

Fintech and Advanced Payments 2023

# Enabling the ecosystem economy

Exploring the driving forces of the emerging financial services ecosystem



**Edgar, Dunn  
& Company**  
*Strategic Payments Consulting*



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# Introduction

Welcome to the 2023 edition of our Fintech report, which includes insights from conversations with thought leaders and practitioners together with the findings from our own research.

What a difference a year makes. While last year's report was conducted in the depths of a pandemic (albeit with early signs of an economic rebound), this year we find ourselves with a war in Europe, a new wave of economic volatility and fears of a global recession.

All of which are occupying the minds of fintech innovators, investors, and financial incumbents alike, as consumers and businesses everywhere brace themselves for a very different type of economy.

But that's not why we're here. And despite the headwinds, the fundamentals and the opportunities of the tech-fin revolution still stand. And will probably be strengthened further in the year to come.

To that end, this year's review focuses on three areas of the financial system - embedded finance, financial inclusion, and cryptocurrency.

Why you might ask? While seemingly unconnected, these three components are different sides of the same triangle.

Indeed, triangulating the goals of removing barriers to entry, improving efficiency and serving the greatest number at the lowest cost is the surest way to scale the ecosystem economy and offers the clearest path to crystallising a digital dividend.

This can only be achieved if we close the gap between financial and non-financial businesses, incentivise data-sharing and re-distribute the infrastructure underpinning the movement of money itself:

- 1 In embedded finance we explore market developments to understand best practices and a path forward for a growing, already large, industry
- 2 We look at progress made in financial inclusion and how the ecosystem model could provide a real opportunity to end financial exclusion within the decade
- 3 And our section on cryptocurrency offers an assessment of the first wave of the hype cycle and the path for crypto adoption over the next few years

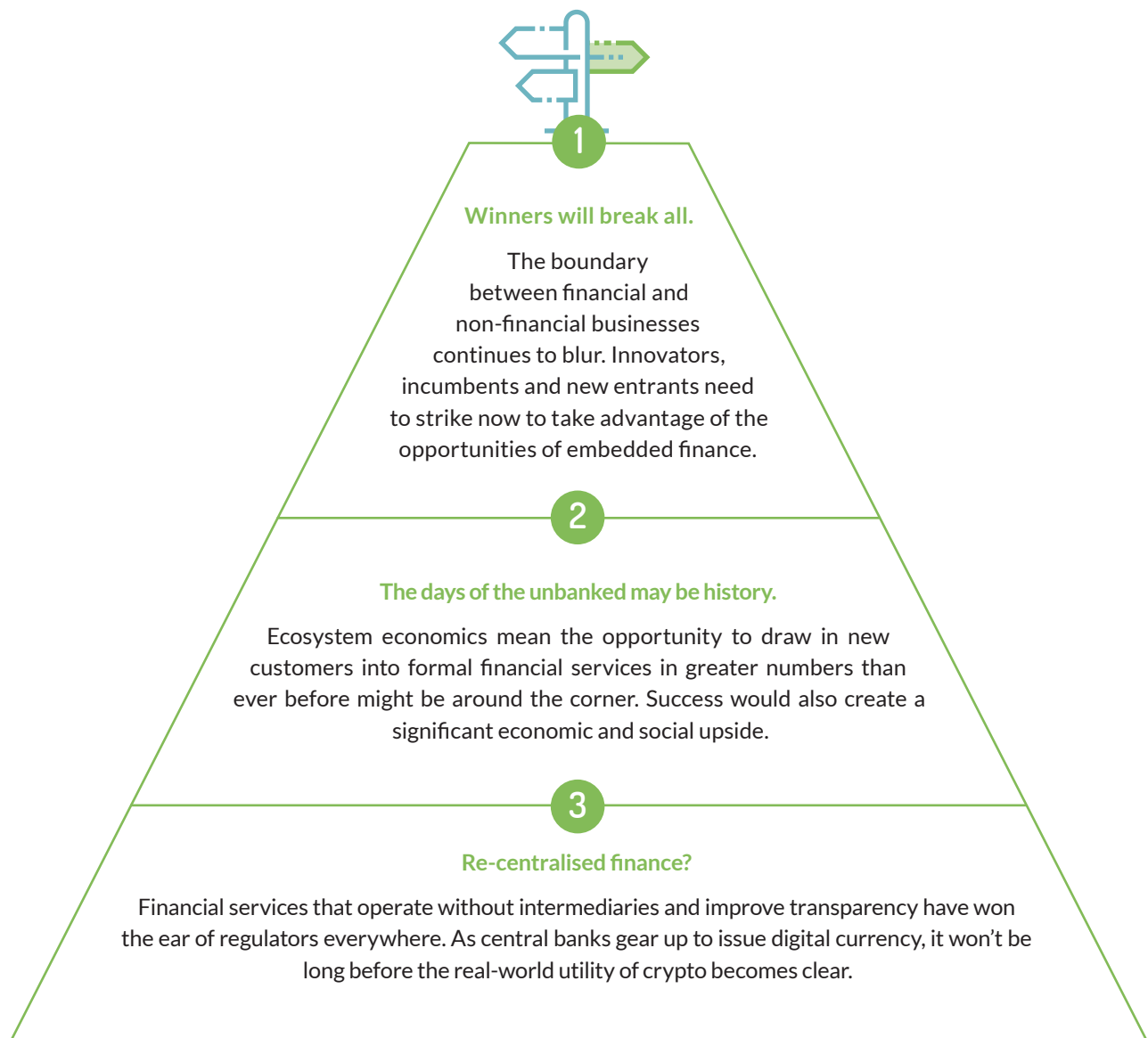
It might sound trite, but the best may be yet to come. After all, times of uncertainty often present great opportunities.

For financial services businesses trying to navigate their path ahead, uncertainty will force them to focus on what's important.

In turn, it will also help the winners of this new cycle to re-discover the value they bring - to the customers, businesses, and the ecosystem they're all now part of.

# Executive summary

This year's report looks at three primary components - the driving forces of the emerging financial services ecosystem. Explored in turn, the report highlights current best practices and the likely path to development in the year ahead. The report findings are outlined below:



# Section 1:

## Embedded finance

### Winners break all?

#### In this section

Consumer needs, regulation and convergence between technology, data and finance are driving growth

Banks are entering the banking-as-a-service space

Convergence of data and business operations increasing opportunities for non-financial companies to monetise their own data

Winners will need to invest early and get to grips with how to use data to combat customer pain points

"If you want a better banking experience, better lending, [consumers will] use innovative fintechs that offer a better user experience, and use data better because they can access transaction data and initiate payments."

Michael Salmony, Payments Innovation Consulting

**The first decade** of the digital era has seen the blurring of the line between traditional financial services and non-financial businesses.

From fintechs to large tech firms, retailers and transport providers, companies of all sizes are using data and digital channels to strengthen ties with customers.

This is driving the disintermediation of the financial services industry, by removing the payments or banking middleman, or their visibility in the transaction. 'Is Uber a taxi company or a payments firm?' was a common question at industry conferences everywhere.

Now, after the Covid pandemic, which accelerated digital adoption, we're likely to see those barriers broken down further. As more businesses drive their digital channels, more data will be available, while open finance will encourage more data-sharing between financial and non-financial providers. Coupled with improved analytics, the opportunities for businesses from any sector to let their customers pay, transact, or borrow without leaving their website or app could grow exponentially.

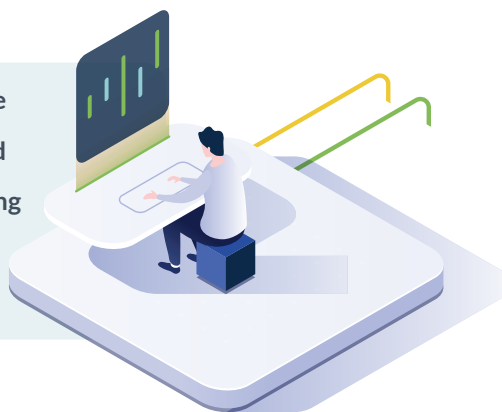
#### Blurred lines

Indeed, much like ecosystem businesses such as **WeChat** in China or **Apple**, expect to see many more businesses attempting to build 'one-stop shops' offering end-to-end services, including digital banking and payment solutions that offer more convenient access for customers.

The outcome won't just be a more competitive marketplace but better finance, says **Michael Salmony**, CEO of Payments Innovation Consulting and a former advisor to the European Parliament on financial services, "I'm putting my money on fintech - it's a smarter model. If you want a better banking experience, better lending, [consumers will] use innovative fintechs that offer a better user experience and use data better because they can access transaction data and initiate payments."



According to our forecast the value of the market for embedded finance is expected to triple by the end of the decade - growing at **19%** a year, to a value of \$761 billion by 2029 (from \$236 billion in 2022).



If simple in theory, in practice embedding finance into non-financial businesses seamlessly requires firms to get a banking licence, build partnerships with financial institutions for banking infrastructure, regulatory & compliance support, and even funding.

#### Open embeds

Some markets are further ahead of the curve in driving convergence than others. **Open Banking** rules in the UK and the EU's **Second Payment Services Directive** are building the data-sharing infrastructure to boost data sharing between banks, fintechs and other businesses. By the end of 2021 over 100 firms had launched Open Banking-enabled services in the UK<sup>1</sup>.

The embedded wave is not confined to high income economies in Europe and North America. Saudi

Arabia's fintech ecosystem strategy saw the kingdom launch open banking rules earlier in 2022, but a pilot payment service, **STC Pay**<sup>2</sup> launched as a digital offshoot by the country's national telecom operator in 2020 helped establish a regional fintech leader with more than 4 million active customers that is inspiring other non-financial market participants<sup>3</sup> to integrate financial services with their products.

As more services and products come online it's not hard to understand the enthusiasm. The potential is huge. According to our forecast the value of the market for embedded finance is expected to triple by the end of the decade - growing at 19% a year, to a value of \$761 billion by 2029 (from \$236 billion in 2022). See table 1, **Embedding growth**, below.

Table 1: Global embedded finance market size (\$ in billions)

	2020	2021	2022	CAGR 2020 - 2022	2023	2024	2025	2026	2027	2028	2029	CAGR 2022 - 2029
Europe	22	31	42	38%	49	57	66	77	90	105	122	16%
Asia	56	78	109	39%	129	153	181	215	255	302	358	19%
Latin America	4	5	7	41%	9	11	13	16	20	24	29	21%
Africa & Middle East	4	7	10	58%	13	15	18	22	27	33	40	21%
USA	35	49	68	38%	80	94	110	130	153	181	213	18%
Canada	2	3	5	46%	6	7	8	10	12	14	16	19%
<b>Total</b>			<b>236</b>								<b>761</b>	

Forecast market size for embedded finance Including embedded lending, payments, insurance, and embedded wealth management

<sup>1</sup> Open Banking Implementation Entity, 2021

<sup>2</sup> [STC Pay plans expansion](#)

<sup>3</sup> [Saudi Arabia Fintech 2022, findexable 2022](#)



“In the past, we used experience and maybe a few other parameters to decide on a customer’s eligibility for a loan. Now through data businesses like Credit Kudos you can see what my income and expenditures are, how often I pay bills or if I default on my car payments. That makes lending better, there are fewer defaults, and is usually better for customers.”

Michael Salmony, Payments Innovation Consulting

**Dealroom**, a data firm, estimates the market value of the embedded finance sector could outstrip the combined value of all private fintech firms and listed banking and insurance companies by 2030<sup>4</sup>.

Growth won’t be confined to North America and Western Europe. The buy-now-pay-later sector alone (BNPL) is expected to grow 12 times by the turn of the decade across the six countries of the Arabian Gulf<sup>5</sup> as fintech innovation spreads across the Middle East and North Africa.

### Better for me. (And all of you too).

With the right approach, the economic upside should go beyond the creation of valuable new tech-fin businesses to wider societal benefits like improving financial inclusion (see section 2 below). “In the past, we just used experience and maybe a few other parameters to decide on a customer’s eligibility for a loan. But that was pretty basic. Now through data businesses like **Credit Kudos** you can see what my income and expenditures are, how often I pay bills or if I default on my car payments. That, of course, makes lending better, there are fewer defaults, and it’s usually better for customers,” says **Salmony**.

## What is embedded finance? POS finance 2.0

Embedded finance is the integration of a financial solution (including lending, payment processing, deposit accounts, insurance) into a business’ infrastructure.

The principle is simple - make it easier for customers to do business with you by avoiding the need to go to another company or third party to make a payment, take out insurance or apply for a loan to buy products or services. It lets customers access financial services with firms where they already have a relationship and makes transactions easier (‘frictionless’ in industry speak).

Recent hype around embedded finance has been dominated by the growth of BNPL (buy now, pay later) short term credit from firms like **Klarna** of Sweden, Australia’s **AfterPay** (bought by **Block** in 2021) and USA-based **Affirm**, that let retail consumers buy goods at the point of sale in instalments without needing a credit card.

Its origins are in the industrial equipment industry. Manufacturers of industrial machinery such as aircraft engines offered manufacturer financing to customers to improve sales.

In the 1980s and 1990s consumer point-of-sale finance took off. Most commonly in the form of store cards for physical retailers (credit cards issued by retailers) – and instalment payments offered by retailers in emerging markets such as Latin America and Turkey.

Growth of e-commerce and data sharing through open APIs and real-time availability of consumer data has inspired a new generation of point-of-sale finance providers able to score customers, extend credit at the checkout, or offer insurance. At the same time, banking-as-a-service (Baas) fintech firms are providing the infrastructure to let non-finance companies build financial services into their businesses.

<sup>4</sup> [The rise of embedded finance, Dealroom, March 2022](#)

<sup>5</sup> [GCC BNPL market expected to grow 1100 percent by 2030, Arabian Business, September 2022](#)

### Ripe for funding

Given the potential for growth, it's not surprising that embedded finance, and buy now, pay later fintech in particular, were among the hottest areas for venture capital investment in 2021.

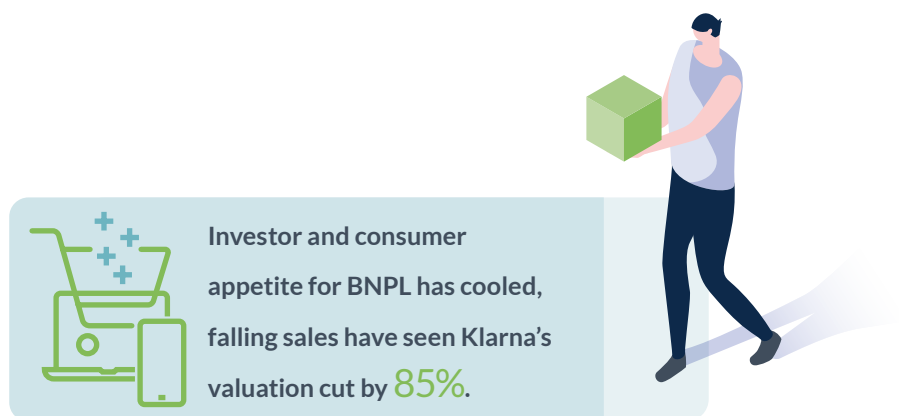
There has been a lot. Funding to embedded finance and banking-as-a-service or Baas providers tripled between 2020 and 2021 to \$11 billion according to **Dealroom**<sup>6</sup>. With funding across every sphere of the marketplace from core banking to embedded insurance.

While new-entrant fintech firms have dominated the market for so far, banks have also been quietly getting in on the action too.

And as consumers everywhere get more comfortable using a wider range of businesses for their banking, payments or insurance, the financial services industry is becoming gradually less 'siloed' and the marketplace is flattening.



<sup>6</sup> [The rise of embedded finance, Dealroom 2022](#)



### Banking on tomorrow

For banks, the business case is clear: stay relevant or be cut out of a world where consumers can, quite literally, 'go direct.'

As fully tech-powered financial services goes mainstream, banks of all sizes are trying to expand their reach and protect themselves from disintermediation and are increasingly using Baas to build partnerships and revenue streams.

From large incumbent banks like **Citi**, **Wells Fargo** and **JPMorgan Chase** in the US, and **Société Générale** or **Barclays** in Europe, to new entrants **Starling Bank** and **Solarisbank**, all have ramped up their focus on their Baas businesses (see table 3, **Colours of the rainbow**, on page 16).

**Goldman Sachs** announced the launch of a Baas platform for its transaction services business<sup>7</sup> last year and in an example of how collaboration is likely to form the future of embedded financial services, **BBVA** Mexico partnered with **Uber** to offer a digital bank account to its driver and delivery partners, allowing them to receive their pay within minutes and access both financial and non-financial benefits (such as lending or discounts and incentives when buying fuel for their vehicles).

Large market potential and a wide range of applications might rally the herd, but they also encourage speculation. Embedded financial services winners will need to prove an understanding of their customers and knit it together with an optimised technology stack to succeed. Particularly as the global economy faces the prospect of recession and interest rates continue to rise. Commoditisation of BNPL services from increased

competition and now rising interest rates (low rates had enabled providers to provide cheap credit to consumers) have eroded revenues and business value.

**Klarna**, previously Europe's most valuable private company, and a bellwether for the industry as the largest standalone provider, cut 10% of its workforce in the first half of 2022 with a second round of redundancies announced in September. As investor and consumer appetite for BNPL has cooled, falling sales have seen the company's valuation cut by 85%<sup>8</sup>.

All is not lost though. In a volatile economic environment, embedding finance deeper into the business can help merchants weather the storm - by lowering the cost of accepting payments or improving the payment options for their customers. "The appeal of our product increases as consumers look for safe and more convenient ways to pay and merchants seek to optimise their payment acceptance mix from both a conversion and economic point of view," says **Johan Tjärnberg**, Group CEO at **Trustly**, a core banking provider based in Sweden.

"The appeal of our product increases as consumers look for safe and more convenient ways to pay and merchants seek to optimise their payment acceptance mix from both a conversion and economic point of view."

Johan Tjärnberg, Group CEO, Trustly

<sup>7</sup> [Delivering Transaction Banking as a Service, Goldman Sachs 2021](#)

<sup>8</sup> [Klarna to make second round of cuts, Sifted, September 2022](#)



Going flat-out?

## Drivers of embedded finance

Technical drivers	Industry drivers	Customer drivers
<ul style="list-style-type: none"> <li>Increased adoption of digital commerce, mobile payments</li> </ul>	<ul style="list-style-type: none"> <li>Bank investment in infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Changing consumer needs</li> </ul>
<ul style="list-style-type: none"> <li>Wider availability of cloud-based systems</li> </ul>	<ul style="list-style-type: none"> <li>Bank digital transformation: build digital revenues, avoid disintermediation</li> </ul>	<ul style="list-style-type: none"> <li>Demand for instant access - to information, services</li> </ul>
<ul style="list-style-type: none"> <li>Better integrations through Open Banking and API-enabled technology</li> </ul>	<ul style="list-style-type: none"> <li>Increased competition across BNPL, payments and insurance</li> </ul>	<ul style="list-style-type: none"> <li>Expectations for frictionless experiences (from invisible banking to payments)</li> </ul>
<ul style="list-style-type: none"> <li>Digital identity supporting real-time scoring</li> </ul>	<ul style="list-style-type: none"> <li>Convenience as a defining factor in financial services innovation</li> </ul>	<ul style="list-style-type: none"> <li>Open-minded consumers - "banking" doesn't have to be done by banks</li> </ul>
<ul style="list-style-type: none"> <li>Availability of near-instant data</li> </ul>		<ul style="list-style-type: none"> <li>BNPL adoption has improved acceptance of embedded finance in other areas</li> </ul>

An economic downturn may rein in some of the excesses of the BNPL boom, or at least the number of competitors in the year ahead - but for large corporates and banking or insurance incumbents the pace is likely to pick up as competition intensifies and accelerates the search for new revenue streams and the potential for new customers and lower distribution costs.

#### Building from the inside out

For existing banks the sector is double-edged: if I'm buying and financing my purchases through **Amazon** the customer relationship is with **Amazon** regardless of who is actually lending the money or providing the payment service.

In the long run this might not matter. Ecosystem-wide growth should create new products and services and uncover new customer needs. And the 'Intel Inside' model of brand building is already well-established.

The embedded finance ecosystem model also has important systemic benefits - and a departure from the siloed, winner-takes-all approach of the last century by allowing each part of the value chain to play to its strengths (see infographic, **Inside Out: Banking the ecosystem**, below).

Bank, insurance and payments providers have already done the work of regulatory approvals, guarding customer accounts and fighting cyber threats leaving digital-first brands to focus on the business of building efficient distribution channels and building customer relationships.

No matter how the market develops, for organisations with the right mindset there's more than enough opportunity to go round. From providing banking and accounting services for small and mid-sized businesses, to using better data and analytics to improve the user experience or build lending books.

## No contest?

### The case for embedded finance

#### Commercial benefits

- Improve existing revenues, build new revenue streams
- Low cost of distribution of financial services
- Strengthen existing and build new customer relationships
- New product development (eg. by blending financial solutions)

#### Strategic advantages

- Lower barriers to entry by using Baas providers
- Trusted partners take care of cyber, regulatory, data protection risks
- Plug-and-play - no need to build products from scratch
- Efficient lead generation for Baas providers

### The best is yet to come?




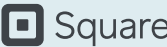



And despite the headwinds there's plenty of room for optimism. "We will announce some exciting news in 2023. The UK will continue to be a key-priority market for us where we serve around 600 merchants and our acquisition of **Ecospend** will transform **Trustly** into the leading Open Banking provider there. At the same time, our footprint in the US and Canada is growing by the day, at a record pace," says Trustly's **Berglund**.

Indeed the potential for creating revenue streams at scale is already clear. Canada's **Shopify** provides online shops with embedded banking solutions to help them manage their revenues directly within the platform.

It later launched a merchant solutions business (commissions from payments and business loans) that is already larger than its core subscription service business.

Nevertheless, the competitive landscape is evolving quickly. **QuickBooks** (an accounting platform) and **Toast** [link] (a restaurant management software firm from Boston) have embedded payment acceptance directly into their Software-as-a-service product, **Amazon** offers loans to small businesses on its platform while collecting credit data and **Uber** is developing financial products to help drivers finance vehicle buying and fuel payments, (see table, **Building the platform**, below).

Table 2: **Building the platform**: Embedded finance applications

Transaction type	Company	Platform activity
Lending		<ul style="list-style-type: none"> <li>Loans for SMEs</li> <li>Collects credit data</li> </ul>
Payments	  	<ul style="list-style-type: none"> <li>Payments acceptance</li> <li>Revenue share on transactions processed through platform.</li> </ul>
Banking & payments		<ul style="list-style-type: none"> <li>Embedded banking solutions for merchants - manage sales revenue within the platform.</li> <li>Payments acceptance with revenue share</li> </ul>
Lending & payments		<ul style="list-style-type: none"> <li>Financing to buy vehicles</li> <li>Payment solutions &amp; credit cards for fuel</li> </ul>
Lending & payments		<ul style="list-style-type: none"> <li>Financing with easy access to capital for restaurants</li> <li>Payments acceptance with revenue share</li> </ul>

Source: Edgar Dunn & Company, findexable 2022

### How to win

As the ecosystem era takes hold, the winners will be companies that understand the importance of partnerships (and their different roles within the ecosystem value chain - see table, **Colours of the rainbow**, below) for commercial success. And their role within the supply chain.

It won't all be plain sailing. Building viable revenue lines often requires organisations with previously competing interests to align on issues ranging from revenue and data sharing to technology stack

and, most difficult of all, organisational values.

Whatever the business - from platform providers to Baas specialists or traditional banks - investing early, experimenting with pilots to place small bets on technology to understand target customer behaviour, or investigate the type of embedded financial services best suited to them, is essential. Beyond breaking old boundaries, the prize will be a shot at a much larger bite of a growing pie and a potentially unassailable competitive position.

Table 3: **Colours of the rainbow:** Ecosystem finance roles

Role	Company type	Examples	Business model
<b>Financial rails</b>	<b>Banking and payments as a service</b>	Cross River, Sutton Bank, Celtic, Evolve (USA) Railstr (UK) Solarisbank (Germany) Trustly (Sweden)	Banking as a service model, transaction & revenue sharing
<b>Financial rails, liquidity</b>	<b>Incumbent banks</b>	Barclays (UK) Citi (USA) Goldman Sachs (USA) Societe Generale (France) Wells Fargo (USA)	Traditional institutions entering the Baas space
<b>Distribution and customers</b>	<b>Non-financial firms</b>	Amazon (USA) Shopify (Canada) Toast (USA) Uber (USA) Sage (UK)	Leveraging existing customer relationships to expand beyond core business

Source: Edgar Dunn & Company, findexable 2022



# Section 2:

## Financial inclusion

### A case of when, not if?

#### In this section

Progress at improving inclusion has stalled - can digital ecosystems help it bounce back?

Regional approaches to entrenched problems

How fintechs are building viable businesses and serving long tail customers

**Financial inclusion** - providing financial services to consumers and businesses that do not have access to them or improving access to customers that are “underserved” - pre-dates the fintech revolution.

Having shot to fame as a lever to reduce poverty with **M-Pesa** in 2007, when Kenya’s mobile operator made it possible for farmers and other unbanked consumers to receive money through their mobile phone, as the digital economy rewrote the rules of finance and dramatically increased the need for access to financial services, it remains one of the industry’s biggest unsolved problems.

The last decade has seen huge progress made in reducing financial exclusion. An additional 1.2 billion adults gained access to some form of financial service and the unbanked population fell by 35%, boosted in large part by the increase in mobile money accounts.

#### The last 1.7 billion

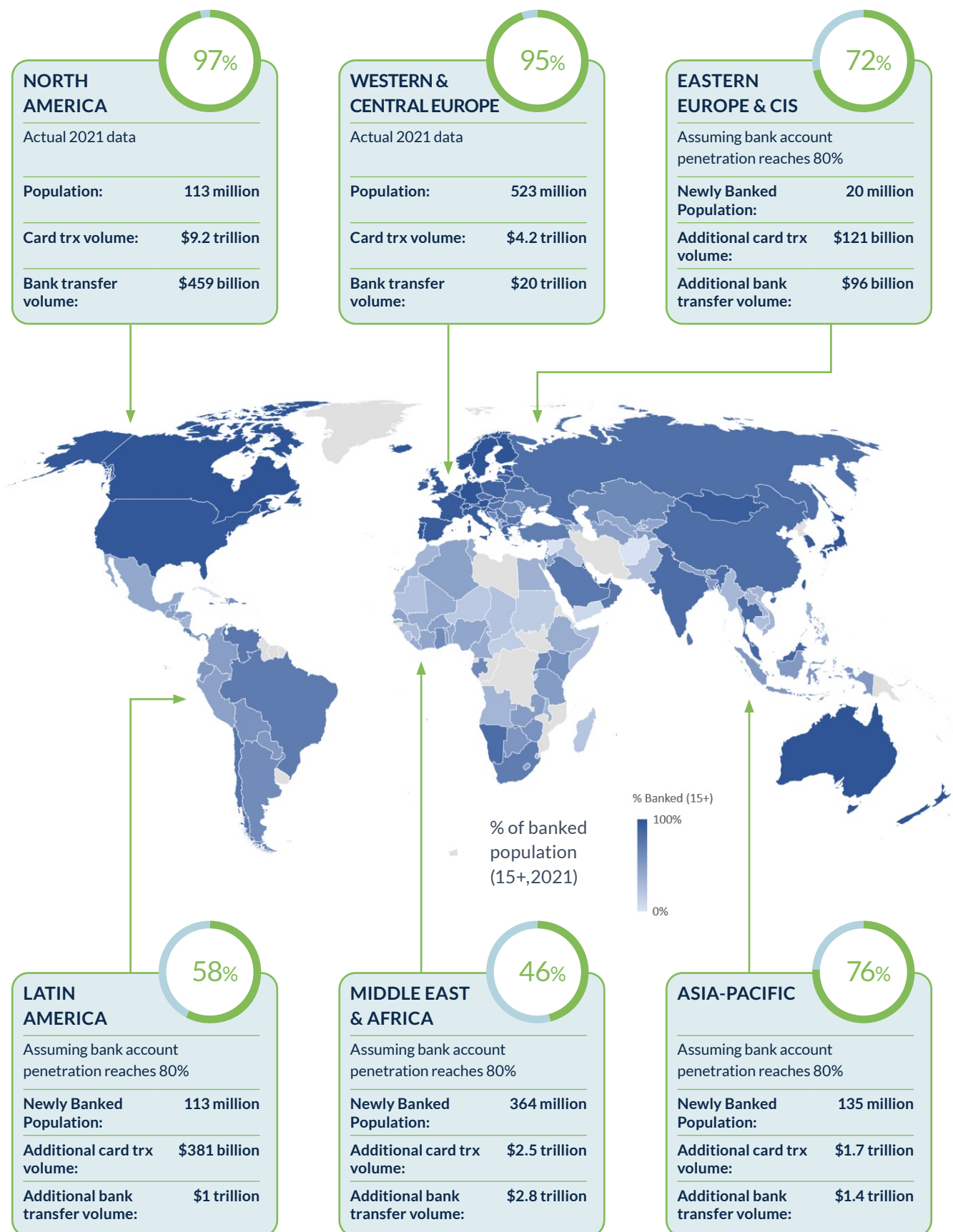
There’s still work to be done though. Latest estimates show an estimated 1.7 billion customers around the world are unbanked. And there’s growing evidence that the pandemic has reversed some of the progress, particularly among women - who are still outsized victims of financial exclusion - and small business owners put off by high transaction costs or the fear of being scammed.

The definition of inclusion between regions varies widely, compounding the problem. What works to improve access in one market might not apply in another. While financial inclusion stands at 97% in North America compared to Africa where less than half of citizens have a bank account, (see map, **Shades of grey: Financial inclusion** by region, below) the need to improve inclusion is as relevant to high income regions as poorer ones.



Figure 1: Shades of grey: Financial inclusion

% Bank Account Penetration 2021



Source: Edgar Dunn &amp; Company, findexable 2022

“In Germany there were many SMEs who previously thought they didn’t need an online shop - they would see having an online business as an additional cost. This changed overnight as everybody realised that we transitioned to an online society.”

Panagiotis Kriaris, Unzer, Germany

### Pandemic upside

A fact highlighted by the impact of the pandemic in 2020. “In Germany for example there were many SMEs who previously thought they didn’t need an online shop - they would see having an online business as an additional cost. [During the pandemic] this changed overnight as everybody realised that we transitioned to an online society,” says **Panagiotis Kraris**, head of business development at **Unzer**, a Germany-based fintech focused on international payments.

Despite the scale of the problem, the convergence of tech-enabled finance as well as edge innovations in the form of digital currencies and DeFi (see section 3 below) might provide the best opportunity yet to end financial exclusion and improve the lives of some of the world’s poorest citizens, as well as the fortunes of SMEs everywhere.

Indeed, this could soon be a case of ‘when, not if,’ with the right approach from innovators, incumbents and regulators. Incentivising data sharing, enabling new business models, and removing obstacles to inclusion would accelerate adoption of financial services by consumers and businesses.

## If not now, when?

### Ending the unbanked

Financial inclusion means individuals and businesses have equal opportunity to access useful and affordable financial products and services that meet their needs - from payments to savings, lending to insurance - and is a key enabler for 7 of the 17 UN Sustainable Development Goals:

- Eradicate poverty (SDG1)
- End hunger, achieving food security, and promoting sustainable agriculture (SDG2)
- Promote health and well-being (SDG3)
- Achieve gender equality and economic empowerment of women (SDG5)
- Promote economic growth and jobs (SDG8)
- Support industry, innovation, and infrastructure (SDG9)
- Reduce inequality (SDG10)

The G20 committed to advance financial inclusion through its High-Level Principles for Digital Financial Inclusion



if **80%**  
of the world's adults have bank  
accounts it would add around \$5 trillion  
to global payment transaction flows

### Scaling financial inclusion

It's not just about the economics of aid. Building financial services businesses that serve poorer customers fairly can make sound business sense with the right business model.

**M-Pesa** hit on the possibility of getting unbanked farmers to use their phones to receive money and sell their produce. Now available in eight countries across Africa, Central Asia and Eastern Europe, **M-Pesa** supported \$250 billion in transactions in the year to July 2022. It's also highly profitable. Revenues for the

service jumped 30% in 2022 and it now makes up around half the profits of parent company **Safaricom**<sup>9</sup>.

The potential 'long tail' market is huge. Creating new services for the unbanked opens up a currently untapped market. By our estimates, if 80% of the world's adults have bank accounts (equivalent to adding another 600 million consumers from low and middle income economies at today's numbers) it would add around \$5 trillion to global payment transaction flows (see table: **Financial inclusion market size**, below).

Table 4: Financial inclusion market size

Region	% Banked (15+)	Assuming banked population of 80%				
		Newly banked population	Card transactions from new consumers \$(billion)	Card transaction value from new consumers \$(billion)	Bank transfers from new consumers \$(billion)	Bank transfer value from new consumers \$(billion)
Asia-Pacific	76%	135,299,765	19.7	\$1,657	9.5	\$1,408
Eastern Europe & the CIS	72%	20,090,434	4.3	\$120.9	214	\$96.9
Latin America	58%	112,521,800	17.9	\$381.2	4,424	\$1,013
Middle East & Africa	46%	363,888,597	47.3	\$2,526	4,168	\$2,758
North America	97%	N/A	N/A	N/A	N/A	N/A
Western & Central Europe	95%	N/A	N/A	N/A	N/A	N/A

Note: Tables shows potential additional number of payments (including card and bank transfers) if financial inclusion reaches 80% across all regions

Sources: Global Data, Statista, and EDC analysis

<sup>9</sup> Largest Kenyan company's profit recovers as mobile money surges, Bloomberg, May 2022

“In Argentina, you can’t purchase gold or hard currency legally so you’re stuck but with digital currencies like bitcoin you have an outlet for middle class families and working individuals, to shelter some of their income from inflation.”

Jon Matonis, Cypherpunk Holdings, UK

It might be ambitious but could prove easier than it sounds. Almost by accident, as interest in bitcoin and cryptocurrency took off, citizens in countries as far apart as Nigeria and the Philippines started using bitcoin and other digital currencies to protect their money from volatile economic conditions or send money home (see Section 3, **Crypto: Practice makes progress**, below).

“In Argentina, you can’t purchase gold or hard currency legally so you’re essentially stuck in the Argentinian peso. With digital currencies like bitcoin you have an outlet for middle class families and working individuals, to shelter some of their income from inflation,” comments **Jon Matonis**, chief economist at Cypherpunk holdings, a crypto investment fund.

#### Private or public innovation?

During the rest of the decade, as governments everywhere wake up to the reality of cryptocurrencies, the launch of a series of Central Bank Digital Currencies (CBDCs) as more stable, centrally regulated forms of digital money has the potential to give access to new customers more quickly than previously possible.

More importantly, financial inclusion stands to benefit from the flatter ecosystem economy model which is defining the digital age - with incumbents, fintech and non-financial industry businesses from transport to retail and telecom operators working together to integrate financial services seamlessly (see section 1: **Winners break all**, above) into their businesses.

Governments can also play a decisive role. Some government-led initiatives have been very successful. **Pix payments** in Brazil launched by Brazil’s **Central Bank** in early 2020, lets consumers make near instant payments without needing a bank account. The service recorded nearly 2 billion transactions since launch by the end of August 2022<sup>10</sup>. In the Philippines, government and private sector collaboration during the pandemic to accelerate use of digital payments, including for Covid relief payments, saw the number of banked consumers nearly double in a year<sup>11</sup>.

#### The right incentives?

But as governments around the world work out the combination of policy and market drivers that can improve access and incentivise adoption of financial services, the biggest progress continues to be made by the private sector, where fintech innovators are finding ways to remove, or work around, the barriers faced by unbanked consumers (see table: **Fintech flavours - making financial exclusion history**, below).

Many of them have been inspired by the success of Kenya’s **M-Pesa** launched by **Vodafone** and **Safaricom** in Kenya 15 years ago - an innovation that arguably has done more to transform perceptions of financial services and the attraction of bringing previously ignored customers into the formal financial system than any policy intervention or digital innovation since.

<sup>10</sup> [Pix, payment transactions to August 2022, Central Bank of Brasil](#)

<sup>11</sup> [Financial inclusion in the Philippines, Fintech Times, August 2022](#)

Table 5: Fintech flavours: Making financial exclusion history

Company	Country	Segment	Note
 <b>recargapay</b>	Brazil	Payments	Payments app & ecosystem
 <b>creditas</b>	Brazil	Lending	Secured lending platform
 <b>kiva</b>	USA	Lending	Lending to low income entrepreneurs across 77 countries
 <b>ULO</b>	Indonesia	Lending	Digital lending platform
 <b>SAPHRON</b>	Philippines	Insurance	Insurance for vulnerable families in Philippines
 <b>ZIG WAY</b>	Myanmar	Lending & payments	App and website for payments and borrowing
 <b>Wing Bank</b>	Cambodia	Banking & payments	Low cost payments and banking
 <b>credolab</b>	Singapore	Data & analytics	Alternative credit scoring using web and smartphone data
 <b>SmartPay</b> Chuyên Gia Thanh Toán	Vietnam	Payments	Mobile payment wallet
 <b>Cyclos</b> Payment software	Netherlands	Payments	Payments technology for banks in emerging regions
 <b>OPEN CBS</b>	Hong Kong	Banking	Banking technology for microfinance
 <b>JUANCHO YE PUESTA</b>	Colombia	Lending	Lending platform targeting women customers
 <b>ny bank</b>	Brazil	Banking	The world's largest neobank with 70 million customers across 3 countries

Source: Edgar Dunn &amp; Company, findexable 2022

Figure 2: Financial inclusion market map



Source: Edgar Dunn & Company, findexable 2022

**(Not) in isolation**

Despite the breadth of innovation out there, the complexity of bringing in unserved, often informal, workers into the financial system means there are significant challenges that technology is yet to solve.

From minimum balance requirements and high transaction costs<sup>12</sup>, to a lack of formal identity or credit history and the challenges of serving customers that live in remote locations far from the nearest bank branch - the web of hard and soft obstacles is often greater than the ability of one fintech working in isolation to solve them (see table, **Lower the gates! Barriers to financial inclusion**, below).

“Banks say high interest rates [for poorer customers] reflect the level of delinquency, but analysing the data reveals that this isn’t the case. Plenty of creditworthy individuals are being denied access to affordable credit because large institutions don’t have the technology to access a broad range of data,” says

**Fabiola Emilio**, head of capital markets and investor relations at **Open Co**, a Brazilian fintech lender.

**I don’t speak finance**

Financial literacy and the need for clearer communication campaigns to change consumer behaviour adds another dimension to the challenge of bringing financial services to unbanked consumers. In countries with a large unbanked population there is often little or no understanding of financial services and what it means to pay or buy online. Worse still, fear of scams sometimes means customers avoid financial services altogether.

In the Philippines, despite cross-industry efforts to move payments and banking online through Covid-relief disbursements, only 16% of consumers were aware they had been given an account that would let them receive relief payments without needing to queue up at a bank or post office branch<sup>13</sup>.

## Lower the gates! **Barriers to financial inclusion**

Table 6

Obstacle	Description	Solutions
Regulation	Lack of formal ID (for KYC rules) to open bank accounts	Digital ID
Business model	High cost of financial products to customers	P2P transfers, mobile money
Transaction fees	High fees deter use and incentivise use of other channels	Mobile money
Credit scoring	Lack of credit information limits ability to lend money	Big data sources (web, smartphone), Machine Learning, alternative lending
Infrastructure	Lack of banking infrastructure limits distribution of financial services	Telco, smartphone channels for banking, payments
Financial literacy	Low customer understanding of finance	Cooperation with government, financial literacy campaigns
Consumer Awareness	Low awareness slows take up	Cross-industry communications & collaboration

Source: Edgar Dunn & Company, findexable 2022

<sup>12</sup> In a Human Sciences Research Council survey, 76% of low-income consumers indicated that high transaction fees are major drivers of financial exclusion - a factor in the high percentage of Eastern Africans using mobile money, which is considerably cheaper than traditional bank transactions

<sup>13</sup> From digital G2P payments to greater financial inclusion, *Innovations for Poverty Action*, February 2022

“Banks say high interest rates reflect the level of delinquency, but once we actually analyse the data this isn’t the case. Plenty of creditworthy individuals are being denied access to affordable credit because large institutions don’t have the technology.”

Fabiola Emilio, Open Co, Brazil

### Winners take a fall?

Increasing competition, lower barriers to entry, and lower transaction costs are helping to build the evolving digital ecosystem with much still to play for. There’s also a lot at stake.

For incumbents and innovators alike, the skill of building commercially viable businesses for ‘long tail’ customers is no longer restricted to serving the unbanked in emerging regions.

The principles - of lower cost distribution, cheaper transactions, and smarter analytics - are as applicable to companies that serve customers in downtown Manhattan as those targeting micro-merchants in a Lagos suburb.

In other words, the businesses that dominate the market for unbanked customers probably have the clearest path to becoming tomorrow’s digital financial giants. Firms that don’t learn these lessons will be left behind.

Some already appear to be on track to achieving that. **Nubank**, a neobank launched in 2013 to provide accounts for unbanked Brazilians, now claims 70 million customers in three countries and listed on Nasdaq in early 2022 to fund expansion.

### Outside the box

Others are taking seemingly counterintuitive approaches by focusing on overlooked businesses or segments of the population. **Juanchotepresta**, an online lender from Colombia, found that women customers were actually a better credit risk than men.

“We did a study with **Experian** where we looked at the credit records of around 300,000 customers in the credit bureau and then compared men with women customers to see who was paying better. We found that women are more reliable payers. So from the start, we defined our strategy by focusing on women customers because they deserve better terms,” says **Juan Saldarriaga**, the company’s chief executive.

What’s at stake is more than the fate of a few banks that are under pressure to keep up with the pace of digital transformation. Ending - or at least terminally reducing - financial exclusion could benefit everyone in the financial system, from consumers to governments and merchants (see box, **Winning the inclusion game**, below).

Making financial exclusion a thing of the past will lay the foundations for the ecosystem economy and unleash a digital dividend for businesses and consumers alike. For this reason alone, the impetus to improve financial inclusion should truly be a case of when, not if.



“We did a study with Experian to look at the credit records of 300,000 customers and compared men with women customers to see who was paying better. We found that women are more reliable payers. So from the start, we defined our strategy by focusing on women customers because they deserve better terms.”

Juan Saldarriaga, Juanchotepresta, Colombia



## Winning the inclusion game

### Benefits of financial inclusion

Table 7

Ecosystem benefit	Segment	Opportunity
Direct	PSPs & Acquirers	Increase addressable market through merchant acceptance & digital transactions
Direct	Card issuers & digital payment providers	Increase usage & adoption
Direct	Fintech firms	Ecosystem benefits from increased financial literacy
Direct	Mobile Money Operators	Use networks to accelerate adoption - particularly in Africa
Indirect	Government, Regulators	Improved literacy, reduce the grey economy
Indirect	Consumers	Lower costs, greater convenience
Indirect	Merchants	Increased sales, better data, more payment options

Source: Edgar Dunn & Company, findexable 2022

# Section 3:

## Cryptocurrency

### The tug of war moves up a gear

#### In this section

Cryptocurrency continues to make progress despite price volatility

Early signs of how decentralised finance (DeFi) will disrupt traditional finance

Different regions taking differing approaches to cryptocurrency adoption

Central bank digital currencies are around the corner

“When they talk about farmers being more fairly paid and that it stops art being forged - these are issues that have nothing to do with technology, so there’s massive confusion in the market.”

Michael Salmony, Payments Innovation Consulting

**Although interest in cryptocurrency**, the blockchain ledgers that support them, and the opportunities around decentralised finance (DeFi) continues to grow.

Progress in their adoption has been slowed by wild swings in the value of digital currencies and lack of a defining use case for blockchain ledgers – in spite of heavy investment by banks and tech firms and a wide range of commercial pilots.

In November 2021 the price of **Bitcoin** hit a record high of \$65,000 – by June 2022 it had dropped to under \$20,000. In the wake of the crypto hype over the last three years the market has also become much more complex – from just a handful of digital coins in 2013 to more than 10,000 cryptocurrencies less than a decade later.

#### Wood for the trees

As with other paradigm-altering innovations, hype can cloud reality. And with the period of peak crypto hype now coming to an end after the global market rout, the path forward – for adoption, their utility and global regulation – may become clearer.

Depending on which side of the fence you’re on in the crypto world it’s often a question of how much ideology is enough or is too much. The industry’s most passionate believers maintain that cryptocurrencies like **Bitcoin** and **Ethereum**, and the blockchain ledgers that underpin them, have the potential to transform everything from payments to voting rights and property ownership, and that only a fully decentralised system for exchange of value can realise the full potential of the digital age.

In principle they’re not wrong. Successful pilots in areas as diverse as food and supply chain tracking to property rights, though often carried out in vitro, outside the constraints of commercial or regulatory pressure, have proven the potential for blockchain and token economies to remove the costs and friction of intermediaries in multi-party transactions without sacrificing transparency or trust.

### Too many mountains

And there's the rub. Ideologically, a fully decentralised economy may be possible. But outside the crypto realm, the real world that crypto advocates want to transform is complicated by a web of entrenched commercial interests, regulatory and government controls, and – consumer scepticism (in advanced markets) of the technology and the actual need for a new type of money.

“Of course, there are too many intermediaries and some of these centralised authorities have too much power. While I understand that, I don't see blockchain as being the answer. 99% of the problems [blockchain advocates] talk about are not technology issues,” says **Michael Salmony**, of Payments Innovation Consulting, “when they talk about farmers being more fairly paid and that it stops art being forged – these are issues that have nothing to do with technology, so there's massive confusion in the market,” he adds.

After all, despite the ideologues' scepticism of centralised

government control of money and markets the world still needs policemen and women. “If something goes wrong, I want to be able to go to somebody and say, Can you help me fix it? If I lose my access keys I want to have somebody who will give me back access to my accounts. I think there's a reason why we still have judges, policemen and CEOs around,” says Salmony.

### Broken promise

And if the concept of a decentralised economic system sounds fairer in principle, crypto markets are far from decentralised. To date it is estimated that the 10 largest crypto currencies account for around 85 percent of the market (see Figure 3 below) , while crypto mining (the codebreaking that enables the minting of new coins) is dominated by a few handfuls of miners in disparate locations from Kazakhstan to Scandinavia and the US, see Figure 4, **Undistributed finance**, page 30).

Figure 3: Market dominance of 12 cryptocurrencies by Market Cap (September 2022)



Source: TradingView

Figure 4: Undistributed finance: Market share of largest bitcoin mining poolside\*



\*Estimated hashrate distribution among the largest mining pools. at 30 September 2022

Source: Blockchain.com

In the half decade since some of the world's largest banks started to take notice of the potential for blockchain to revolutionise their industry and help 'fast-track' digitisation, lies a land of broken promises and, some would say, missed opportunities.

Despite the optimism of blockchain helping to transform finance, payments and means of exchange – and sizable investment across every sphere of the space from institutional finance to blockchain and crypto start-ups, there are few real-world examples of commercially viable implementations – despite the range of use cases the technology has been associated with so far (see box, **What's the use?**).

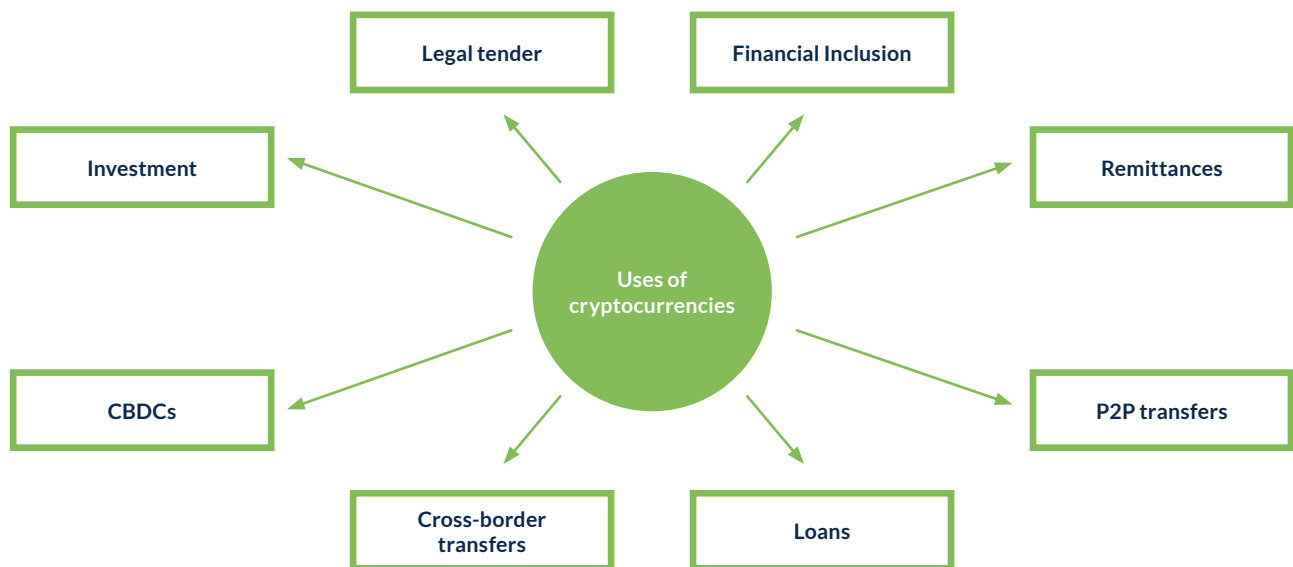
"What Satoshi proposed", says Salmony, "was super smart: how do you get several parties who all don't know and don't trust each other to come to an agreement. He's shown it can be done. That is a quantum leap. It's just that the application area for that is actually very small. In most cases the parties are identified."

If crypto hasn't yet lived up to the hype it may also be a result of the impact of the pandemic, which turbo-charged the digital economy and in which crypto investment was a surprising beneficiary, alongside videoconferencing technology and online event platforms.

"What Satoshi proposed was super smart: how do you get several parties who all don't know and don't trust each other to come to an agreement. That is a quantum leap. It's just that the application area for that is actually very small – in most cases the parties are identified."

Michael Salmony, Payments Innovation Consulting

Figure 5: Different uses of cryptocurrencies



Source: Edgar Dunn &amp; Company, findexable 2022

## What's the use?

### Potential uses for blockchain ledgers

While current successful implementations and uses of blockchain are few, the technology offers a wide range of potential uses for distributed ledgers (DLT) which can enable anonymised financial transactions without the need for intermediaries or centralised control – many of which have potential applications beyond financial services:



- **Cross-border payments** – by removing intermediaries, blockchain-based payments could in theory be quicker and carried out at lower cost
- **Identity management** – as all transactions recorded on a blockchain are unique, KYC processes can be streamlined

- **Authenticity** – unique transaction recording can also be used to protect intellectual property and preventing counterfeiting
- **Smart contracts** – sometimes referred to as programmable money, transactions can be programmed to 'activate' when certain conditions are met opening the possibility for more complex transactions such as derivatives, and transfer of ownership of bigger ticket assets or contract changes

“We’re in a long term, secular bull market for bitcoin. It’s establishing an equilibrium. So of course, we’ll see volatility for a brand-new reserve asset, especially a digital reserve asset.”

Jon Matonis, Cypherpunk Holdings

### Establishing equilibrium

Jon Matonis, chief economist of **Cypherpunk Holdings**, a Canadian crypto investment fund, says the volatility is just part of the normal run of an emerging technology, “I maintain we’re in a long term, secular bull market for bitcoin. It’s establishing an equilibrium. So of course, we’ll see volatility for a brand-new reserve asset, especially a digital reserve asset.”

As regulators, particularly in advanced markets (see table 9, **Ready to rule**, page 35) grapple with how to define digital assets and supervise crypto markets, countries in emerging regions are showing the most appetite for cryptocurrency and using it to solve real world problems - such as the high cost of cross-border money transfers.

“There’s more relevance in most parts of the world for something like bitcoin to exist which tears through decades of legacy banking infrastructure to provide self-custody opportunities in the global financial system that many customers don’t have access to.”

Jon Matonis, Cypherpunk Holdings

### South v North

The crypto adoption index by **Chainalysis**<sup>14</sup> (a cryptocurrency data firm) highlights the split between the advanced and emerging worlds. Among the top 20 places globally with the highest level of crypto adoption as defined by the index, just two countries (the United States and United Kingdom) are in the advanced world, (see table 8, below).

The scale of activity is still small, however. To date just a fraction of the \$500 billion dollar market for cross-border remittances uses a form of cryptocurrency but this could change as traditional remittance providers start to explore the role of crypto in their business.

In 2021, **MoneyGram** announced it will let customers buy and sell bitcoin through a partnership with **Coinme**, a US licensed crypto exchange - and **Western Union** tested bitcoin and other crypto currencies to reduce the cost of transfers<sup>15</sup> although the company has not yet made any announcement on plans for a specific service.

It’s also a useful tool for customers in less stable economies to protect the value of their savings. “You can make the case that there’s a lot more relevance in most parts of the world for something like bitcoin to exist which tears through decades of legacy banking infrastructure to provide self-custody opportunities in the global financial system that [emerging market customers] don’t have access to,” says Matonis.

<sup>14</sup> Chainalysis Global Crypto Adoption Index, September 2022

<sup>15</sup> Remittance firms slow to add bitcoin, Reuters, June 2021



Table 8: South v North: Cryptocurrency adoption (20 largest markets)

Country	Ranking	Overall index score
Vietnam	1	1.000
Philippines	2	0.753
Ukraine	3	0.694
India	4	0.663
United States	5	0.653
Pakistan	6	0.609
Brazil	7	0.562
Thailand	8	0.56
Russia	9	0.541
China	10	0.535
Nigeria	11	0.521
Turkey	12	0.519
Argentina	13	0.51
Morocco	14	0.507
Colombia	15	0.496
Nepal	16	0.478
United Kingdom	17	0.473
Ecuador	18	0.409
Kenya	19	0.397
Indonesia	20	0.396

Source: Chainalysis

### Wading in

Recently crypto has caught the attention of other mainstream payments industry players too. Viewing new forms of currency as opportunities for expansion, **Visa** launched a cryptocurrency consulting service and announced in January 2022 that nearly \$3 billion in payments had been made using Visa-branded cards linked with cryptocurrencies<sup>16</sup>. **Mastercard** and **PayPal** have also rolled out crypto programmes and payment facilities.

For many financial and technology analysts the problem with the crypto economy remains that blockchains feel much like a technology looking for a problem to solve. Remittances aside, cryptocurrencies are a far from ideal solution for everyday payments - so far offering a fraction of the speed of the payment networks of **Visa** and **Mastercard** and much slower settlement times.

As banks have discovered during the first half decade of their blockchain experiments, fully decentralised ledgers are only suitable when they're the technology best suited for the problem<sup>17</sup>.

The complexities of fully automating (decentralising) transactions, the slow processing speed to add verified transactions to the digital ledger and the processing power required to authenticate them means the range of problems it's suited for currently are much narrower than the hype proclaimed.

<sup>16</sup> Visa says crypto-linked card usage hit \$2.5 billion

<sup>17</sup> See: Blockchain's Occam Problem, McKinsey & Company, 2019

And though decentralised finance (DeFi) - where self-executing contracts are automatically completed when certain conditions are met without human intermediaries - will become more competitive in the years to come, as more institutions enter the space, the infrastructure and regulation needed to drive adoption is still at an early stage. The total DeFi market size was calculated at \$11.8 billion in 2021<sup>18</sup> - compared to \$23 trillion for the financial services industry as a whole<sup>19</sup>.

## Indicators: The future for digital currency?

As some of the speculative heat in crypto investments fades, is now the best time to look for clues as to the future of digital currencies? Three areas that provide clues as to the future of digital currencies and the distributed world they promise:

1

### Global regulators get serious

Regulation is already in place in some jurisdictions - mainly in smaller or emerging financial services centres - but few leading global regulators have made anything other than passing statements on digital assets and in some cases, such as the US SEC, have tried to avoid regulating them altogether. This may be about to change as the SEC, the UK FCA and IMF are all making noise about the need for better rules.

2

### CBDCs set for take off

Central Bank Digital Currencies or CBDCs may set the terms for the way digital currencies - are deployed and used. 19 of the 20 central banks of the G20 are exploring the potential for their own digital currency<sup>20</sup> - Nigeria's eNaira launched in 2021, and a fifth of China's population can use a digital Yuan. As plans for the launch of Digital Dollar and Digital Sterling pilots in September<sup>21</sup> and October 2022<sup>22</sup> get going, the endgame for crypto volatility and the path to adoption of digital money may be in sight.

3

### NFTs & DeFi

The mini token economies created by makers and buyers of digital art may yet hold the greatest clue to the market for digital assets. While NFT sales have slowed venture capital investment in digital-asset start-ups is holding up, as investors take confidence that use of NFTs in gaming holds the clue to the wider use of crypto for real-world documents like music rights, airline tickets or more complex transactions.

<sup>18</sup> [Global Market for Decentralised Finance, Grand View Research, 2021](#)

<sup>19</sup> [Global Financial Services Industry market size, The Business Research Company, May 2022](#)

<sup>20</sup> [Central Bank Digital Currency Tracker, Atlantic Council, accessed 22 September 2022](#)

<sup>21</sup> [Consortium to carry out first private digital sterling initiative, Coingeek, August 2022](#)

<sup>22</sup> [Digital Dollar project plans to explore CBDC technical solutions, Coindesk, September 2022](#)

## A game of NFTs

Other areas of crypto innovation are also dominated by emerging regions. South and East Asia are home to countries with the highest density of NFT trading, most likely related to local adoption of play-to-earn gaming where in-game purchases are made in the form of NFTs. Vietnam and the Philippines also take the top two places in the **Chainalysis** adoption index based on usage of crypto currencies for gaming and remittances<sup>23</sup>.







The region is also a useful testbed for signals on the future development of digital currencies more generally. While bitcoin and ethereum continue to represent a large share of digital asset trading in the region, stablecoins (cryptocurrencies usually tied or pegged to fiat currency) have the highest, and sometimes dominant,

share across many of the region's largest markets.

Although a full-scale roll-out of a digital dollar or euro might still be a few years away, the growing use of stablecoins for remittances may signal the potential for mainstream appeal of CBDCs (see box, **Different strokes**, below) to displace at least some of the cryptocurrencies when they arrive. An event that paradoxically might actually re-centralise finance.

"Some central banks will decide over the next year what they're doing about CBDC and will then start their rollout. When that process gets going at scale and we also start to see interoperability between different currencies, there will be a global shift that will make it increasingly difficult for other initiatives to explain their existence," says **Michael Salmony**.

Table 9: Ready to rule: Status of cryptocurrency regulation

Country	Status	Central Bank Currency project?	License required	Legal status	Regulatory update
European Union		Yes	Yes	Legal (member states cannot issue own cryptocurrencies)	Regulations differ across EU member states. MiCA (Markets in Crypto-Assets) Regulation passed in June 2022 sets out rules for licensing crypto-asset issuers, industry conduct and consumer protections.
UK		Yes	Yes	Not legal tender	No official regulation but cryptocurrency exchanges are legal and must register with FCA. Plans to announce rules on promotion of 'crypto asset promotions' announced early in 2022.
USA		Yes	Yes	Not legal tender	Regulation varies by state but progress being made toward federal regulation. SEC expected to confirm definition of crypto assets as securities (September 2022)
India		Yes	No	Not legal tender	No regulation in place but regulation for exchanges are being considered in parliament and a bill drafted.
Singapore		Yes	Yes	Not legal	Cryptocurrency businesses currently regulated under the Payment Services Act (2019). Cryptocurrencies not recognised as legal tender. Crypto exchanges legally allowed to operate if they register with MAS (Monetary Authority of Singapore).
China		Yes	No	Not legal tender	Cryptocurrencies, crypto exchanges and mining banned in 2021. Pilot Central Bank currency - the eYuan has been extended to 23 cities.

Source: findexable, global regulators' websites

<sup>23</sup> [Crypto adoption steadies in South East Asia, Chainalysis, September 2022](#)

Whatever the outcome, as CBDCs move from pilot to customers' (digital) pockets, it's unlikely regulators will be able to fully displace all the cryptocurrencies launched over the last decade - even if that's their motivation.

"I'm a fan of the CBDC agenda because it does have the potential to solve a lot of problems from inclusion to better finance to not letting large tech firms start a global currency," says Salmony.

"Some central banks will decide over the next year what they're doing about CBDC and will start their rollout. When that process gets going at scale there will be a global shift that will make it increasingly difficult for other initiatives to explain their existence."

Michael Salmony, Payments Innovation Consulting

## Different strokes: Government interest in CBDC keeps growing

So far, 10 countries have launched digital versions of their national currency. While some larger markets like the US, UK and Canada, are still conducting research to determine the practicalities of launching a digital currency, other countries are further ahead – as outlined in the table below.



Nigeria launched the eNaira in October 2021, the first African country and so far, the largest economy to launch a CBDC. In June 2022, the Central Bank plans to use it to improve financial inclusion by making it possible for people without smartphones to access the currency.



China released a pilot version of its digital currency wallet – recently extended to 23 cities – and is poised to become the first major economy to launch an official CBDC.



In a world first, Bahamas launched its Sand Dollar in October 2020.



Sweden is testing its ekröna digital currency.



India has announced that a digital rupee will be introduced by 2022-23.



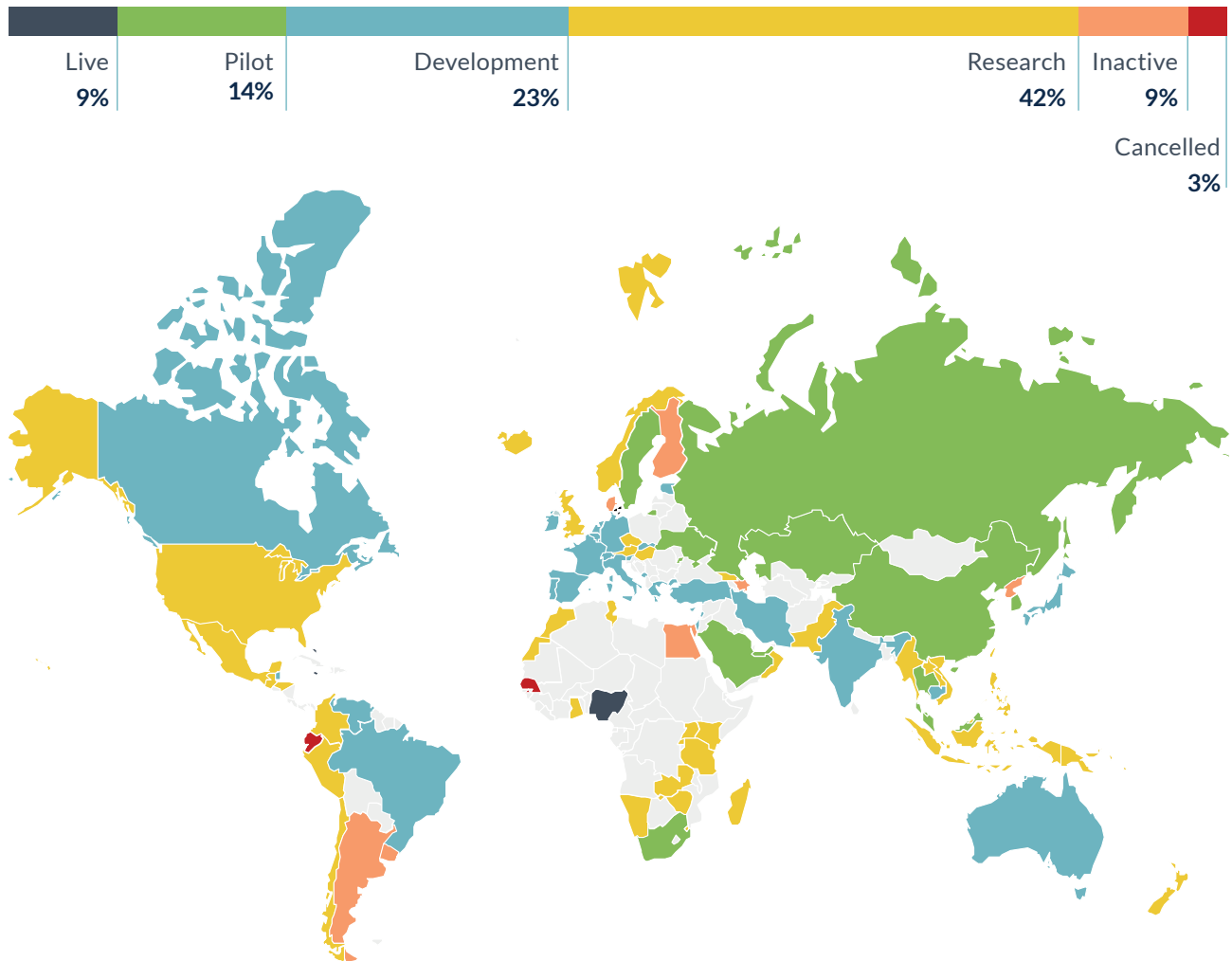
Russia announced in February 2022 that it had completed initial trials of a digital rouble CBDC.



Seven Eastern Caribbean Union countries (Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, Saint Lucia, and St. Vincent and the Grenadines) developed digital currency to serve unbanked customers.

Figure 6: Status of CBDCs around the world

## CBDC Status



Source: Atlantic Council

**Private innovations, public benefit**

“Some regulators are using this as an opportunity to kill off private crypto but that’s going too far. Private enterprise created cryptocurrency and it plays an important role. But there needs to be regulation - to balance innovation with the duty of protecting consumers,” adds Salmony.

Indeed, private sector innovation has done as much, if not more, to end financial inclusion as central government deployed initiatives, (see section 2, **When? Not if**, page 18.)

While the pace of private sector innovation in cryptocurrency continues, with crypto innovators having had free reign so far, it may all be about to change.

At the level of governments and public policy, there is a growing understanding of the need for global rules - to mitigate systemic risks and protect consumers.

This alone is forcing their hand to create viable alternatives to cryptocurrencies and stablecoins, that keep them in control of the reins of the monetary system (see table, **Different Strokes**, above). The tug-of-war between crypto innovators and central banks is just getting started.



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Head of Business Development, Unser, Austria

**Jon Matonis,**

Chief Economist, Cypherpunk Holdings, Canada

**Juan Saldarriaga,**

Chief Executive Officer, Juanchotepresta, Colombia

**Michael Salmony,**

Chief Executive Officer, Payments Innovation Consulting, Germany

*Interviews were conducted between March and September 2022*

#### Research methodology

This paper was developed by Edgar, Dunn & Company and Findexable using a combination of desk research, in-market experience and conversations with global fintech companies. Interviews for the report were carried out between March and September 2022.



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