Yes: instant, free and final, by @username, account number or pay link. Before money moves, the app shows a short name such as "Ada L.", the username, the account number and whether the recipient is verified, never their e-mail address. Sending needs a verified identity.

Referrals

How does inviting a friend work?

Each member's referral code is their @username, and their link is mypinnora.com/r/ followed by it. The Referral program screen in the app has the link ready to copy, as a QR code and as ready-made images to post. A friend who opens it starts their sign-up with the inviter already named. Friends who open the link see only the @username, never a name or an e-mail address.[51]

Security and privacy

What stops someone else using my account?

Several layers: a password stored only as a slow, salted hash; optional passkeys, which work only on Pinnora's own site; optional authenticator codes; a fresh password or passkey check before money leaves; sessions tied to their browser and network; and an alert naming the device for every new sign-in. These are measures, not a promise, so read every alert and use a password used nowhere else.[7]

Why am I asked for my password again?

Withdrawing, sending money, adding a passkey and changing two-factor settings need a password or passkey confirmation within the last ten minutes. Being signed in alone is not enough to move money out.

Will Pinnora ever ask for my password or a code?

Only the app's own sign-in and confirmation screens ask for them; support never needs either. Staff never contact customers through social media or private messages. The official channels are support tickets in the app, helpdesk@mypinnora.com, compliance@mypinnora.com for identity checks, and replies to e-mails Pinnora sent.[6]

Does Pinnora track me or sell my data?

No. The website sets no cookies and uses no analytics or advertising tools; the app uses only strictly necessary cookies, and e-mails track no opens or clicks. Pinnora buys no data about customers and never sells or shares it for advertising. Its crypto deposit and custody service provider receives a customer number and the blockchain data of deposits, never a name or an e-mail address.[8]

What happens to my data when I close my account?

Repay any loan, withdraw the balance and ask, by ticket or e-mail. Pinnora settles what is open, then deletes the account's balances, history, plans, loans, identity data and photos, tickets, notifications and passkeys at once. The security log is never shortened, the username stays reserved, and nightly backups age out within 14 days.[8]

Help and feedback

How do I get help or make a complaint?

Open a support ticket in the app, which gets a number beginning "T-", or write to helpdesk@mypinnora.com from the account's address, mentioning the @username. A person answers. For a complaint, say that it is one and include any references; Pinnora looks into each complaint and replies in writing.[25] Pinnora is neither willing nor obliged to take part in dispute resolution proceedings before a consumer arbitration board (§ 36 VSBG).[6]

Are Pinnora's reviews filtered?

Any account holder can publish one review, from one to five stars, in Settings → Support → Rate Pinnora. A review is taken down for only four reasons: it is abusive, contains personal data, is spam or is not about Pinnora; never for being negative. The "Verified customer" badge is worked out each time the page is shown.

Where do I find the rates, fees and limits that apply to me?

In the app, before confirming. Rates, rewards, fees and limits are set in one place and can change, so the figures that apply are the ones shown at the moment of confirming; a change never alters a transaction already confirmed.

> **The app has the final word**
>
> Figures on Pinnora's website are a guide, and most are filled in from live settings as each page is sent. The figure that applies is always the one the app shows before you confirm, and fees and limits change only for the future.

CHAPTER

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References and legal notice

Every source this paper cites, in one numbered list, followed by the terms on which the paper is published. The numbers match the small superscript figures in the text and run in the order in which each source is first cited.

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The list holds 51 sources: 19 of Pinnora's own published pages, including its terms of service and privacy policy (both last updated on 10 October 2026), and 32 public documents by other publishers, such as statistical reports, laws and technical standards. Statements about how the app and server behave come from Pinnora's own product and code as they stood in October 2026; outside statistics are cited, not restated as our own findings. Web addresses were correct when this paper was written.

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Information only. This paper describes how Pinnora works as of October 2026. It is not an offer or a solicitation to buy or sell any investment or other product, and it is not investment, tax or legal advice or a personal recommendation. Customers decide for themselves what suits them and are responsible for any tax on their gains and income.

Targets are not promises. A plan's return is a target, not a promise. Prices move, and the value of investments can go down as well as up. Amounts marked "for example" are round figures chosen to show how a flow works, not offers or forecasts.

Pinnora whitepaper · Version 1.0 · October 2026

The app has the final word. Rates, rewards, fees, limits and minimums can change and are not quoted here as fixed figures; the ones that apply are those the app shows before the customer confirms. The rules for using Pinnora are those in the terms of service, and the use of personal data is governed by the privacy policy, both at mypinnora.com; this paper describes them but does not change them.

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Thank you for reading

Pinnora brings investing, saving, borrowing and payments into one account, and shows what each thing costs before anyone pays it.

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