

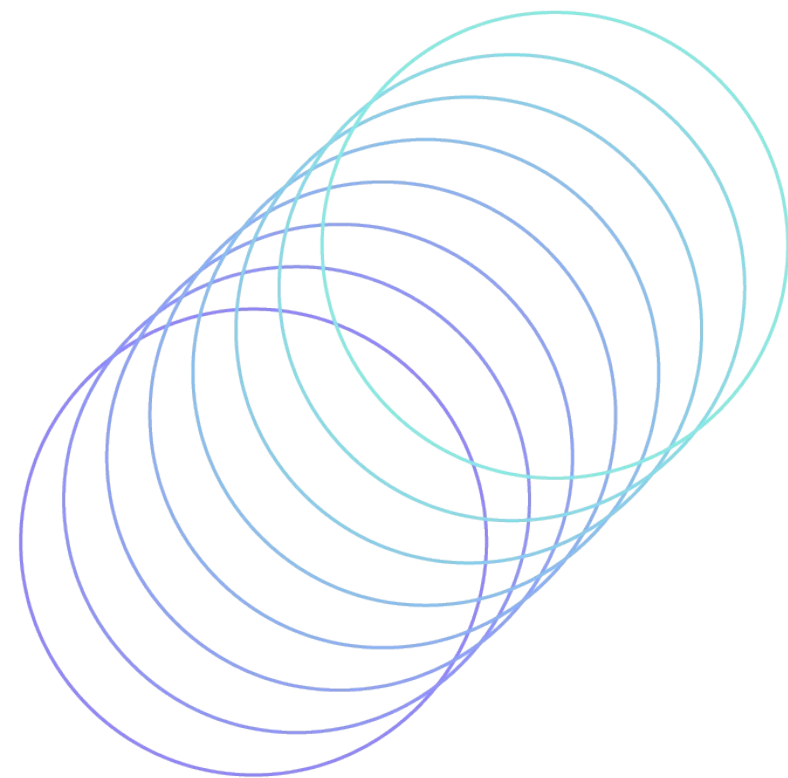
# Rebuilding financial services from the inside

What tech teams in financial institutions are thinking,  
that they want the rest of the business to understand.



## Welcome!

**This report is jam-packed with insights, explanations and action-points to help Financial Institutions (FIs) increase revenue and move faster.**



You're in the right place if:

- **You're a technologist** trying to explain the intricacies, challenges and potential of financial technology to your team and management.
- **You're a non-technical person** seeking to better understand the complexities of the technology behind your business.

We're all about taking big topics and stripping back the jargon to make it extra clear and simple to understand. Stay up to date with all of our latest content by following us on our social media channels, and subscribing to our newsletter.

Enjoy

**The II:FS team**





## Contents

The market: Which factors are challenging FIs right now?	4
The problem: What's preventing FIs from capturing digital growth opportunities?	10
The change: How can FIs unlock growth with faster change?	20
The solution: The 11:FS truly digital architecture	36
The action plan: Getting from where you are to where you want to be	46
How we can help: Rebuilding from the inside	52
Glossary	57



**The market**

**Which factors  
are challenging  
FIs right now?**

# Everything happening in the market is converging to impact FIs

## Customers are changing



Customers are becoming more demanding as their needs evolve and competitors raise the bar with new services. Traditional financial products are not sufficient, and are failing to evolve.



## Competitors are evolving



Big tech has secured a foothold in the market and fintechs are carving out new segments (and dominating them).



## Tech costs are rising



The compounding costs of building new layers of tech on top of yesterday's infrastructure are no longer sustainable.



**Lost profitability & growth**

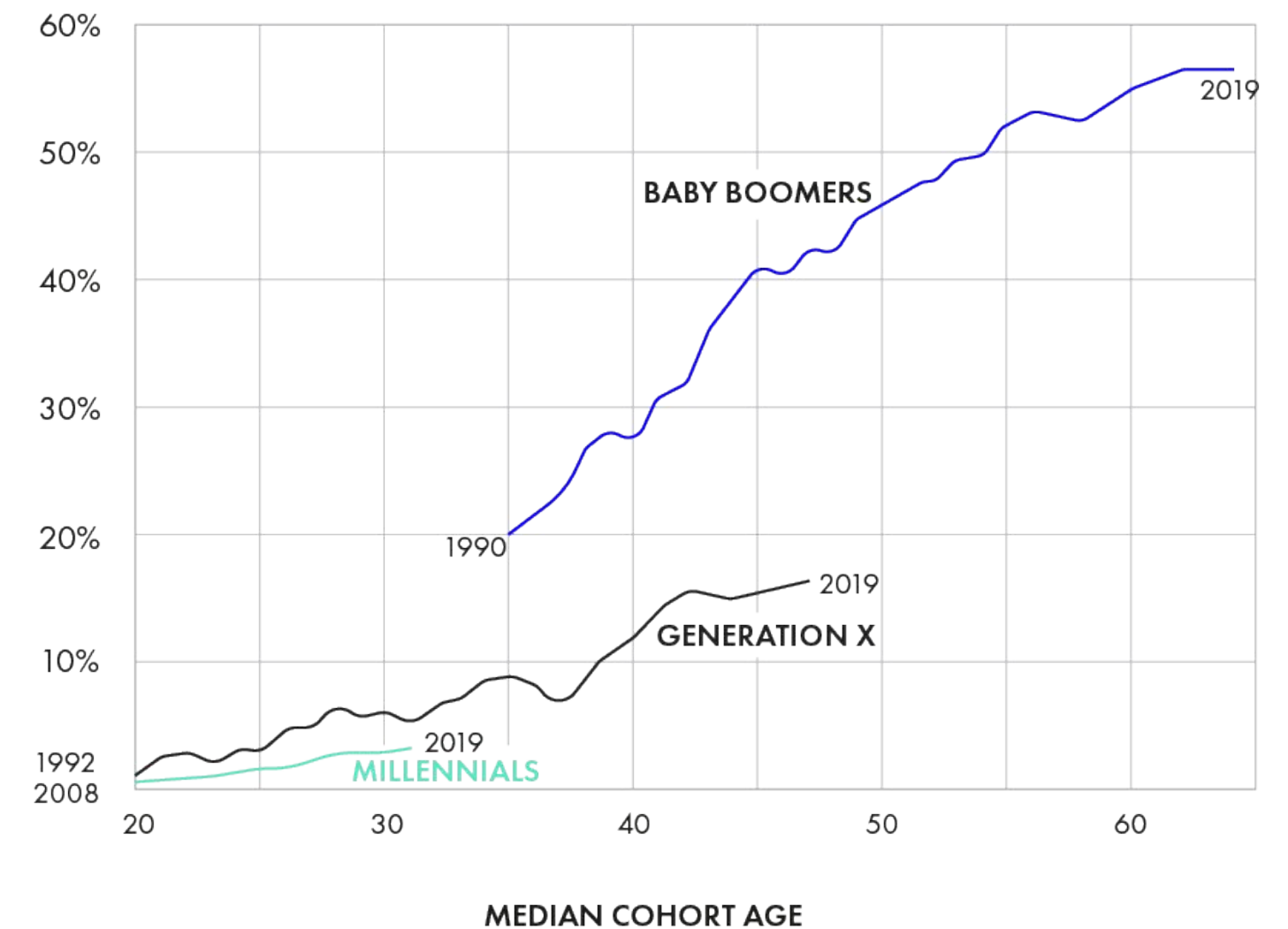
## Customers are changing

# Customers are facing increasing pressure but FIs aren't adapting

- ▶ **Consumer attention is decreasing** ([now averaging 7 seconds](#)). FIs aren't doing anything to earn a share of that attention, but fintechs are.
- ▶ **Customers now expect more than simple banking services.** The likes of Square, Monzo & Chime have reset expectations for the whole industry.
- ▶ **Pressure on consumers is increasing** as the bottom 50% of incomes fall in real terms, and [78% of Americans live paycheck to paycheck](#).
- ▶ **Asset prices are soaring**, making the dream of home ownership and social mobility harder to reach for an entire generation.

## Intergenerational wealth

Share of national wealth owned by each generation, by median cohort age



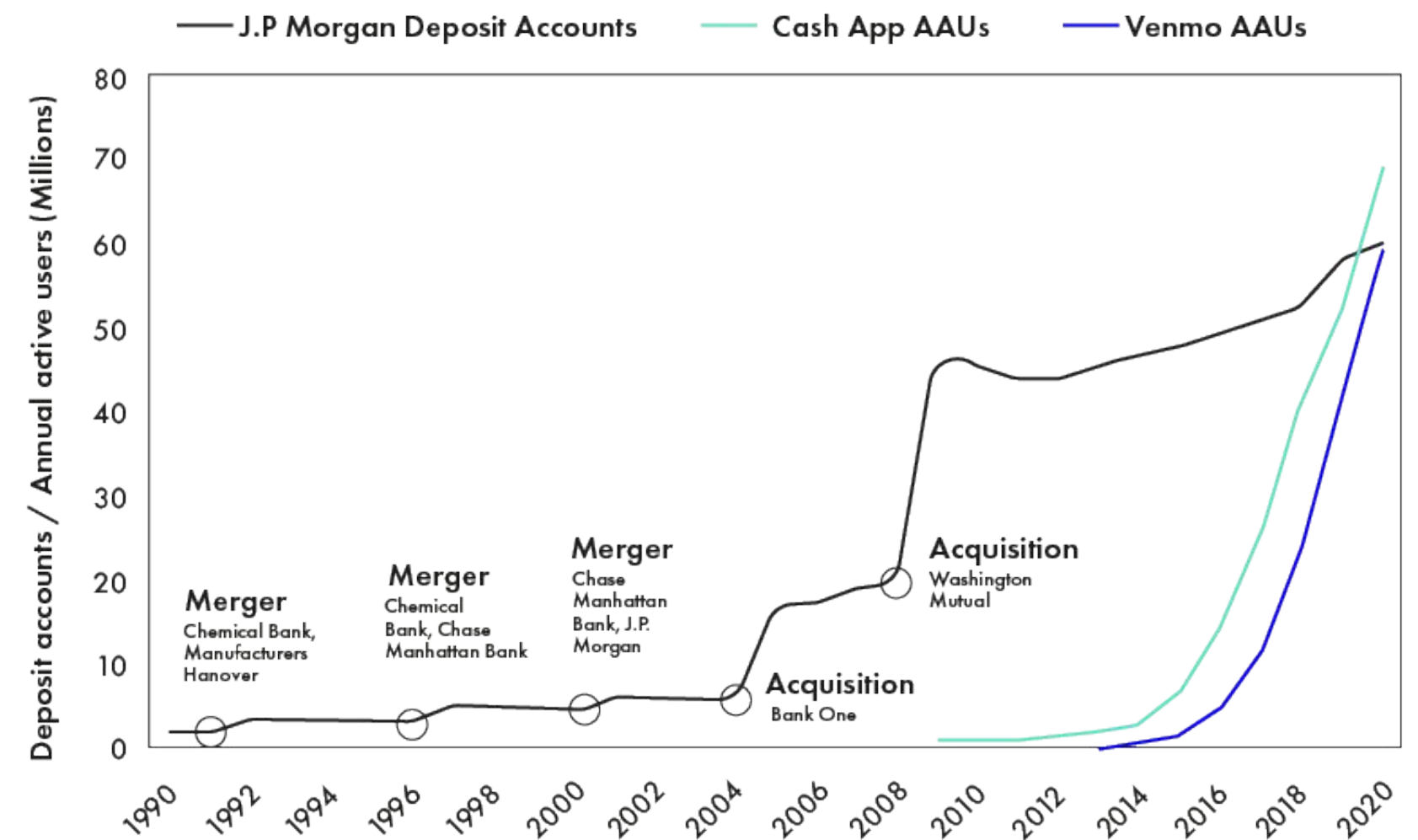
## Competitors are evolving

# New entrants are solving the new problems faced by customers – financial institutions aren't

- ▶ Many companies are now becoming primary consumer **interfaces for finance**. For example; payroll providers, ride hailing companies, e-commerce platforms, accounting providers and car companies.
- ▶ In the US, digital wallets are surpassing the number of deposit account holders at banks, and we see similar trends globally.
- ▶ These companies replace many of the features of traditional **banks**, but with a much lower operating cost (e.g. [Square's Cash App customer acquisition cost is <\\$5](#)). Many of these wallets are moving into lending and report average revenue per user (ARPU) of ~\$45.

All of these players are able to address deeper customer problems than traditional finance products.

J.P. Morgan Chase deposit accounts vs. Cash App and Venmo annual active user (AAUs)





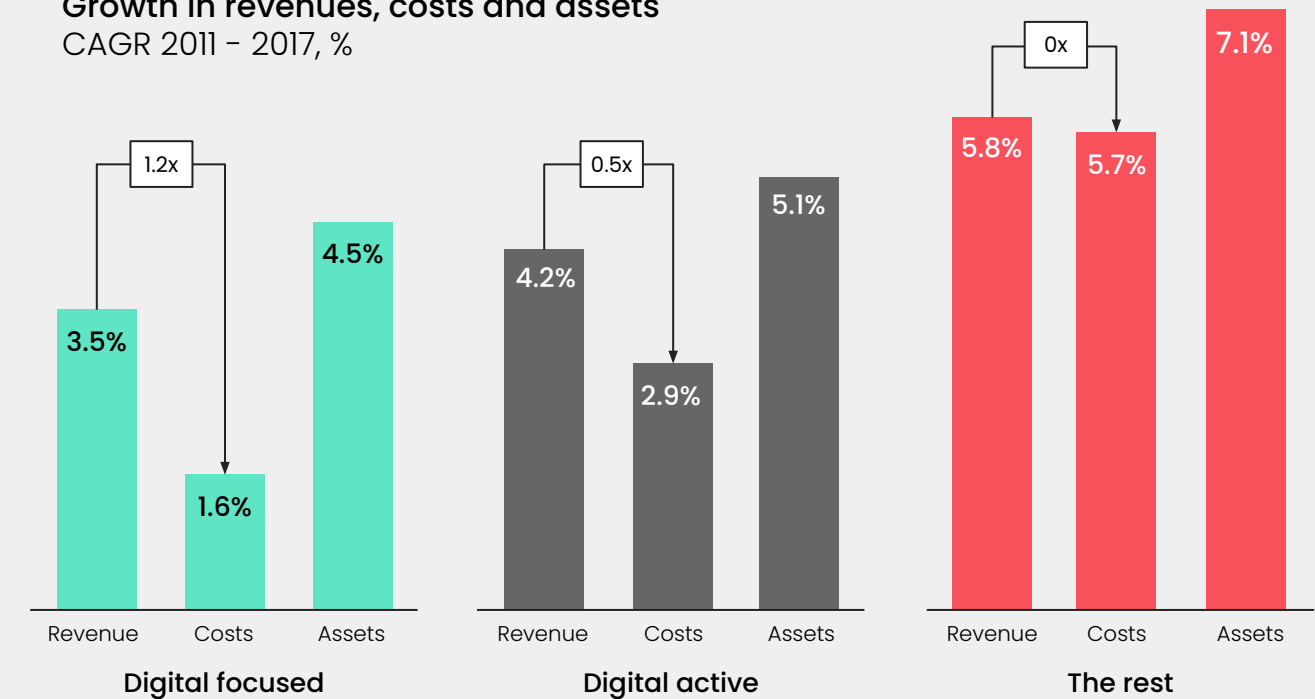
### Tech costs are rising

## FIs have to spend a fortune to stand still

- ▶ The top 100 banks have spent more than [\\$1 trillion on digital transformation](#) in the past 3 years, but the majority has not led to revenue growth.
- ▶ Large investments in tech see small returns. [The largest banks spend almost as much on tech as big tech players](#), but do not see the same revenue growth.
- ▶ Growth in costs is almost equal to growth in revenue ([for 50% of banks](#)), and profitability growth even at the most digital banks is as little as 2% per year.
- ▶ The cost of maintaining tech rises with every project. New technology is piled on top of decades of tech debt, compounding the complexities and therefore the costs.

Company	Tech spend (est)	As % of FY20 revenues	5yr revenue CAGR
Amazon	\$28.8bn	7.3%	29%
Alphabet	\$21.4bn	11.7%	19.8%
JP Morgan	\$11.5bn	8.8%	2.7%
Bank of America	\$9.6bn	11%	0.71%
Citigroup	\$8.4bn	13.9%	-0.55%
HSBC	\$6.0bn	11.9%	-1.16%

Growth in revenues, costs and assets  
CAGR 2011 - 2017, %



Note: Values calculated as simple mean of 140 banks. Outliers have been excluded  
Source: Accenture Research on S&P Capital IQ data



The background features a series of thin, parallel lines in shades of blue and green, creating a sense of depth and movement. The lines are arranged in a way that suggests a perspective, with some lines appearing to recede into the distance. The overall effect is a clean, modern, and slightly futuristic aesthetic.

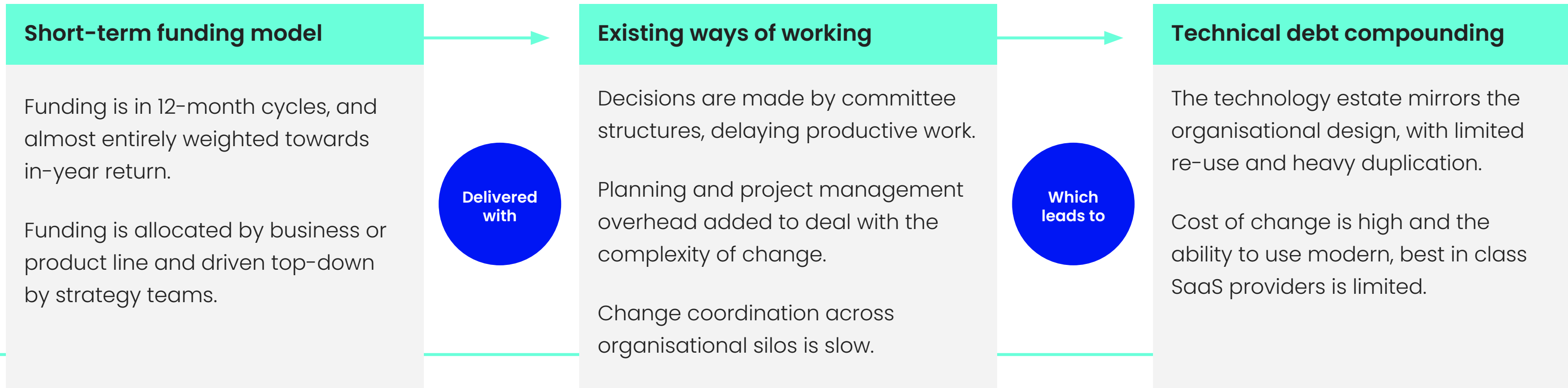
**Throwing money at tech  
isn't driving revenue growth.  
Something is broken.**



## The problem

# What's preventing FIs from capturing digital growth opportunities?

## Three key areas create drag on the business



### Short-term mindset

The culture, mindset and strategy of the organisations are highly geared towards quarterly and annual results cycles. Decision making is top-down, power sits in committees and incentives are driven by product line.

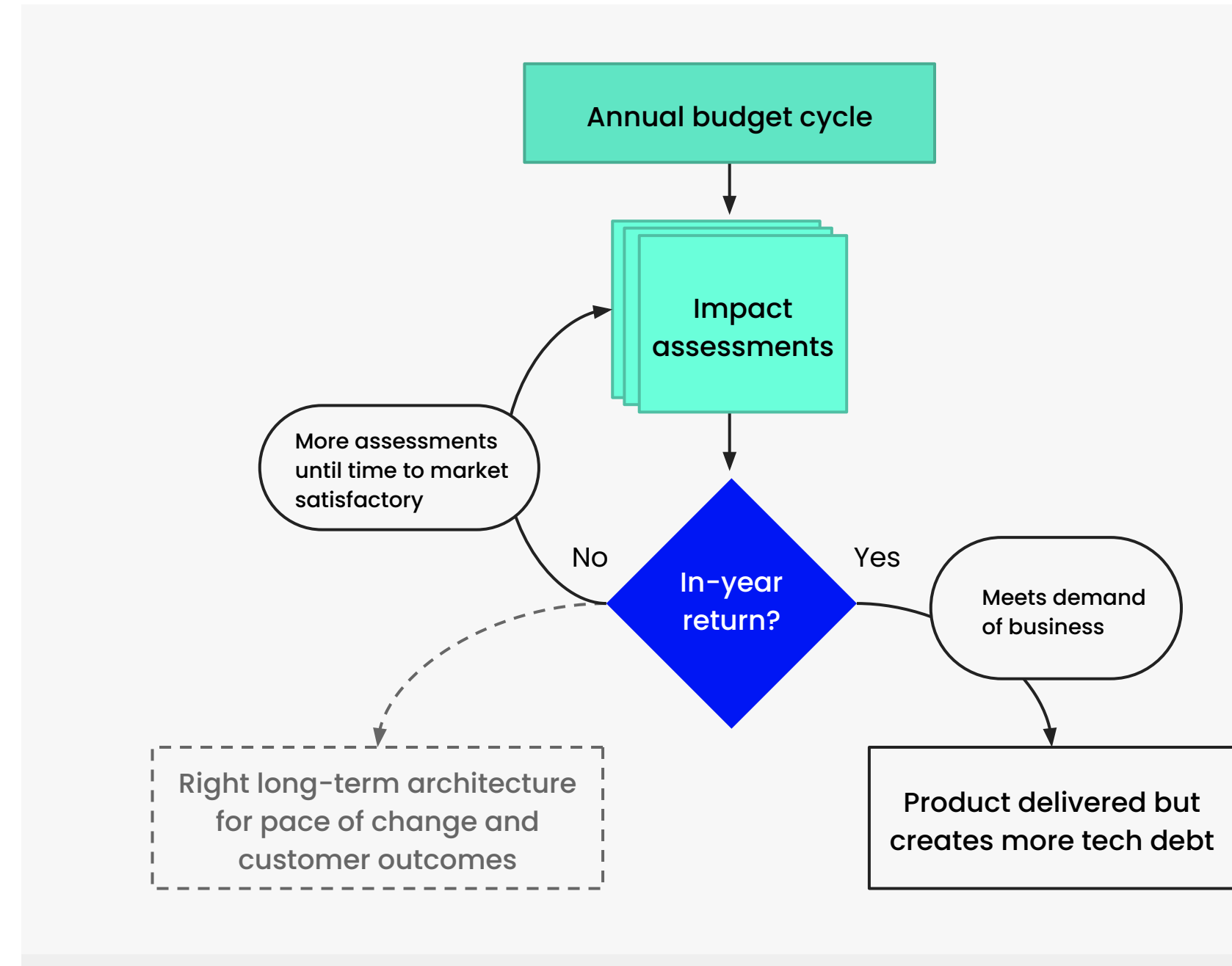
## Short-term decision making means FIs miss out on the benefits from consistent tech investment

The way most FIs prioritize budget hasn't changed in decades.

Budgets are on annual cycles, decisions are based on flawed ROI models, and roadmaps are prioritised based on what will deliver in-year return.

If a financial institution wants to add a new feature to a product, it will "impact assess" or estimate 3 or 4 ways of doing that. Then a non-technical team driven by top-down KPIs will choose which option is developed.

The business prioritizes an in-year return, over the right architecture. This results in an architecture that can never go faster or deliver engaging new propositions at low cost.





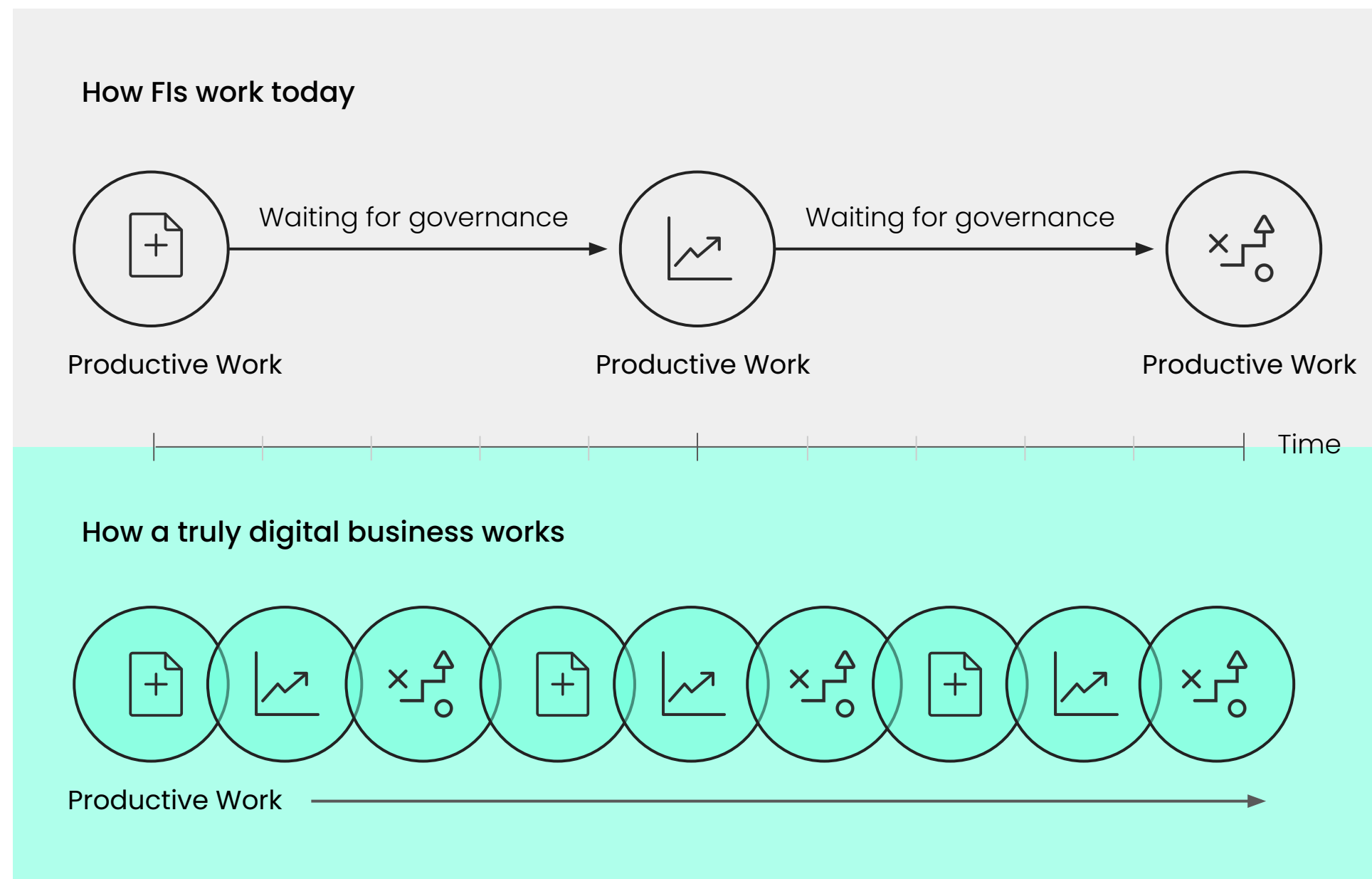
## Slow, centralized decision-making by committees repeatedly delays productive work

The majority of process at incumbents is still not agile.

Outside of the coding and software development, much of the way FIs work hasn't changed since the 1990s.

Large central strategy teams work across organisational silos to agree a roadmap. This roadmap then has to run through a gauntlet of governance processes to get budget and resource allocated.

Once allocated, any change must run through several more governance processes before the new product can be approved.



- ▶ Truly digital businesses have the technology, culture and processes that let them make decisions and act on them, quickly.

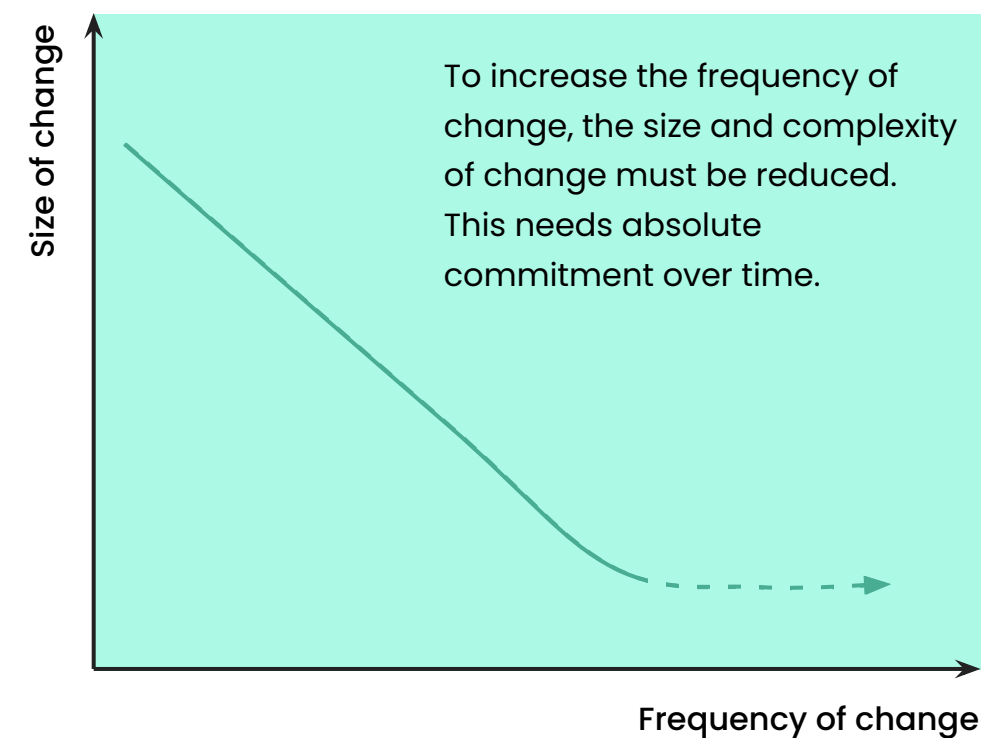
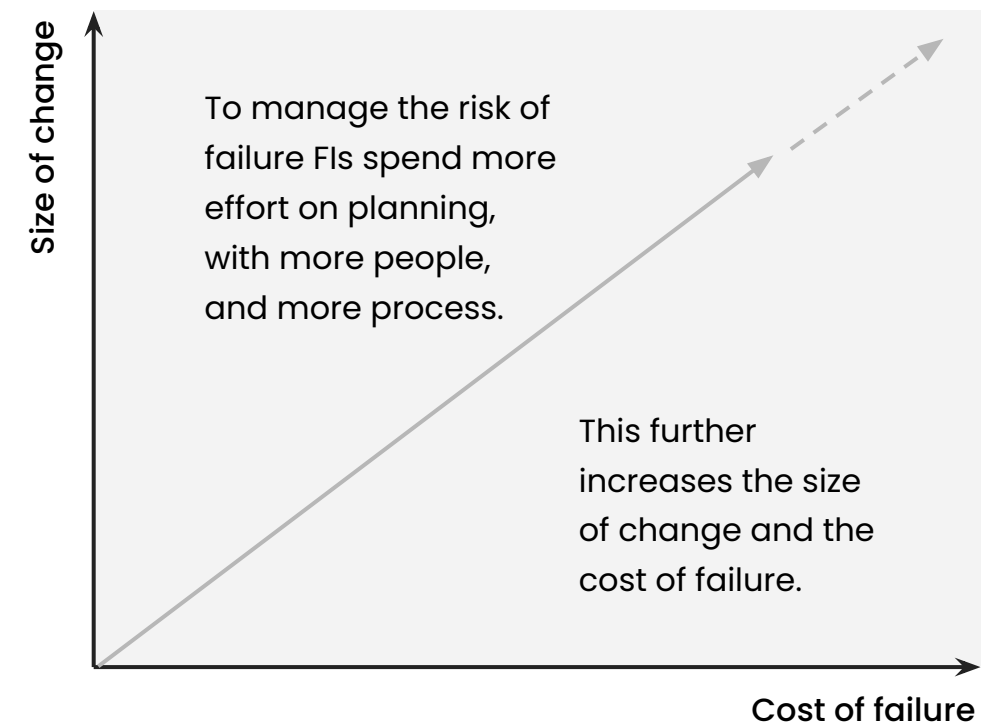
# The complexities of FIs' technology makes them invest disproportionate time and planning into each change

FIs are making changes larger and harder, which is the opposite of what they should be doing.

To lessen the likelihood of failure, more planning, people and budget goes towards each change.

This puts more pressure on delivery because the size of the change is now larger and the cost of failing is now far higher.

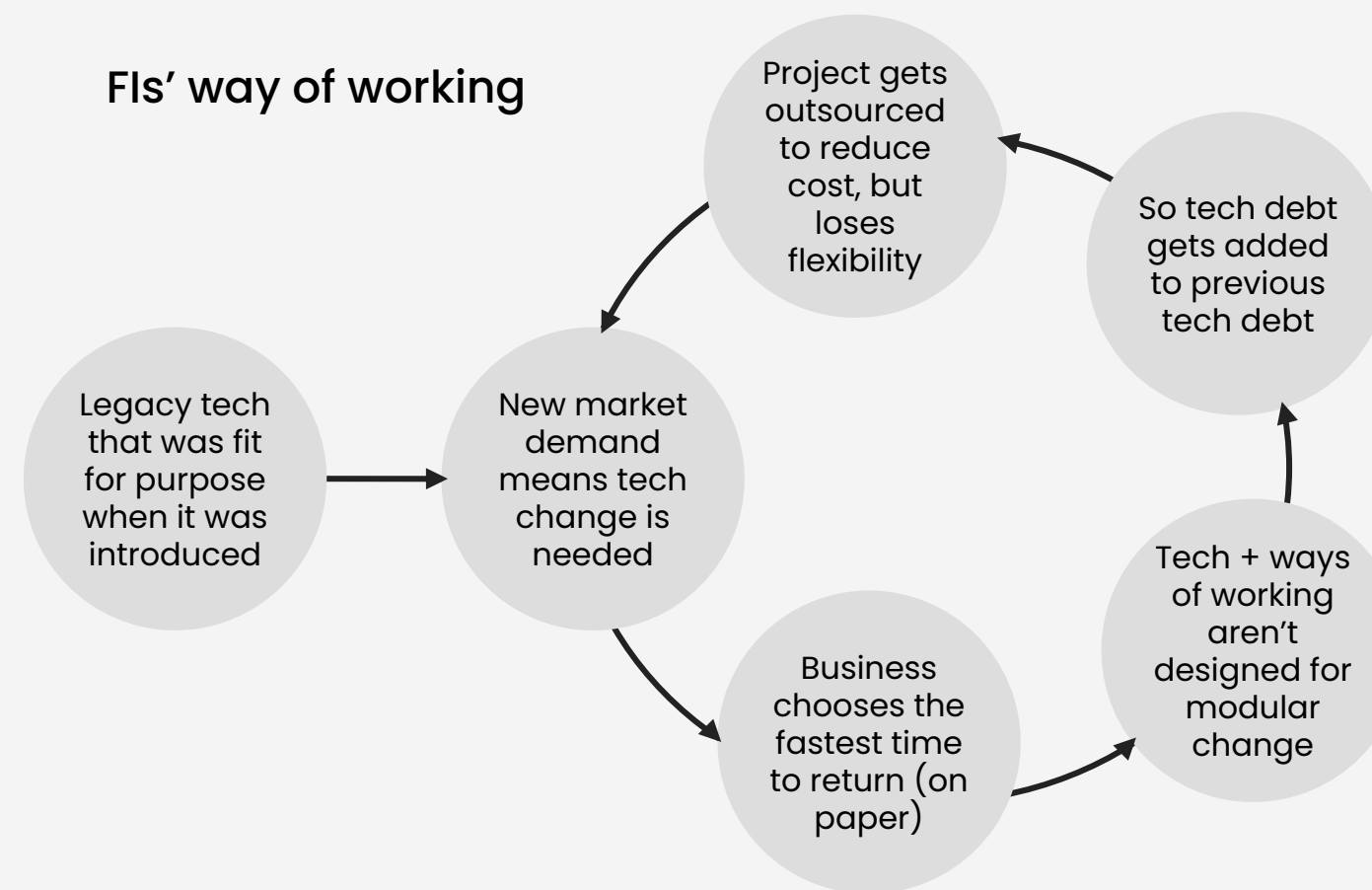
When each release is such a large project, it results in FIs worrying about "what feature made the release" instead of "is this feature solving a customer problem?"



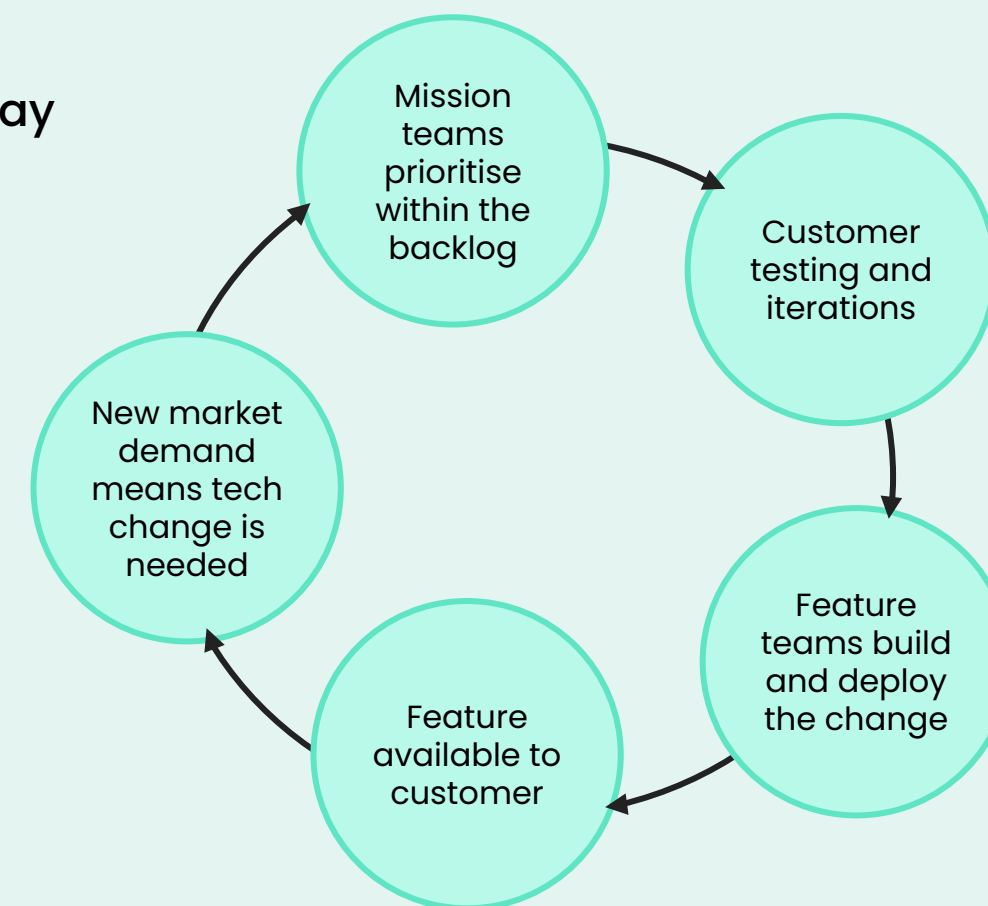
## They're trying to create new products with legacy tech and old ways of working

- ▶ This cycle happens for every tech change within an FI. Each time, the shortest route to revenue is chosen and more tech debt is added, making all future changes more complex, time consuming and costly.
- ▶ Truly digital businesses have faster ways of working based on customer impact over short-term returns.

### FI's way of working



### Truly digital way of working



## Tech real estate is becoming more complex, more expensive and slower to change over time

FI architectures mirror the org design, leading to duplication of systems across silos.

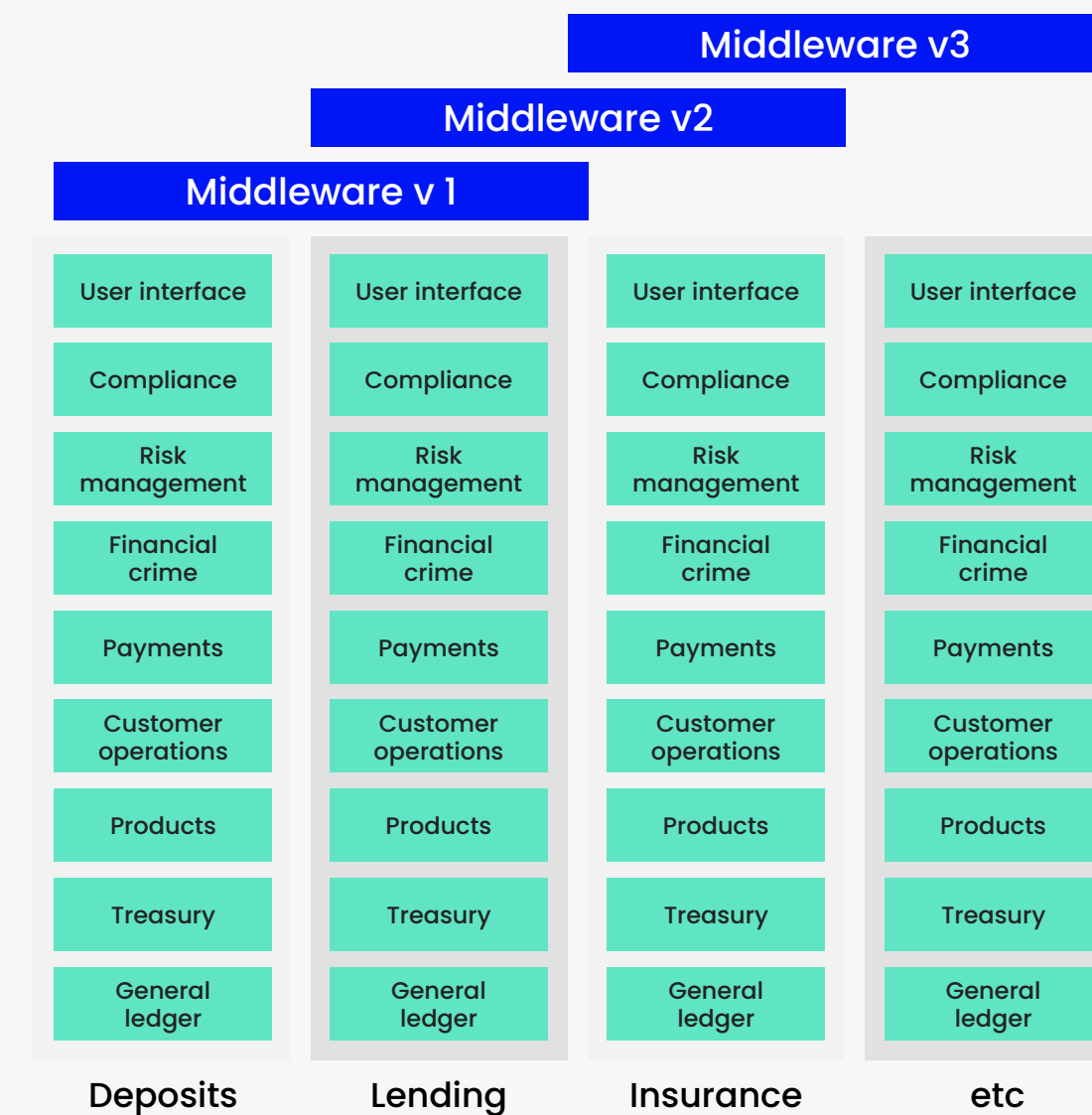
Conway's Law states that organisations design technology that mirrors their organisation structure. This can be seen in FIs' technology architectures. Each major product line or geography is managed as its own business line with its own legacy tech stack as a *silos*.

As FIs add new products, or do M&A, more *silos* are added to their architecture and they layer system on top of system until it begins to resemble sedimentary rock. Tech gets added but rarely removed.

This makes every change more difficult, more expensive and more complex than the last.

- ▶ Modern tech architecture takes a horizontal, modular approach. We'll dive into that in [later on](#).

### Traditional financial institutions' architectures





# The architecture and ways of working prevent them buying from a new generation of specialist providers

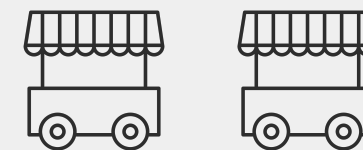
How incumbents buy technology is broken.

Financial institutions' procurement processes are designed to work with large providers, often for 10+ years at a time. This approach favours incumbent providers and often drowns *smaller best in class providers*.

Even if a specialist provider is chosen, FIs' architecture is too complex and often incompatible with the technology used by fintechs, making it an unfavourable situation for them too.

This means FIs miss the opportunity to work with smaller providers that are specialists in their area of the tech stack. Forgoing this opportunity means FIs are missing out on the mix of partners that could improve their products while reducing costs.

Today - Large vendors win



Large vendor Large vendor

Procurement and architecture only geared for large providers

Missed opportunity - best provider regardless of size



Large vendor Specialist Specialist Specialist

Specialists and best in class providers mixed

## FIs lack the pace of change that the most successful fintechs use to grow users and revenue faster

By reducing the size of change, organisations can increase the pace of change and:

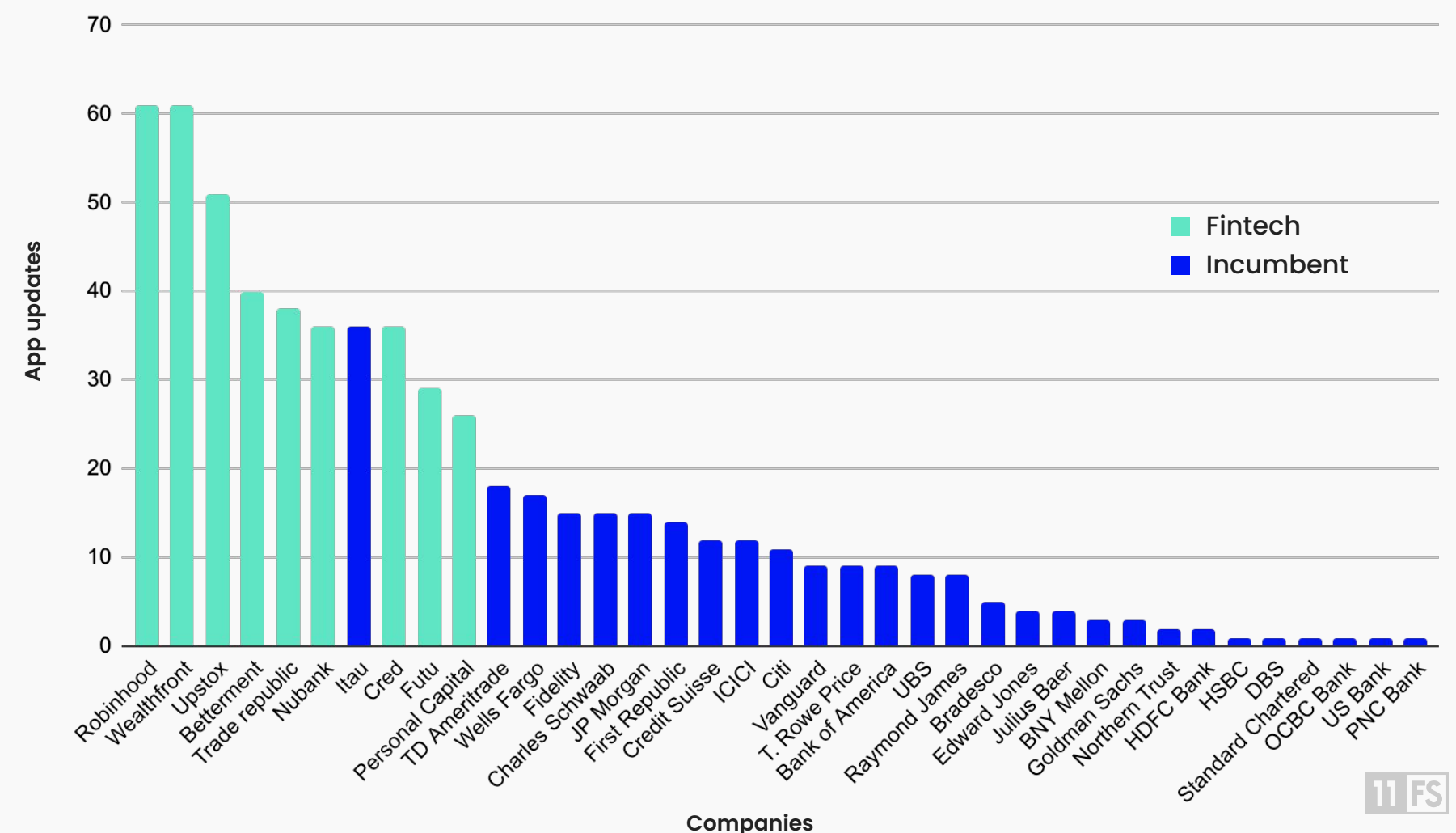
- ▶ **Reduce the risk of each change**, leaving more room for experimentation.
- ▶ **Reduce the cost per change**, opening up scope to pursue new segments and opportunities.
- ▶ **Learn faster** to unlock value in iterated products and features.
- ▶ **Respond to market demand faster** to defend against new entrants.
- ▶ **Deliver new business models** when markets are smaller & growing faster.

Fintechs deploy changes regularly, whereas FIs work on quarterly cycles. This gives fintechs a competitive edge. They can respond to the market faster, iterate faster and learn faster. Incumbents can't compete with their current tech and ways of working.

Source: II:FS

**Pace of change is a power law in financial services. Those shipping features faster are also growing users and revenue faster.**

**Fintech companies setting the pace shipping updates**  
Number of iOS updates in last 12 months



The background features a series of parallel, slightly curved lines in shades of blue and teal, creating a sense of depth and movement. The lines are arranged in a way that suggests a perspective or a tunnel-like effect.

**Increasing the pace of  
change is the only way  
to win at digital.**







The change

# How can FIs unlock growth with faster change?





## There are four key success factors needed to increase the pace of change

Becoming truly digital with:	Monoliths to primitives	Silos to horizontals	Whales to school of fish
1.  <b>Digital culture</b>	From top-down to empowerment	Incentives by P&L to incentives for the group and customer outcomes	From big empires to small team sports
2.  <b>Digital business models</b>	From only big bets to a digital portfolio	From by business line to multi year architecture investing	From internal to customer led metrics
3.  <b>Digital op model (BizOps)</b>	From group functions to BizOps aligned to customer outcomes	From specialists only to specialists <i>and</i> generalists	From business line to mission and feature teams
4.  <b>Truly digital tech architecture</b>	From large code bases to discrete services	From a core platform per product & geo, to a shared backbone	From large vendors to specialists re-combined

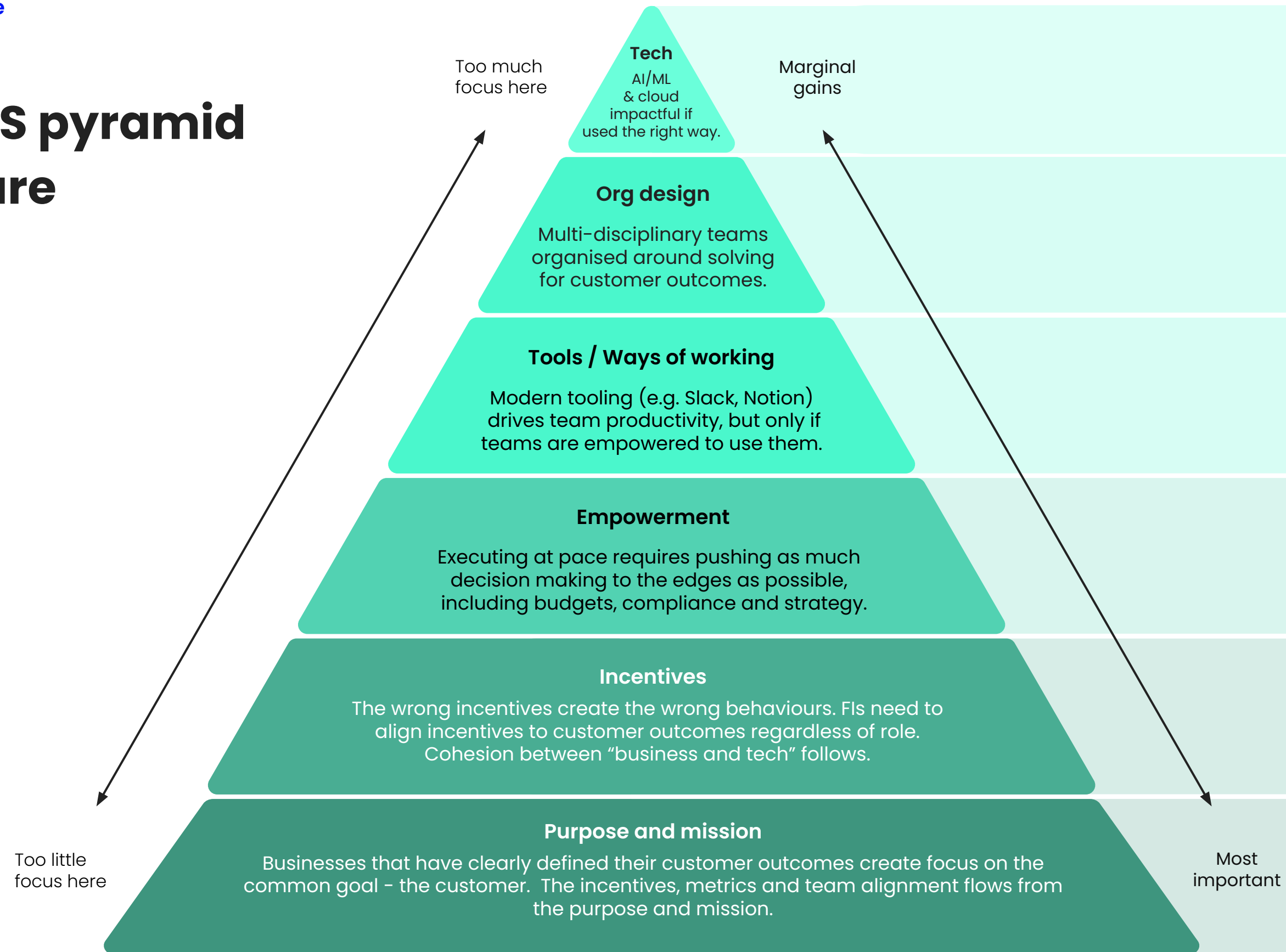
► If you benchmark your business against this, how well does it do?

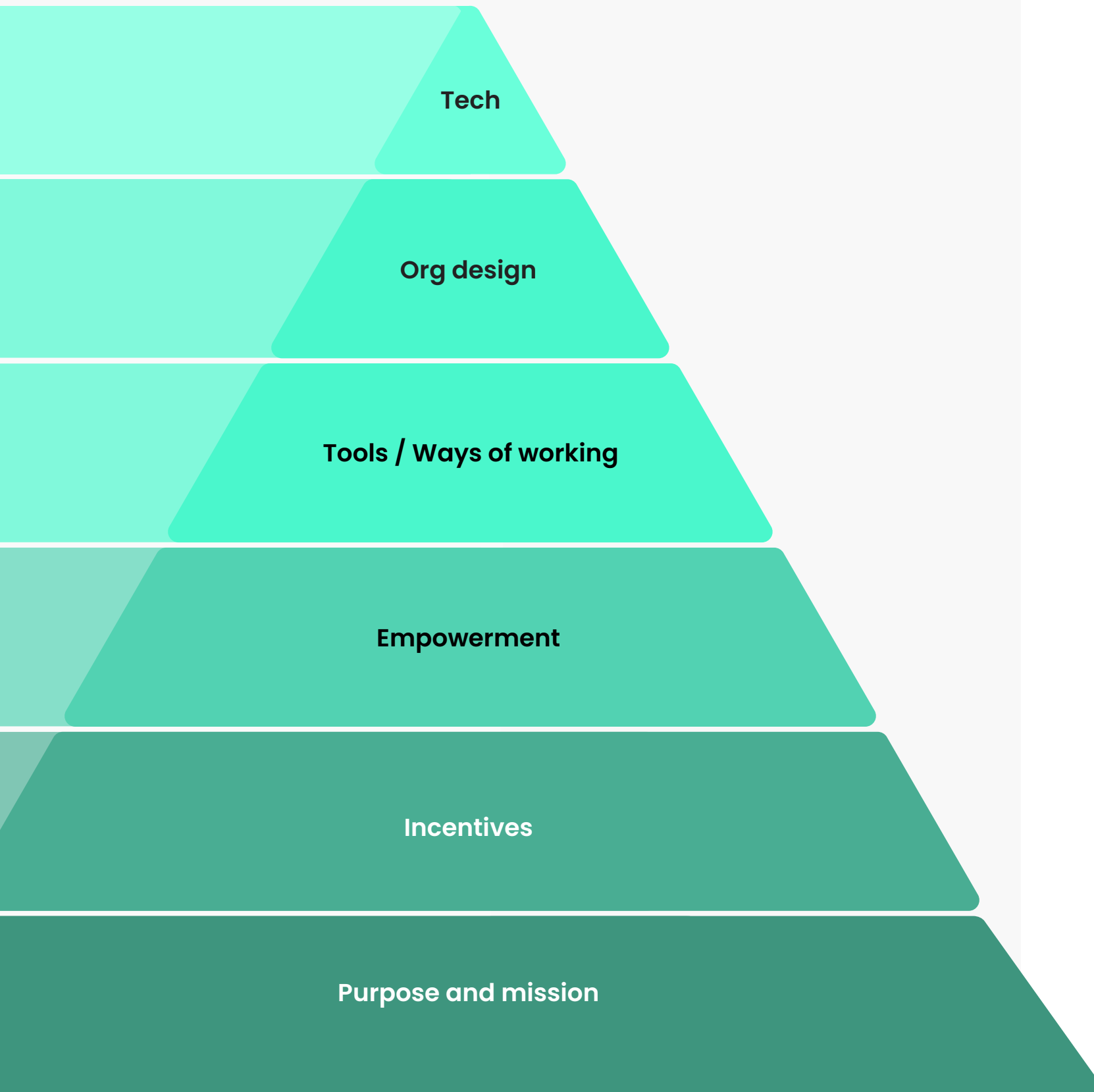
### Three fundamentals underpin these success factors:

- Fundamental 1: Moving from monoliths to *primitives***  
 A monolith is the large, unwieldy assortment of systems, technology and processes that make up a business, compared with primitives which are small, modular components that can easily be used to build any product.
- Fundamental 2: Moving from *silos* to *horizontals***  
 This refers to a shift from building business operations around products, to building around modular capabilities, which can then be used more effectively to build and manage products.
- Fundamental 3: Moving from *whale vendors* to *school of fish***  
 Whale vendors are large, often inflexible vendors that FIs turn to when they outsource work, whereas a school of fish refers to an assortment of more modern, specialist providers, ultimately giving more flexibility.

© Digital culture

# The 11:FS pyramid of culture





© Digital culture

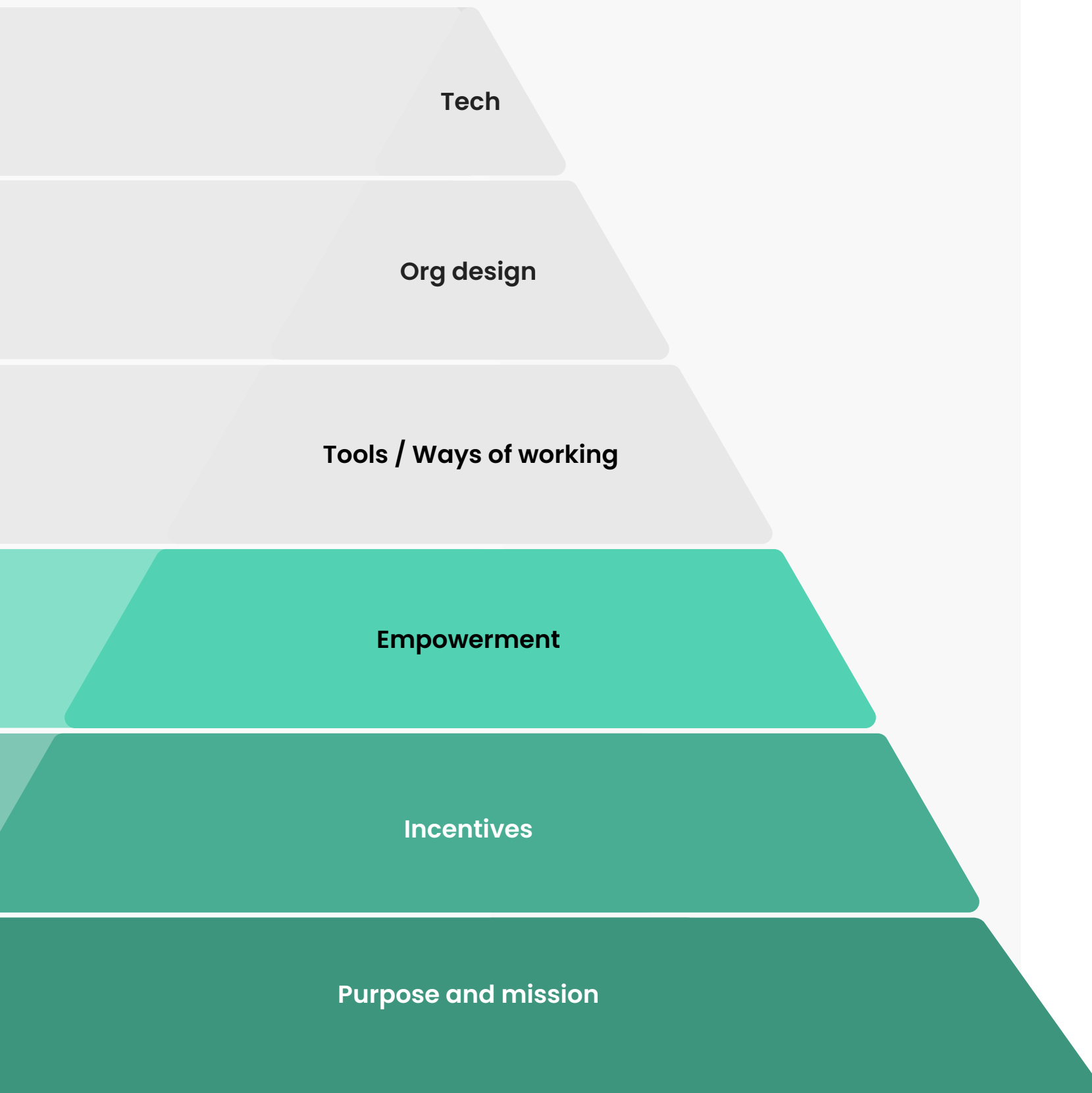
## Increasing the pace of change requires a truly digital culture

○ From:

- Shareholder value as the primary consideration
- Incentives by P&L
- Top-down strategy planning
- Empires and hierarchy

● To:

- Purpose-led work delivers stakeholder value
- Incentives aligned to customer outcomes
- Empowered teams led by customer feedback
- Small team sports



## © Digital culture

# A truly digital culture supports business objectives

## Purpose and mission

Develop a clear understanding of customers' Jobs to be Done to align the product roadmap and internal incentive structures with the outcomes that customers need, therefore **becoming mission driven**.

## Incentives

Broaden the range of metrics used to drive rewards in the company, focussing as much (if not more) on engagement than traditional KPIs. Factor this into budgeting and approvals with **truly digital business models**.

## Empowerment

Identify what decisions can be pushed closer to the team by building a **truly digital operating model**.



📁 Digital business models

# Increasing the pace of change requires a new business model

**From: A tightly correlated portfolio of top-down, short-term big bets**

Today's corporate portfolio is focussed on big bets aiming for in-year return. This creates expensive failures.

Large bets driven top-down



**Only making short-term bets = only getting low returns**

Incumbents "buy back in" to a market after the market matures.

- ▶ Example: After spending more than \$100m on ChasePay launched in 2015, JP Morgan recently closed the service.

○ ————— ○ **To: A diversified portfolio of longer-term, smaller bets**

A digital portfolio invests in enabling the mission teams with shared, horizontal infrastructure, and gives autonomy on budget aligned to customer outcomes. The core metric is user engagement not in-year return.

Smaller bets by autonomous teams



**Diversified investment portfolio = higher growth potential**

Digital businesses focus on engagement when a market is nascent, and then look to monetize as it scales.

- ▶ Example: Square launched Cash App in 2013 with a focus on P2P payments to drive engagement, it now has more than 30m monthly active users and monetizes in new and unique ways.

 **Digital business models**

## New business models generate new revenue streams and need new metrics

### ○ From: internal metrics first

- Cross-selling
- Fees (FX, real-time payments, overdraft)
- Net interest income (% APY / APR)
- Share of wallet

### ● To: customer led metrics first (+ internal)

- ARPU + Unit economics
- Customer outcomes achieved
- Daily active use
- Engagement

- ▶ Customer-led metrics are a leading indicator of success. Internal metrics are a lagging indicator. By the time most products make sense on incumbent metrics, the market has already moved on.

### ○ From: investing in silos first

- Investment by P&L
- Budget owned by revenue line
- Tech is a “cost”

### ● To: investing in horizontals first

- Investment in platform & mission teams
- Autonomy closer to the edge
- Tech as the competitive advantage

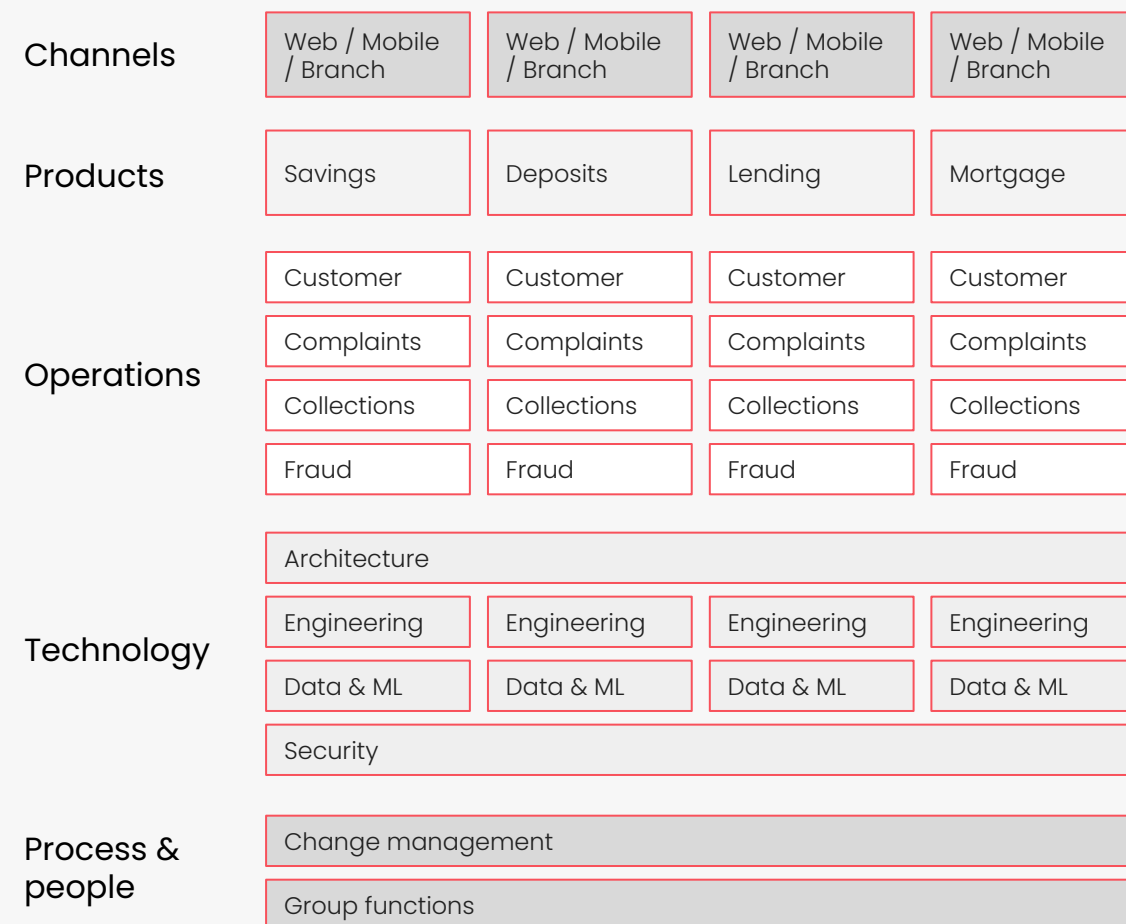
- ▶ Shifting the goal of tech from meeting the roadmap demands of P&L owners, to delivering the most modular platform that serves each mission team.

🔄 Digital op model (BizOps)

# Increasing the pace of change requires a new operating model

## From: a traditional op model

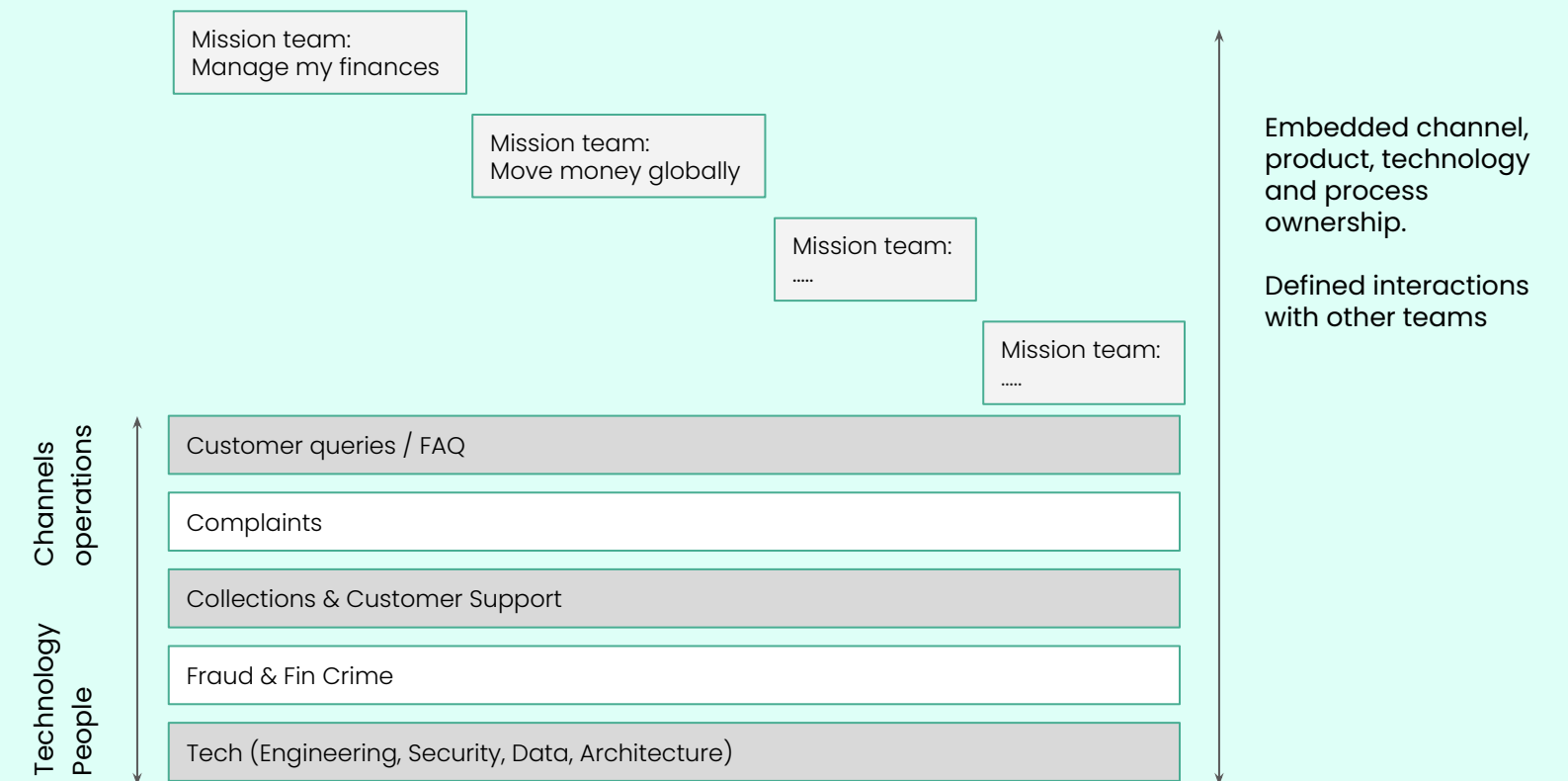
Centred around people, process and technology.



- ▶ This model drives how teams interact, what tools they use and the experience the customer has of your technology. It's siloed by product and relies on specialist group functions.

## To: a digital BizOps model

Centred around customer outcomes, flexible teams and embedding skill sets.



- ▶ Each team is cross-functional including skills like data, QA and engineering. Each mission team has embedded engineering, data, product & design, and is aligned to a customer outcome.

 Digital op model (BizOps)

## Rebuilding with BizOps creates empowerment and autonomy, aligned around customer outcomes

### From: silos, monoliths & whale-sized processes

- By business line
- Central committee structures
- Central new-product approval processes
- Annual budget cycles & planning
- Existing op model used as basis for go to market
- Mostly specialists
- Working from a predefined process



### To: horizontal, primitives and school of fish-sized processes

- By customer outcome with smaller teams
- Disciplines baked into feature and product teams
- Risks owned by each team
- Truly agile planning
- Truly digital operating model
- Mix of generalists and specialists
- Processes shared, evolved and owned by teams

- ▶ Organising horizontally leads to more knowledge sharing and dynamic allocation of people as the pressures on the business change. Ops teams are more empowered to make decisions quickly. Over time, individuals gain exposure to more parts of the business leading to more potential career paths.
- ▶ There are regulatory benefits too, with risk reduced by sharing systems, dashboards and controls. This clearer, data driven visibility of what is happening in the FI is often real time and shared between teams.
- ▶ The new model aligns all work to customer outcomes to grow your revenues and help you move faster.



The background features a series of thin, parallel lines that create a sense of depth and movement. On the left side, several lines in shades of blue and teal fan out from the top-left corner towards the right. On the right side, a dense set of lines in similar shades converges towards the top-right corner, creating a perspective effect. The overall composition is clean and modern, with a focus on geometric patterns and color gradients.

**Increased pace of  
change requires a  
new architecture.**

 Truly digital tech architecture

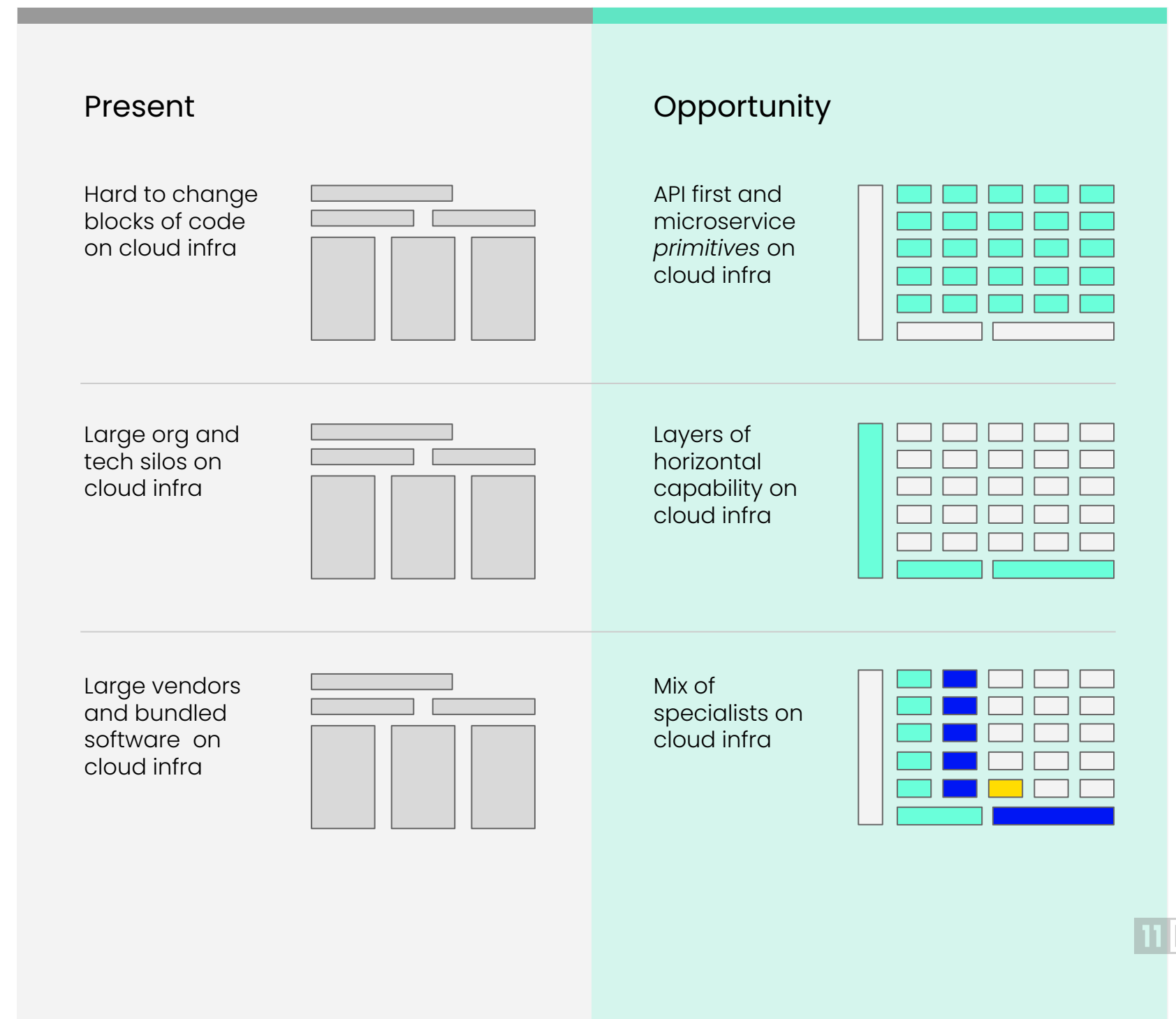
# Rebuilding with a new tech architecture unlocks new fundamentals to increased pace of change

Often incumbents lift-and-shift their old code and infrastructure to the cloud. This may cost more, be less reliable and doesn't improve speed. As a result most incumbents have not yet fully embraced cloud infrastructure. To get the benefits there are three fundamentals:

**Fundamental 1:** Breaking monoliths into *primitives* reduces the size of services, reduces the size of every change, and reduces the cost and risk of each change

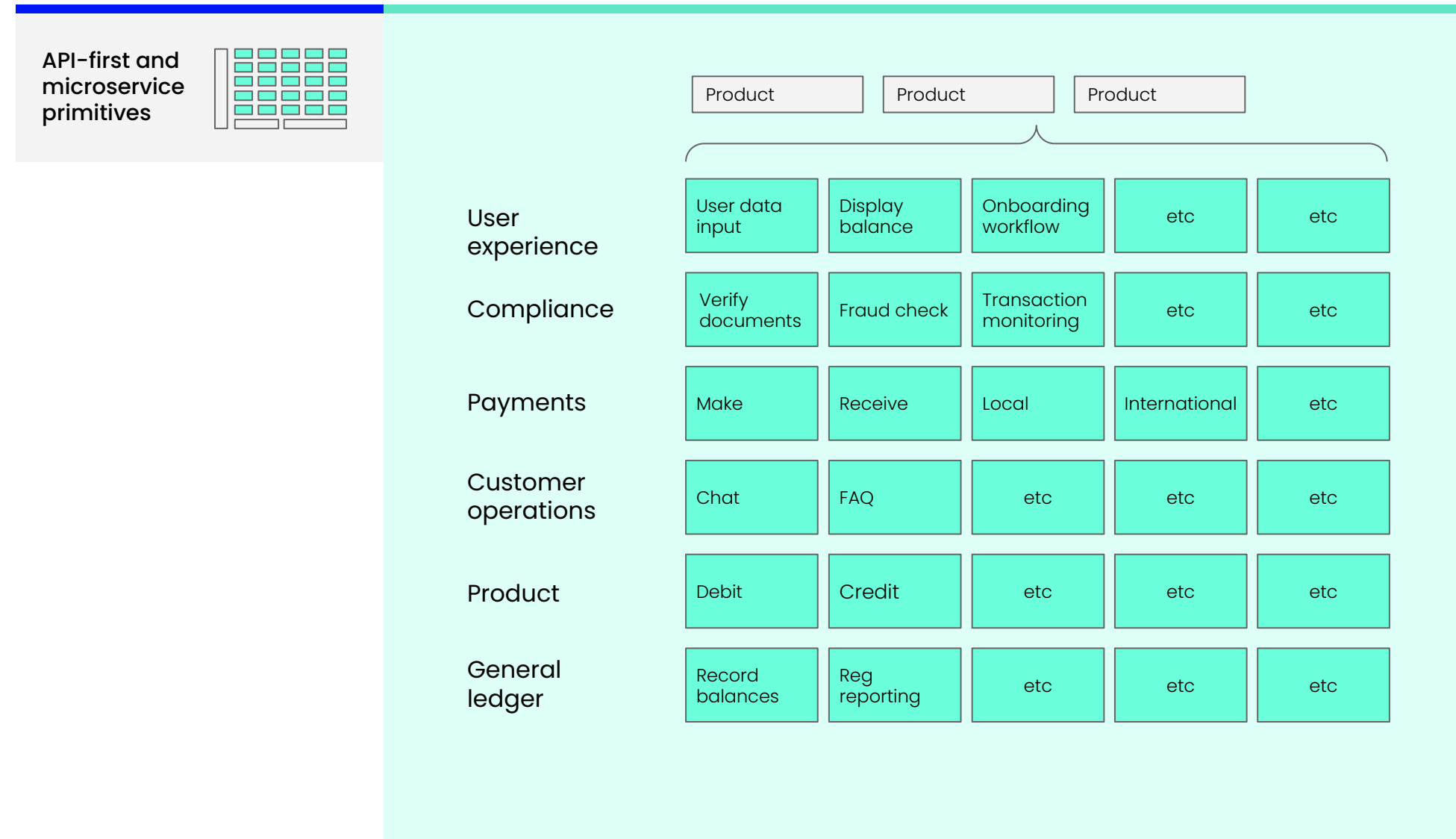
**Fundamental 2:** Shifting silos into *horizontal*s maximises the re-use of capabilities (like digital onboarding), reducing the complexity of all changes

**Fundamental 3:** Moving from whale *vendors* to school of fish *providers* leverages new specialist providers that have turned cost centers into best in class operations



 Truly digital tech architecture

## Fundamental 1: Breaking *monoliths* into *primitives*



In software engineering a primitive is a basic interface or segment of code that can be combined with others to make more complex programs.

Example primitives include storing value, moving value, exchanging value, debiting, crediting, KYC.

**When primitives are re-assembled in new combinations, *any* financial product can be constructed (and perhaps more importantly, new innovative products too).**

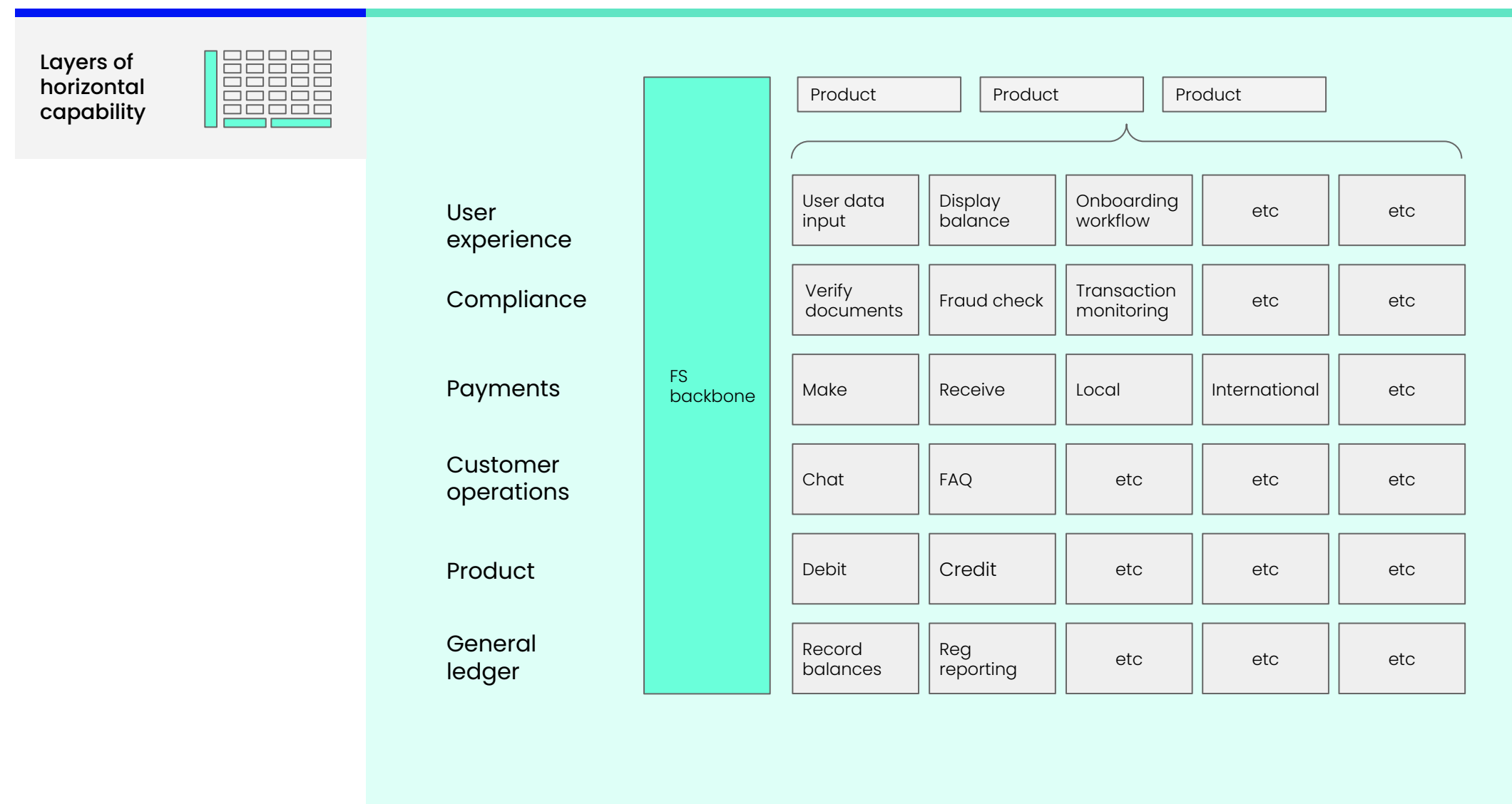
By building from primitives, each mission team has the building blocks to solve customer problems faster without having to worry about governance or overhead from other parts of the organisation.

The smaller the primitive, the more ways it can be re-combined to create new products.



Truly digital tech architecture

## Fundamental 2: Shifting *silos* to *horizontals*



Instead of building each functionality multiple times for different use cases, build each one once, in a way that means they can be used for all relevant products and customer contexts.

**Rebuilding each capability as its own layer removes silos.**

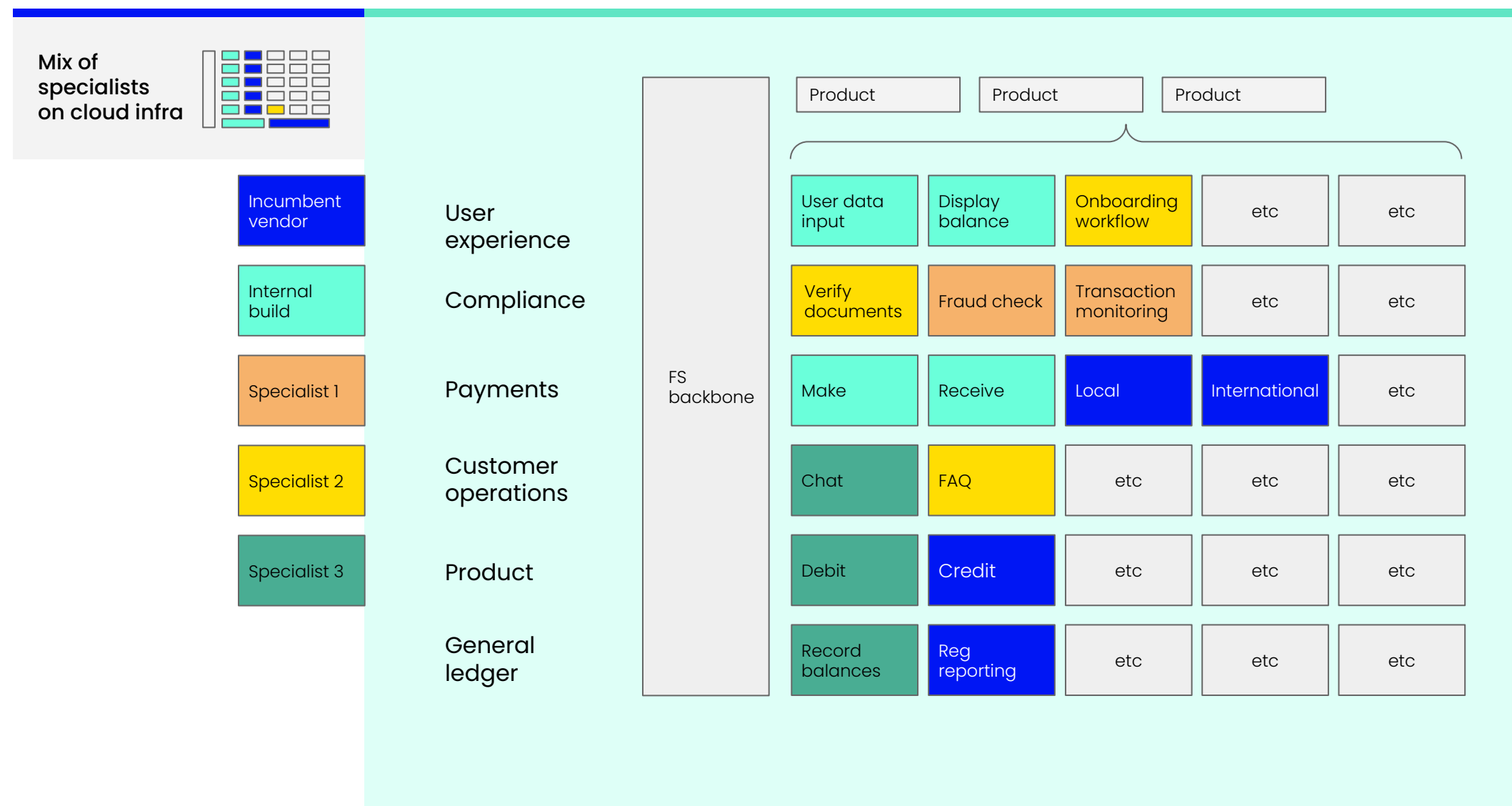
**This requires an architecture that is capable of bringing together all of these primitives.** Modern digital businesses like Monzo and Nubank use an event stream (FS Backbone) across their entire architecture.

When combined with modern techniques like DevOps and automated testing **this architecture enables re-use of capabilities, more innovation and faster change.**



Truly digital tech architecture

## Fundamental 3: Moving from whale vendors to school of fish providers



*“When a company chooses to plug in a third-party API, it’s essentially deciding to hire that entire company to handle a whole function within its business. Imagine copying in some code and getting the Collison brothers to run your finance tech team.”*

*An increasing number of the things that firms hired whole teams of people to do are now achievable with a few lines of code.”*

- Shout out to [Not Boring](#)

To increase the pace of change, incumbents must make more use of smaller, best in class providers. What that really means for banks is they have to:

1. Change how they evaluate partners / vendors
2. Build a new partnership model in place of traditional procurement

## Truly digital tech architecture

# We also need a new way to evaluate vendors and specialists (school of fish)

The way incumbents buy hasn't changed to adapt to the digital world



### From: current model

Procurement team buys for "economies of scale", so large vendors with high revenues come out on top. New providers require new assessment and procurement models.

But when pace of change is the most important factor we need a new model.



### To: new model

Partnership team seeks "business and technology alignment" where the outcome a partner or vendor creates for the business is the key consideration, opening the door for specialist providers.

### Traditional quadrants

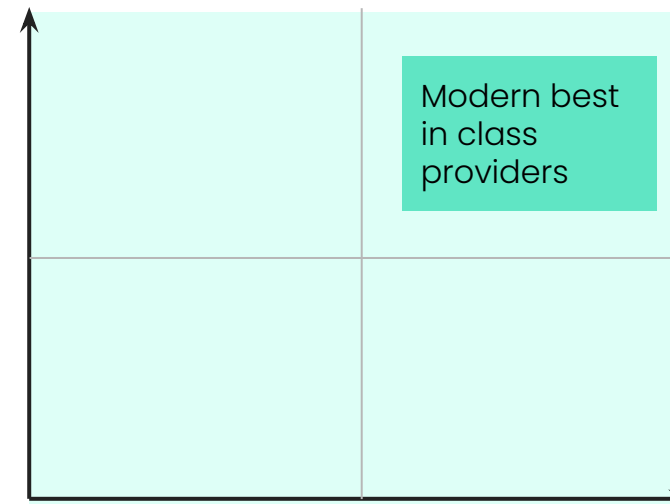
Previous sales



Breadth of offering

### The II:FS Provider Map

Business alignment



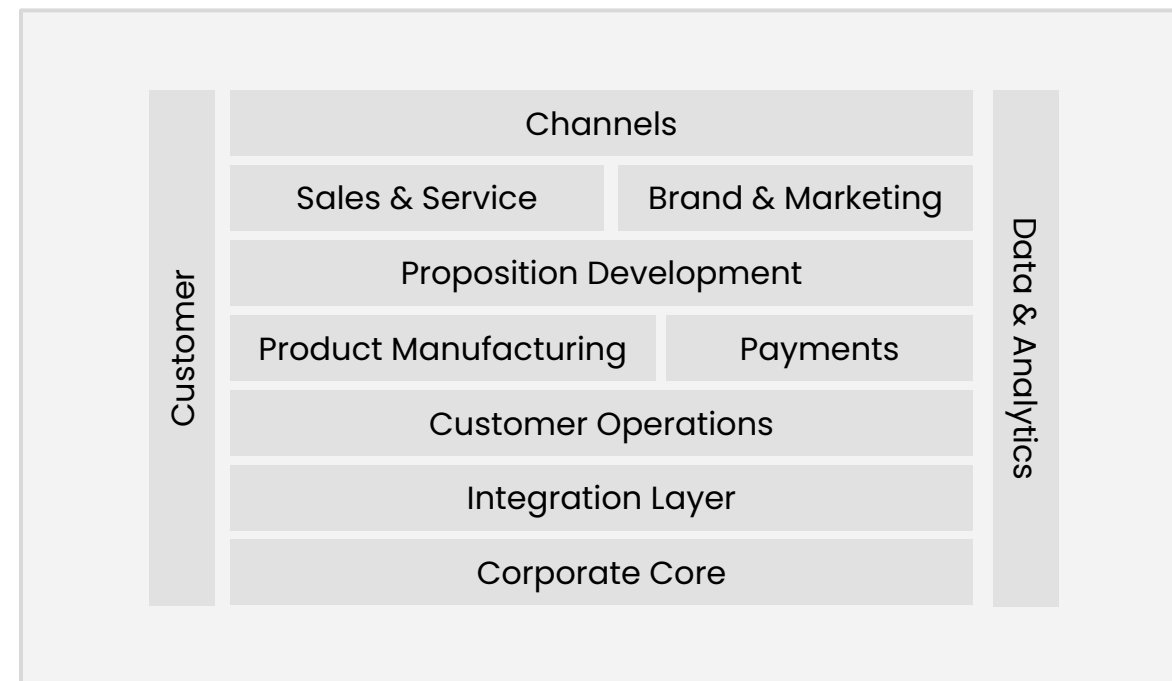
Technology alignment

 Truly digital tech architecture

## To capture these opportunities we need a new map for the tech architecture and the choices, trade-offs and interactions within it

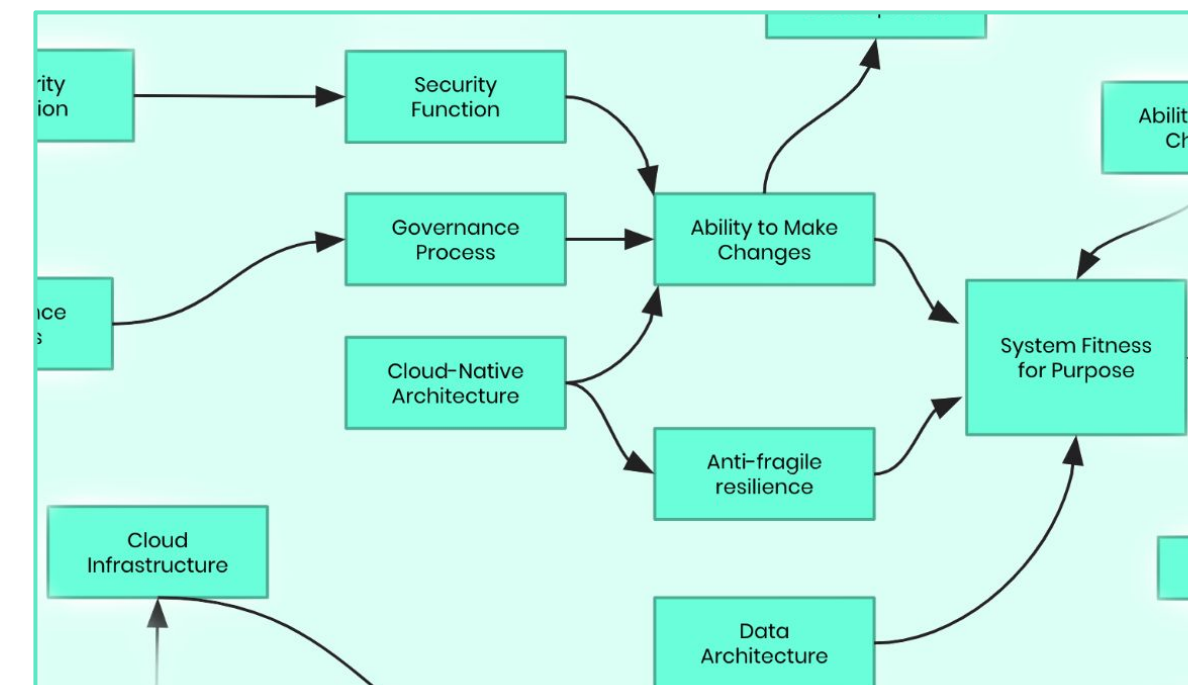
From: FIs historically using “capabilities maps” to understand as flat diagrams

It’s very far from a ‘map’, though: it’s just lists of things, in blocks. They tell you everything an architecture does, but not how it does it. They’re not wrong but not the whole picture either.



To: truly digital businesses using maps to understand the trade-offs as forces

There are many forces acting on your architecture at any one time, and every capability is affected by multiple other capabilities. Mapping the relationships, and how the capabilities act on each other helps define architectural priorities in the context of the rest of the business.



The solution

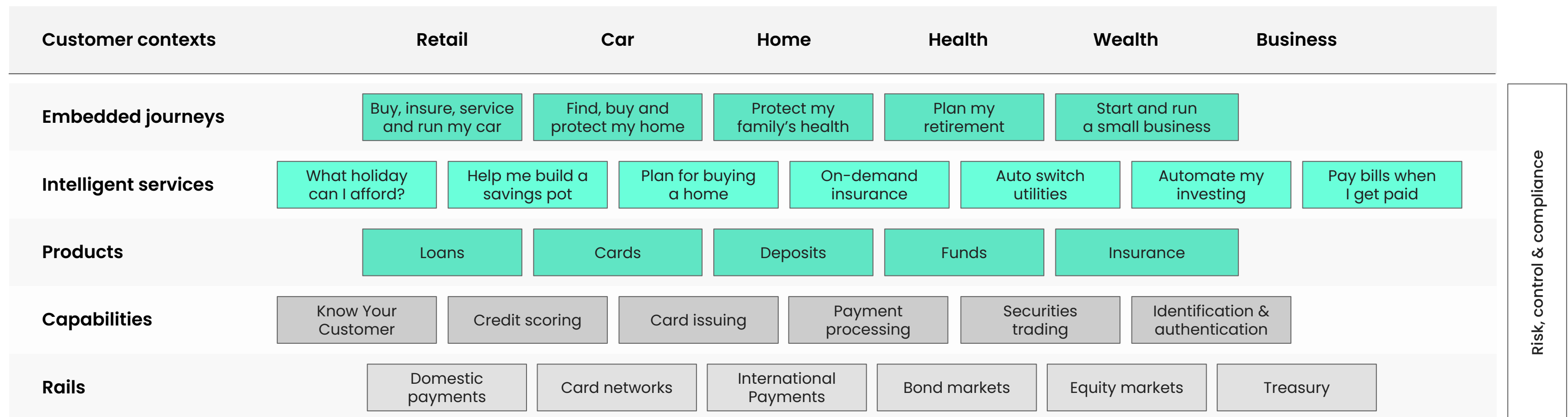
# The 11:FS truly digital architecture





## The financial services market can be thought of as a 5 layer stack, overlaid with customer contexts

Lower layers focus on servicing the layers above them, the more effectively they do this the more market share they win. The further up the stack a service operates, the closer to customer problem they are. The more aligned they are with a customer's needs, the more differentiated they are in the eyes of that customer. Increasingly, we're seeing non-FS businesses leveraging specialist providers to offer highly differentiated financial products to their customers.



**Businesses need an Operating System for finance that can work with the best-in-class providers, across a horizontal architecture and build products and services from primitives. So they can move quickly and build game-changing products.**

**11:FS Foundry is just that. A Financial Services Operating System (FS OS).**

**11**FS

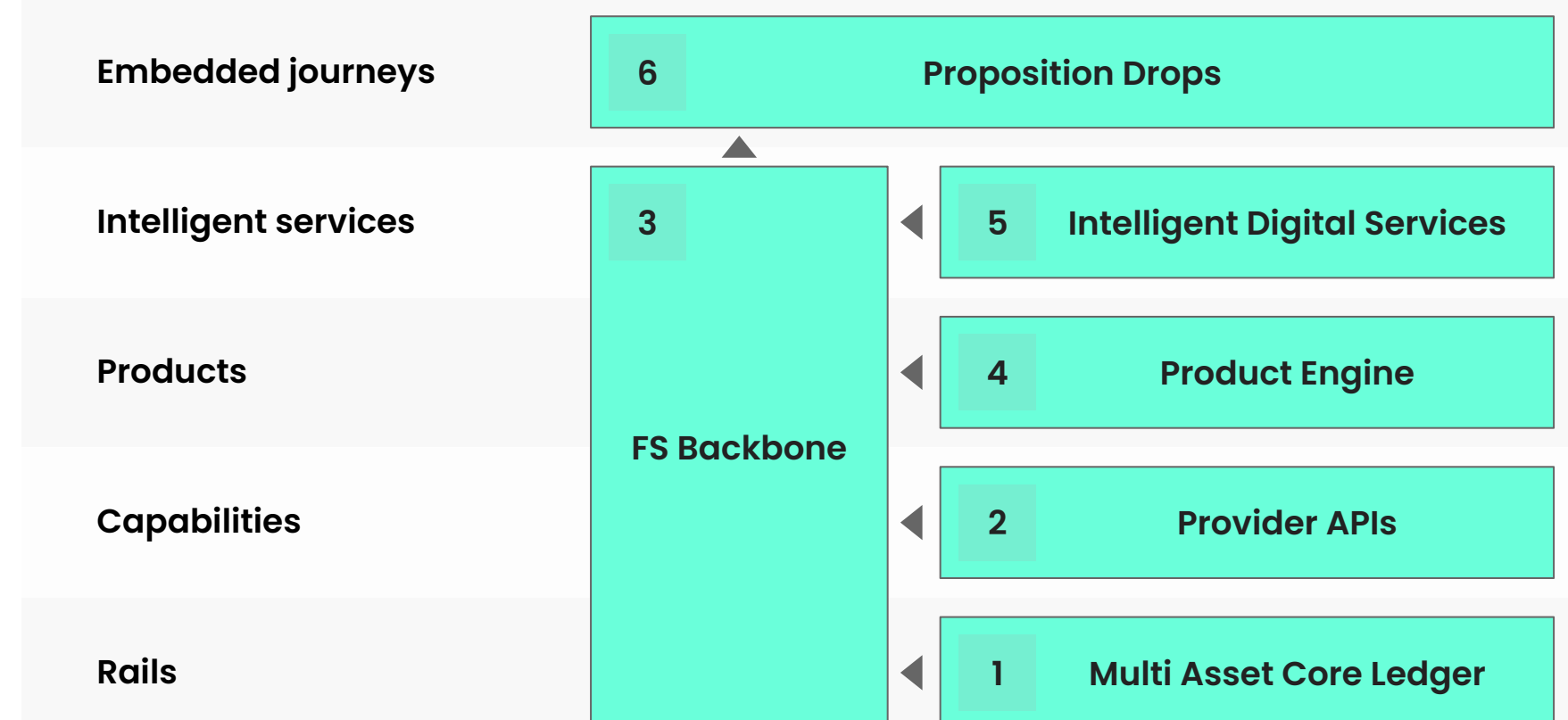
**Foundry.**

## To compete in FS, businesses need a toolkit that gives them the flexibility and control they need to build new propositions at speed

1. A **Multi Asset Core Ledger** system can either run as a primary system of record or as a shadow ledger. Storing any balance (from USD, GBP to BTC).
2. **Provider APIs** connect you to the modern best in class ***school of fish providers*** for payments, identity and more without vendor lock-in.
3. **FS Backbone** allows organisations to move to a ***horizontal*** structure where a single service is re-used many times across the architecture.
4. **Product Engine** uses common ***primitives*** (like 'make a payment') to construct and build any financial product, across many providers in many geos.
5. **Intelligent Digital Services** are new ***primitives***, that solve deeper customer problems (like, get paid early, credit building, or simple services like real-time payments).
6. **Proposition Drops** are ready built journeys. Either partial (e.g. onboarding for a consumer), or complete (an entire Neobank for SMBs).

### The 11:FS reference architecture is an Operating System for finance (FS OS)

The goal of this architecture is to create a single operating system that operates across the layers of the financial market stack, in many geos with many providers.



# 1: Multi Asset Core Ledger

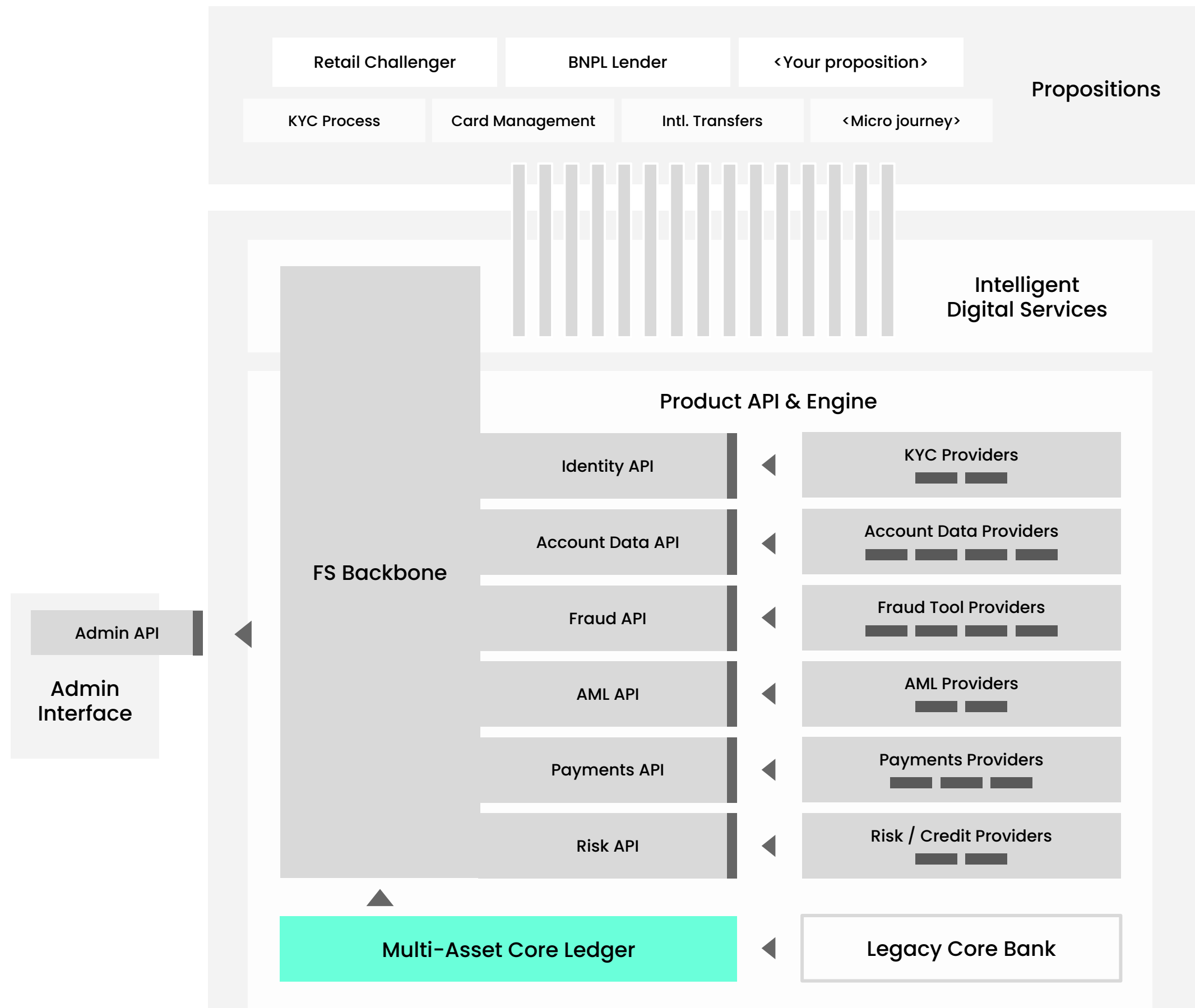
Can either run as the system of record or as a shadow ledger to existing systems or those of regulatory partners.

The ledger can store any asset, eg. USD, GBP, ETFs, bonds, equities or even stablecoins.

With an event stream the ledger can be "replayed" through time, to give a perfect history of transactions, or reverted to a prior state. The dream of auditors everywhere.

By treating each transaction is an event the operating system can figure out the current balance of an account, by reading every transaction ever until it gets to the current balance for that account.

Computers are now so fast this approach is remarkably efficient.





## 2: Provider APIs

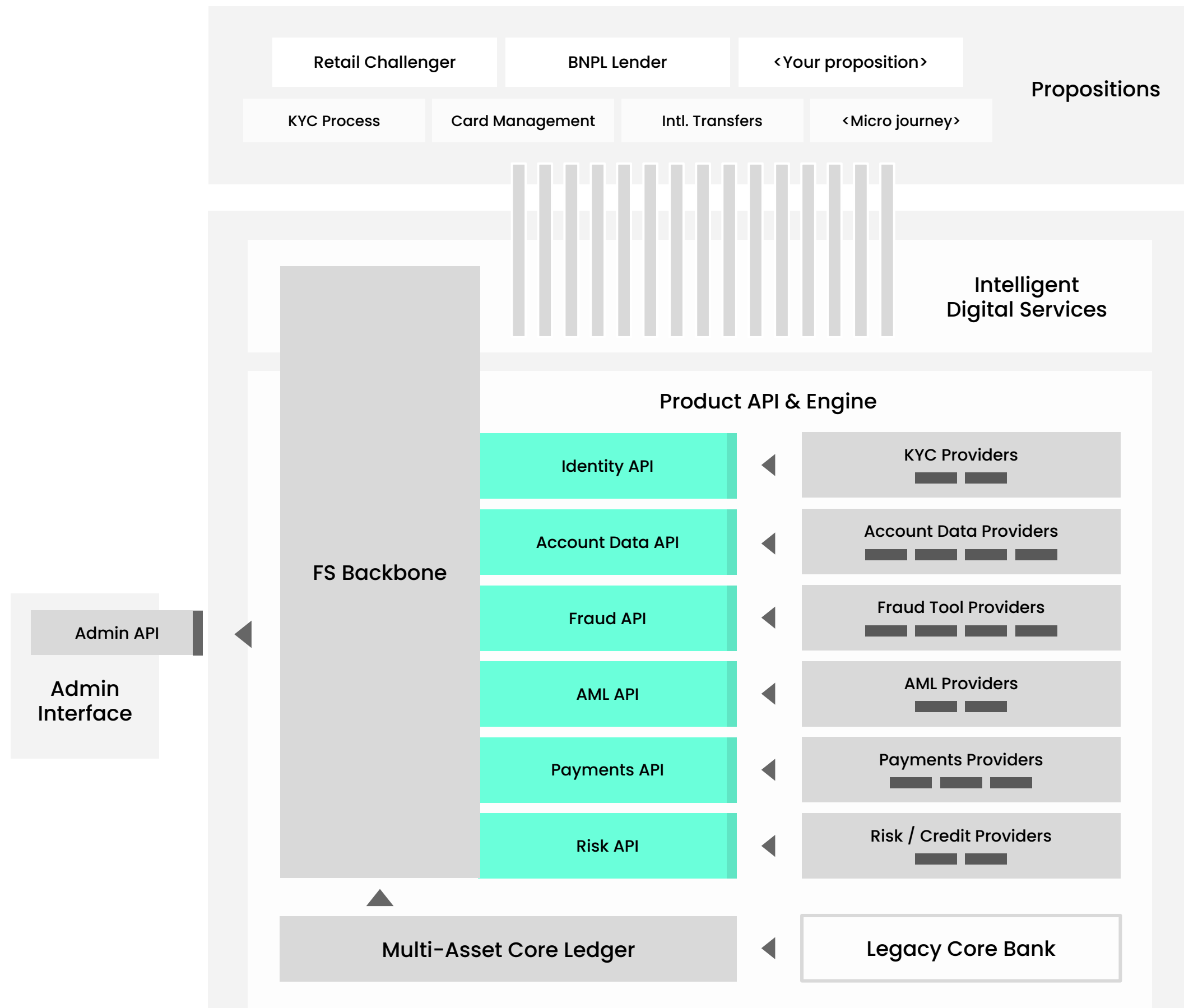
Separate the individual provider capability from the underlying architecture. They allow many providers to be used for a single service (e.g. Identity, Payments, Fraud).

This reduces the impact of changing supplier on the whole architecture, which prevents vendor lock-in.

It also allows for different providers to be used in different geos without having to change the rest of the product or architecture.

For example, if an FI (or non bank) wanted to launch in the USA, they might use Alloy or Persona for identity. If they wanted to launch in Europe they might use Onfido or Au10tix. If their architecture had an Identity API, it could separate the integration of the provider from the product itself.

This also works with payments **providers** and allows the FI or non bank to offer consistent service regardless of the underlying capabilities of the **provider**.



### 3: FS Backbone

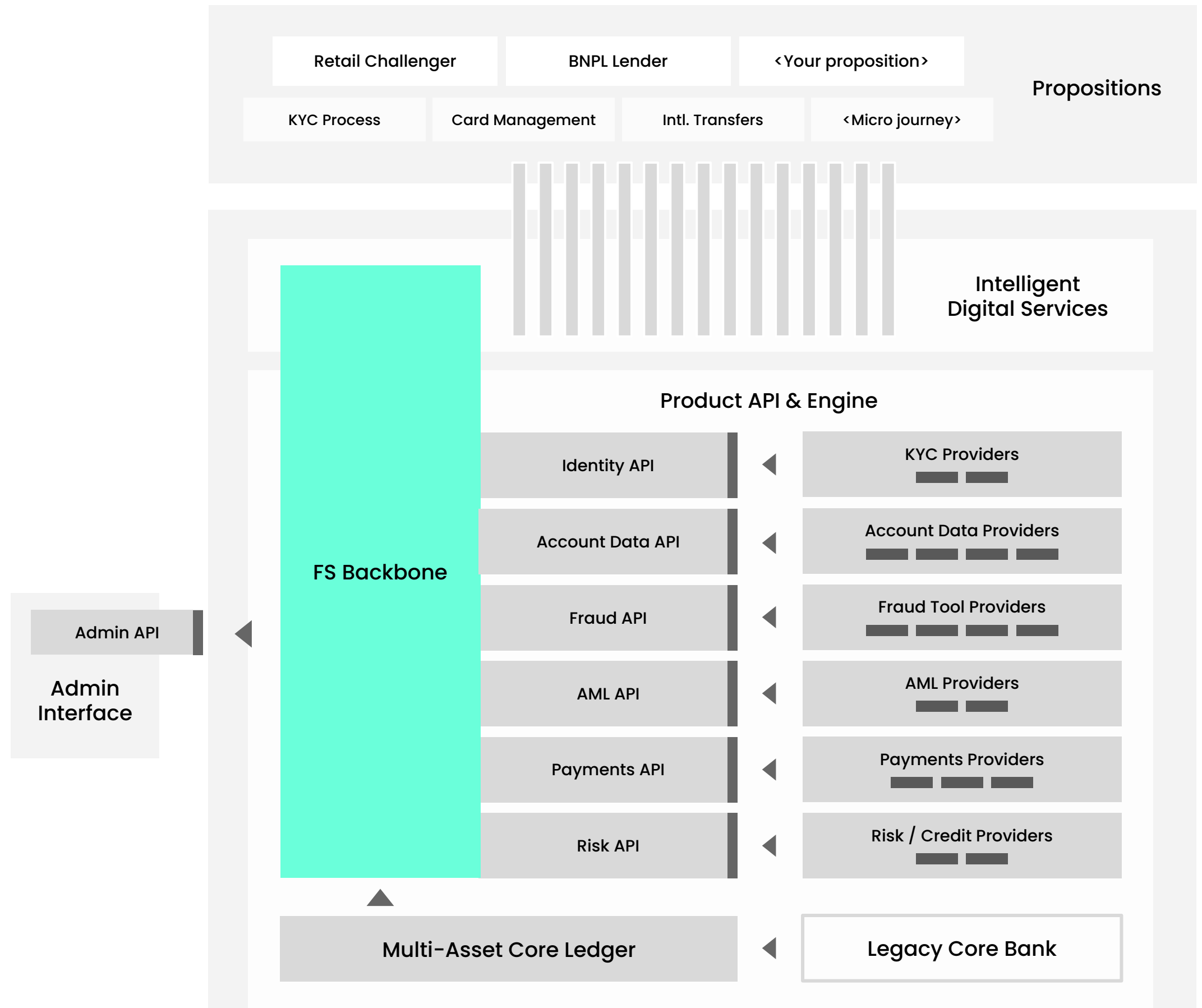
The spine of the architecture. It enables the *horizontals* to work together and connects the customer proposition at the top to the multi asset ledger at the bottom.

The backbone (event stream) becomes the consistent, golden source of truth across the entire architecture. It's much more than balances or accounts.

The backbone joins the events for every system and subsystem. In effect, a bank becomes a state machine you drive everything through.

11:FS CTO Ewan Silver's core insight is that "financial services companies are essentially state machines."

By running the backbone through the entire architecture, FIs turn their whole organisation into a consistent and coordinated architecture.



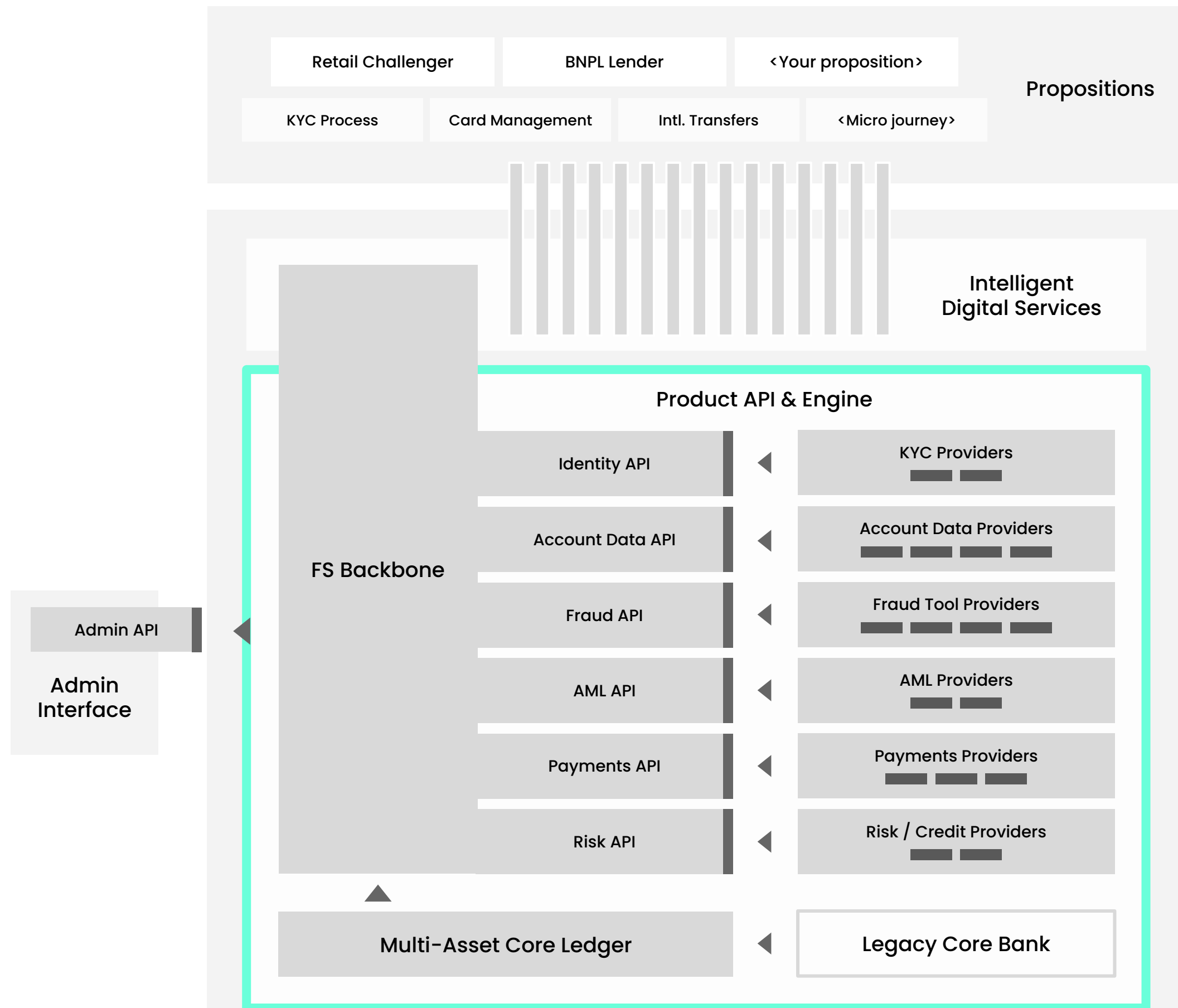
# 4: Product Engine

Recombines the core software *primitives* of finance allowing propositions and products to be created of any type.

For example *primitives* like store of value + positive balance only + using debit card rails + currency USD produces something that looks like a prepaid product.

The product can take other base primitives to create almost any financial product for any customer base.

With a different identity workflow (e.g. KYB instead of KYC), and different limits, it can produce an SMB account.



# 5: Intelligent Digital Services

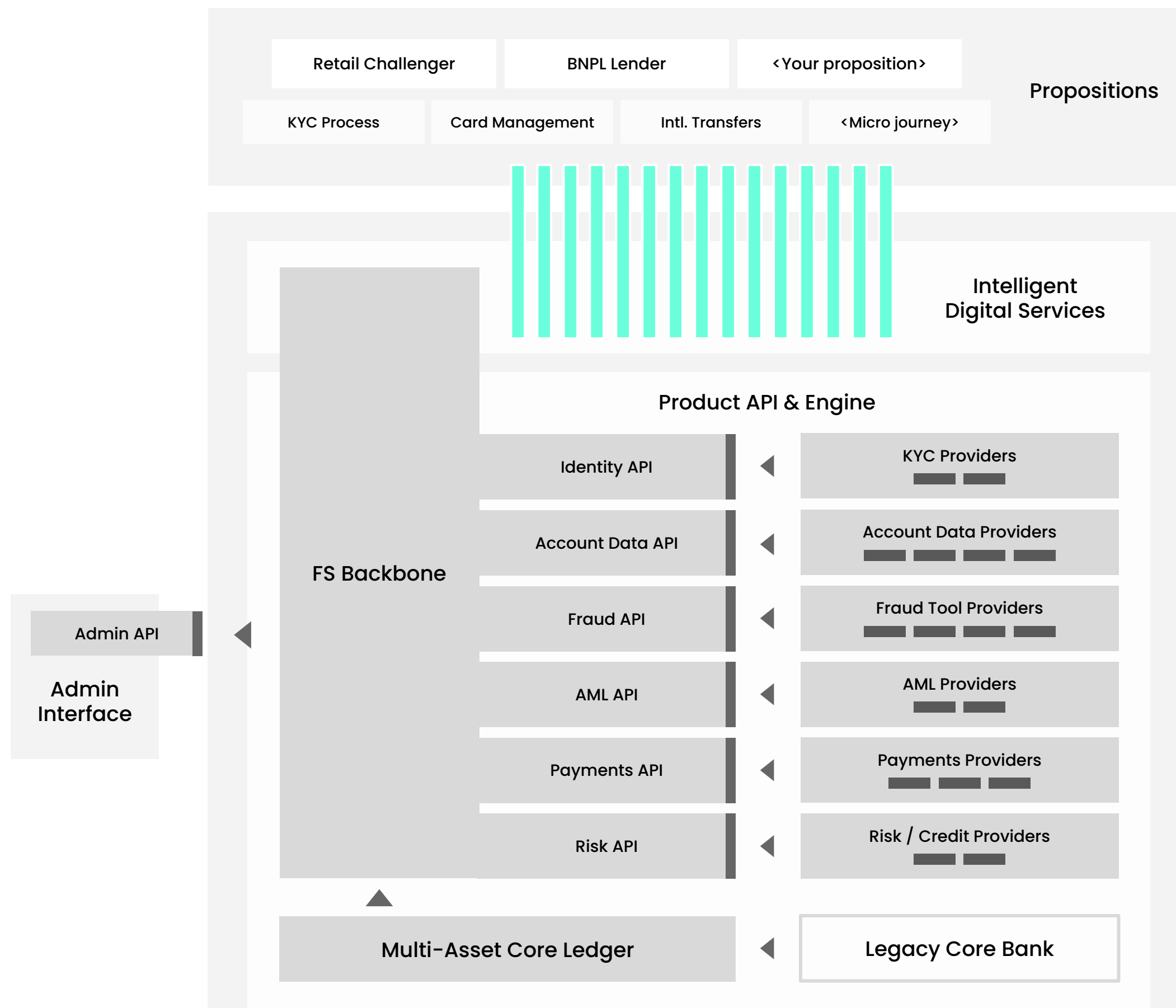
The smart features that differentiate any financial services proposition.

For example **primitives** like get paid early, smart payment routing or real time payments can be added together to make a compelling and differentiated proposition.

Each intelligent service can be consumed as a primitive, or combined into a wider proposition.

These primitives benefit from the banking backbone (**horizontal** event stream).

Any event can be fed into the system, and combined with any other event to create smart features. For example, if you had a **provider** who fed weather data into the event stream, you could make a service that saves \$5 every rainy day in your geolocation.



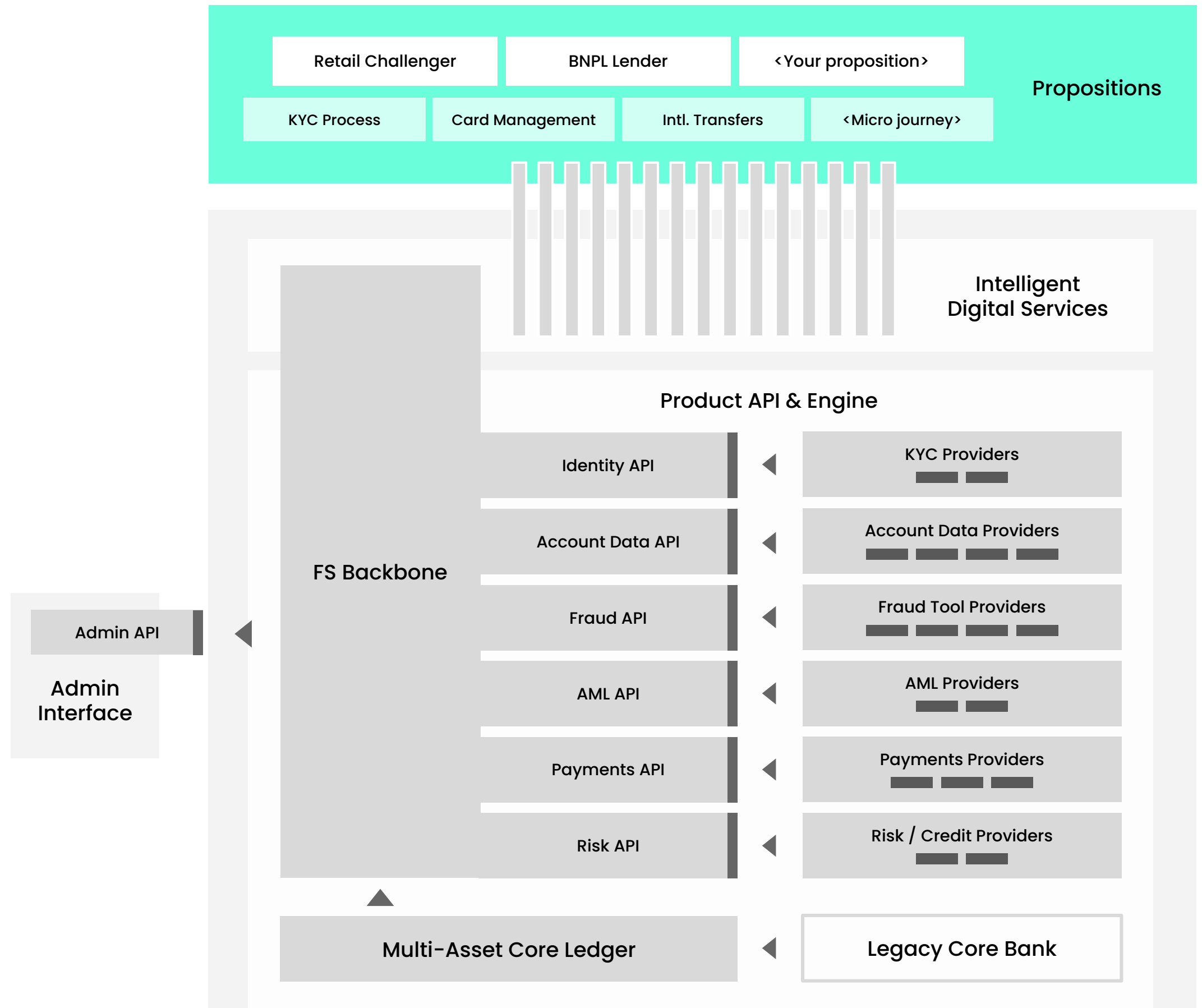


# 6: Proposition Drops

The “here’s one we made earlier” versions of a journey.

A simple drop might combine a **provider** identity and verification process, with pre-built workflows for terms & conditions and chat support to build a best in class onboarding journey.

A more complex drop might be an entire digital bank for SMBs, that combines intelligent digital services **primitives** like accounting data integration, cash flow forecasting, reconciliations, with banking **primitives** like store a balance, make payments etc.



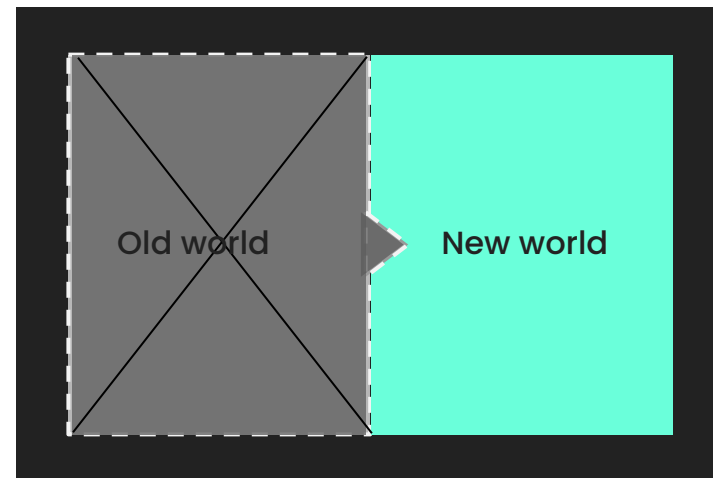
**The action plan**

**Getting from where  
you are to where  
you want to be**



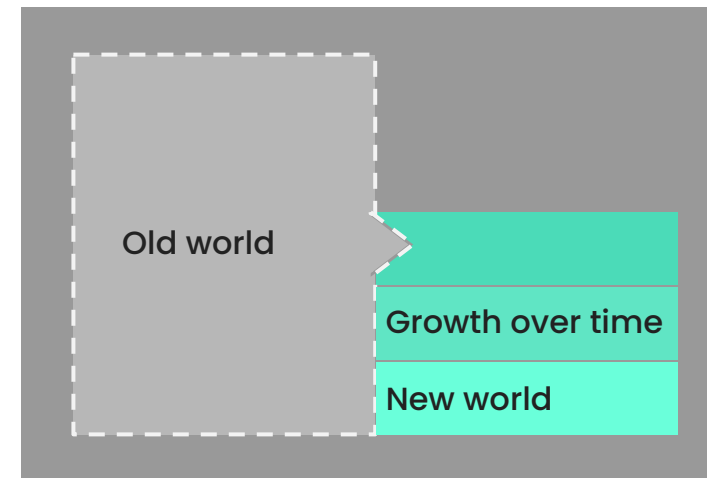
## The first step towards a new architecture is choosing an approach

Once the best tech approach has been chosen, culture, org structure and funding can be built in a way that supports it.



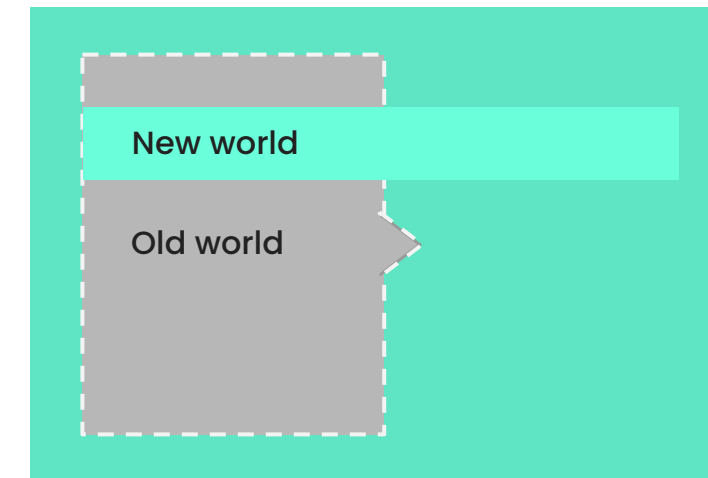
### 01 Big Bang

Build a new FI and migrate all systems and customers in a weekend (e.g. TSB, Nordea.)



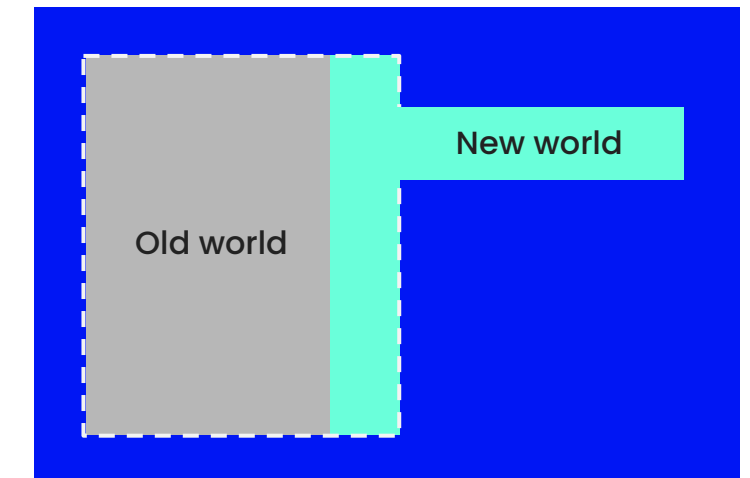
### 02 Greenfield

Build the new digital FI outside the old one (e.g. Marcus by Goldman and Mox by Standard Chartered.)



### 03 Brownfield horizontal

New tech as middleware over the legacy tech (e.g. Nationwide Speed layer.)



### 04 Brownfield thin slice

Start with one product on new infrastructure (e.g. Commonwealth Bank Australia started with deposits, then savings, then payments before moving across the entire group.)

## Big Bang

**Approach:** Set up a new architecture then do a full migration of customers and systems in a short space of time. The old world gets switched off and the new world gets turned on.

### Pros



### Cons

- Significant upfront costs are needed to build the new FI, without seeing ROI until the project is complete.
- A massive risk of failure faces any FI trying this method. It requires every detail to be executed perfectly.
- A possible career-ender for the FI exec who spearheads this if the transition does not go well.
- Existing culture and ways of working retained in this approach. The new architecture needs a new culture to make it work to its full potential. A simple lift-and-shift of staff from the old world to the new one misses the opportunity to build a new pace of change.

**Step 1:** Evaluate the old world in depth

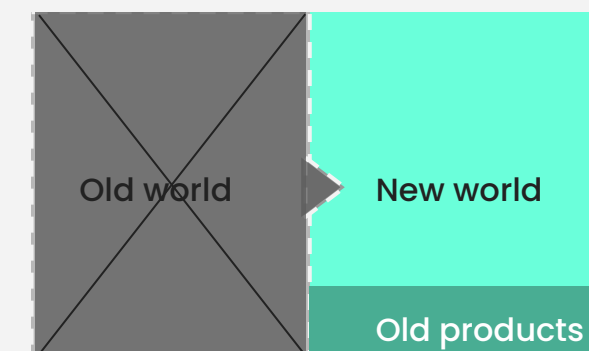


**Step 2:**

Understand how all the products and services will migrate in one go



**Step 3:** Switch off the old world, and run all customer touch points through new architecture





## Greenfield

**Approach:** To create a new FI alongside the existing one. Specialist providers and new products are integrated with the new architecture, creating an entirely new business. There are two use cases here:

1. Creating a proposition that brings a new revenue stream, such as complementary product or new markets. These businesses could run in tandem.
2. Eventually migrating all customers from the old world to the new world.

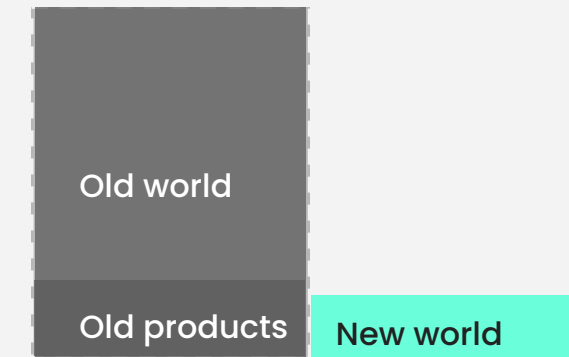
### Pros

- Not bound by the risk-averse nature or existing processes of the legacy FI.
- Opportunity to build a new culture and op model (e.g. Mettle, Mox, Marcus).

### Cons

- Need to hire new people and retrain existing with the mindset needed to build and maintain new proposition.
- Can lead to expensive failures without new op model and culture commitment (e.g. Bo, Greenhouse, Finn by Chase).

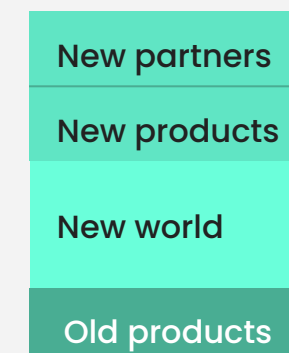
**Step 1:** Build a new core alongside the existing



**Step 2:** Launch new products and partners on new architecture



**Step 3:** Gradually migrate services and products to the new world (when feasible)



## Brownfield Horizontal

**Approach:** Introduce new horizontal, tech architecture as a middleware or connective point in between all customer user interfaces (e.g. mobile, web and branch) and the legacy technology.

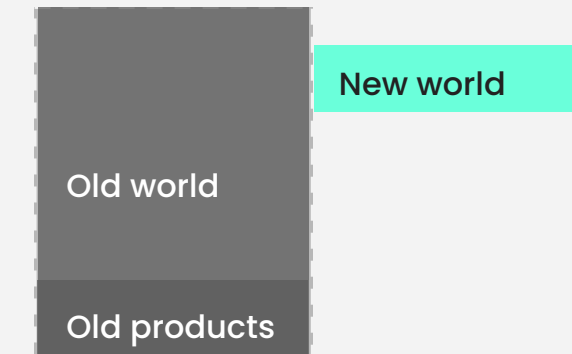
### Pros

- Low risk of service interruption.
- It's the right long-term architecture.
- Good short-term benefits case.
- Reduce dependency on legacy tech.

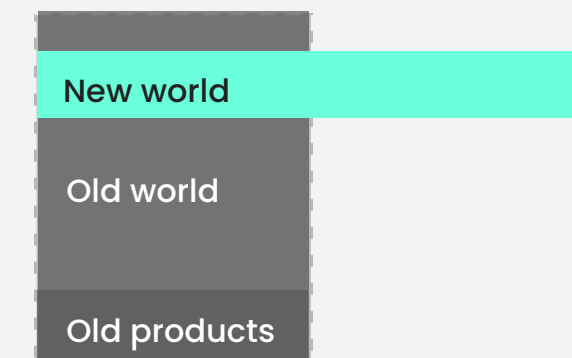
### Cons

- Lack of incentive to use the new technology.
- Mostly tech change, not funding, op model or culture.

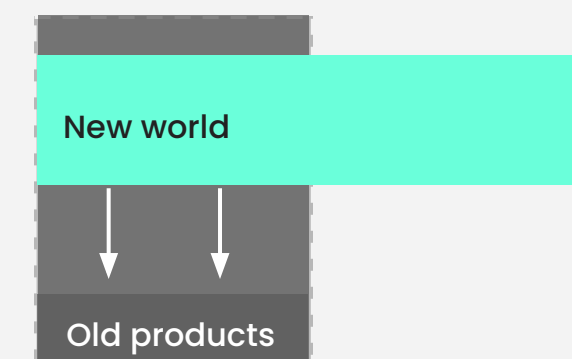
**Step 1:** Develop horizontal and primitive based architecture as middleware



**Step 2:** Put it over the top of all of the old architecture



**Step 3:** Gradually move down the stack



## Brownfield Thin Slice

**We recommend this approach. It creates the highest pace of change and balances short-term and long-term gains.**

**Approach:** Build a new tech stack, one product at a time. The technology should be built in a way that it fits all of the requirements for current products and flexible enough for future products. The optimal approach is to launch an entirely new product on a new “thin slice” before scaling.

### Pros

- High likelihood of success.
- Good incentives for each area of the business to adopt the new tech.
- Easy buy in – the first use-case acts as an example to the rest of the business of the benefits.
- Combine funding, culture and op model with tech change.

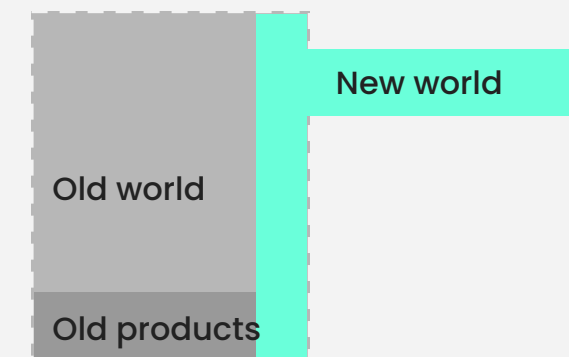
### Cons

- May still be subject to “group governance” overheads, if not carefully managed.
- Risks SaaS vendor lock-in if not part of a wider architecture & cultural shift.

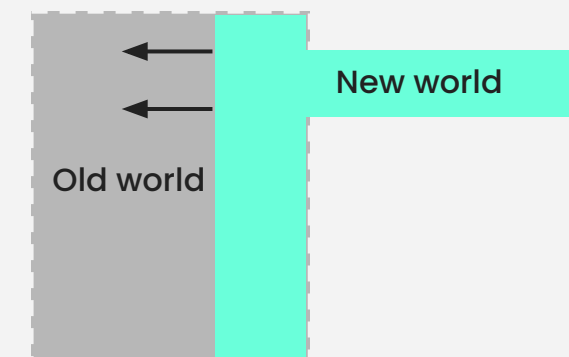
**Step 1:** Develop horizontal and primitives based architecture



**Step 2:** Make one product / offering truly event driven to unlock greater benefit



**Step 3:** Gradually move across the organisation by SBU or product to unlock future value



How we can help

# Rebuilding from the inside







## Putting it all together

**Pace of change is a power law in financial services. Achieving a higher pace of change is not just a tech thing. It's a whole business thing.**

- ▶ **The market around FIs has changed**, as customers and competitors evolve from every angle, FIs cannot solve for digital with more spending. They have to change how they work.
- ▶ **How they work hasn't changed in decades**, and is based in governance processes that were built for an analogue world.
- ▶ **The winners in fintech and digital have the highest pace of change.**
- ▶ **To achieve pace of change, incumbents must** build a truly digital...
  - culture
  - business model
  - operating model
  - tech architecture
- ▶ **Their tech architecture must** follow three fundamental concepts:
  - from monoliths to primitives
  - from silos to horizontals
  - from whales to school of fish
- ▶ **There are many paths** from where you are to where you need to get to.



**11**FS

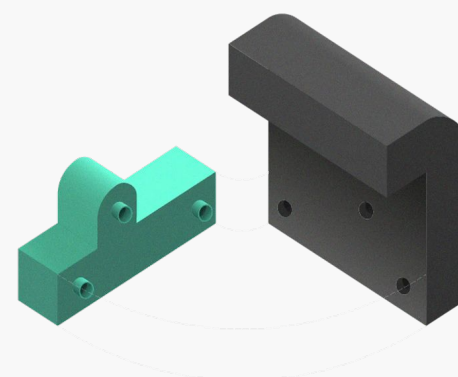
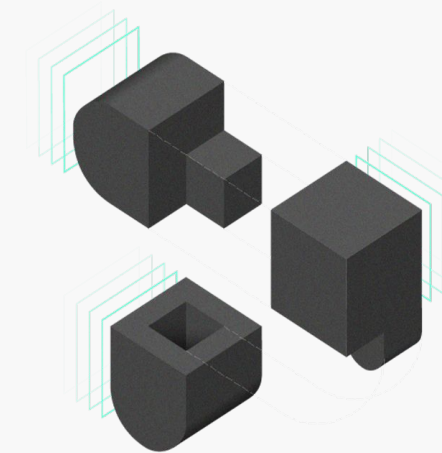
**Foundry.**

**11:FS Foundry is the Financial Services Operating System that enables businesses to unlock growth opportunities, in weeks, not years. An embedded finance toolkit that gives them a springboard into innovation and to financial services revenue opportunities.**

[Get a demo](#) →

### Don't spend time on the finance basics

We've built the finance workflows and user journeys so you don't have to. With 11:FS Foundry, you can focus on making your products game-changing for your customers.

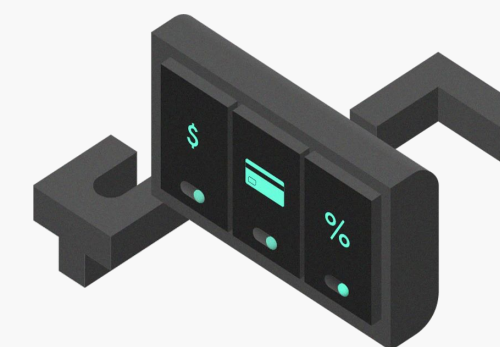


### Legacy is a thing of the past

11:FS Foundry is vendor-neutral, so your new and existing suppliers can come along for the ride. Say goodbye to vendor lock-in, and get ready to scale.

### Maximum impact and control, minimum effort

11:FS Foundry gives you the springboard to accelerate your business's growth. Configure your product so it attracts new customers and add new features that help you scale.



# 11 FS Consulting.

Our team can help you research, build, design and deliver industry-leading propositions at pace.

- ▶ Our range of offerings give you a headstart. Start with a truly digital diagnostic, take advantage of our full suite of offerings, and come out the other side a truly digital business.

**Truly Digital Diagnostic**  
Find out for your business:  
→ [How to map your architecture to understand forces](#)

**Tech Architecture Forces Mapping**  
Find out for your business:  
→ [How to map your architecture to understand forces](#)

**Tech Architecture Reboot**  
Find out for your business:  
→ [How to create a new architecture](#)

**Digital BizOps Configuration**  
Find out for your business:  
→ [How to set up your operations like a truly digital business](#)

**Digital Partnership Re-boot**  
Find out for your business:  
→ [How to benefit from specialist providers](#)

**Truly Digital Culture Set up**  
Find out for your business:  
→ [How to create a truly digital culture](#)

**Truly Digital Funding & Set up**  
Find out for your business:  
→ [How to create a truly digital funding model](#)

## Chat with us

We work with clients across the world with our award-winning products and services, and a smorgasbord of industry-leading specialists.

Reach out to our team to have a no BS chat about your challenges and how we might help you overcome them. Fresh insight, unique perspectives and bold, actionable conversations. Guaranteed.

[11fs.com](https://11fs.com) →



**David Brear**  
Co-founder & CEO  
[david@11fs.com](mailto:david@11fs.com)



**Simon Taylor**  
Co-founder & Director, Consulting  
[simon@11fs.com](mailto:simon@11fs.com)



**Nick Funnell**  
VP of Engineering  
[nick.funnell@11fs.com](mailto:nick.funnell@11fs.com)



**Ryan Wareham**  
Chief Operating Officer  
[ryan.wareham@11fs.com](mailto:ryan.wareham@11fs.com)



**Caitlin Wiblin**  
Marketing Manager  
[caitlin.wiblin@11fs.com](mailto:caitlin.wiblin@11fs.com)







## Glossary

### **Conway's Law**

Conway's Law states that organisations design technology that mirrors their organisation structure.

### **Financial Institutions (FIs)**

Businesses that offer financial products or services such as banks, insurance companies, investment firms etc.

### **Horizontals**

The alternative to silos, horizontals centre operations around modular capabilities that can then be used to build and manage products.

### **Intelligent digital services**

New features that are unlocked by truly digital architectures. Intelligent digital services are highly relevant, differentiated customer solutions.

### **Monoliths**

Unwieldy assortments of systems, tech and processes that's difficult to manage and slow to change.

### **Primitives**

Small, modular components that can easily be used to build any product.

### **Reference Architecture**

Reference architecture is a reference guide for the underlying technology, software and systems that underpin the technical structure of a company. It serves as a roadmap showing the technology and systems needed to reach a desired state.

### **School of fish providers**

An assortment of specialist providers that offer flexibility, are easy to integrate with and don't cause vendor-lock in.

### **Silos**

The business units that form when operations are built around products and geographies, leading to duplication of each capability.

### **Truly digital**

Moving beyond digitisation, to building products and services with digital capabilities at their core. To be truly digital is to be able to offer real-time, relevant, highly customised experiences.

### **Whale vendors**

Large, traditional vendors that are often inflexible and difficult to change.

**11 FS**

**Digital financial services  
are only 1% finished.  
We're building the next 99%.**