

Sturgeon Capital research

Financial Inclusion and FinTech Models in Frontier and Emerging Markets

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Executive summary



Executive summary

Sturgeon Capital is a London-based Venture Capital (VC) firm that invests in the frontier markets (FM) and emerging markets (EM) of Central Asia, Bangladesh, Pakistan and Egypt.



This report presents a view of the state of financial inclusion across Sturgeon Capital's target markets of Bangladesh, Egypt, Georgia, Pakistan, Kazakhstan, Kyrgyzstan and Uzbekistan. Financial inclusion across emerging markets is one of the key problems that needs to be addressed to unlock their economic potential and ensure long-term, sustainable development. Although each country has a unique path and development goals, these markets are primed for rapid technology adoption that will catalyse additional growth for the next five to ten years. The commercialisation of cloud-based technologies across emerging markets is driving transformation across businesses and consumers, increasing productivity and spurring economic growth. This phenomenon has provided FinTech players in frontier economies access to vast and previously unavailable data points that can help advance a more inclusive financial system. Such a system is the proverbial bedrock of sustainable and widescale economic growth that can help consumers and businesses access life-changing financial services. FinTech players that can accelerate technology adoption, educate users and build compelling use-cases stand to benefit the most from the convergence of super-cycles and further digitalisation.

We review each economy's current state of digitalisation, as well as the momentum with which it has grown in the last decade, using the Digital Intelligence Index developed by Tufts University and Mastercard to shed light on the digital evolution of our economies, covering 160 indicators that roll up to four drivers

of digitalisation: institutions, innovation, demand and supply conditions. Each driver of digitalisation is reviewed to arrive at a set of underlying opportunities that would speed up the digital evolution of each country and present a compelling case to invest in these countries. Based on our review, the countries of Central Asia and Bangladesh fall into the "break out" zone, with high momentum of digitalisation, whilst Egypt and Pakistan are in the "watch out" zone, with more work remaining to achieve higher levels of internet penetration, improving accessibility and affordability across urban to rural areas. With limited VC funding available in all these markets, Sturgeon Capital is playing an active role in their rapidly evolving venture ecosystem, with the goal of investing in future category-leaders across numerous business models and verticals.

We also evaluate data from the World Bank's Findex Database to determine the financial inclusion baseline in each country. We review mobile and internet coverage, credit and debit cards, digital payments, and access to financial and mobile money accounts to assess the penetration levels in each country as of 2021 – as well as the trajectory of development since the inception of Findex surveys in 2007. We compare Sturgeon's core economies to their peers in other emerging markets, including Brazil, Colombia, India, Mexico, Indonesia, Thailand and Kenya, to gauge similarities as well as to highlight policy changes, infrastructural projects, legal reforms and launch of various FinTechs that have been instrumental in extending financial access in these markets.



Executive summary

In addition, we highlight the rise of Islamic Banking across secular, Muslim-majority countries, including those of South Asia and Central Asia and describe the latest policy developments and product structuring that has further extended the coverage of non-traditional financial instruments to those previously unbanked and underbanked.

Based on our review of digitalisation and financial indicators, we conclude that Georgia and Kazakhstan, both upper-middle-income countries, are leaders in their overall digitalisation state and financial services penetration. The lower-middle-income countries of Bangladesh, Egypt and Pakistan fall into the bottom quartile based on the same metrics, whilst Kyrgyzstan and Uzbekistan are ranked in the middle. There are notable initiatives spurred by governments that have enabled the creation of end-to-end, digital transfer systems, such as RAAST in Pakistan, UPI in India and PromptPay in Thailand, which have dramatically increased the penetration of digital payments. Establishing such digital channels for free and instant peer-to-peer transactions has enhanced each country's digital infrastructure and paved the way for more financial inclusion. There are also successful companies, such as M-PESA in Kenya, bKash in Bangladesh, JazzCash and EasyPaisa in Pakistan, Kaspi in Kazakhstan, Nubank in Brazil and Fawry in Egypt, that have enabled digital payments to gain traction and allowed these companies to expand financial services coverage to the previously underbanked or unbanked populations. Each business case is presented with key statistics around growth and opportunity. We also present four Sturgeon-portfolio case studies: Trukkr in Pakistan, ZypI in Tajikistan, Datacultr in multiple emerging markets, and Oasis Microfinance in Uzbekistan. These portfolio companies illustrate how FinTech infrastructure and lending models offer a unique value proposition that can be instrumental in driving financial inclusion.

We break down the FinTech opportunity into two categories: FinTech Lending and FinTech Infrastructure. FinTech lending solutions can leverage a digitally connected population's data and distribution power to drive financial inclusion across these markets. As technology-first businesses with digital acquisition and distribution strategies, FinTechs have an inherent cost advantage over the incumbents. This advantage is compounded by the higher volume and quality of data with which to make credit decisions. Combined, these two factors enable companies to lend to a wider section of society at a lower interest rate and with higher profitability than incumbent institutions, broadening the scope of financial inclusion and increasing the potential scale of these FinTechs. To achieve that scale, these lenders rely on the FinTech infrastructure players building the financial rails for data, distribution and collection. Without them, FinTech lenders will struggle to be technology-first businesses, limiting their long-term scale and profitability. These infrastructure plays are building on the foundations of smartphone and internet penetration to enable the harnessing of digital data profiles, the movement of digital transactions, and the digital distribution and collection of loans. Both categories are attractive investment opportunities, even more so when a business owns the infrastructure and lending layers, like Kaspi in Kazakhstan.

Ultimately, we are committed to investing in businesses that address fundamental needs and solve pain points in each society through building product-market fit, whilst capitalising on the secular tailwinds of digitalisation. We are excited about companies, founders and teams at the forefront of the FinTech revolution, poised to be key drivers of financial inclusion in the history of these markets.



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Table of acronyms

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AI	Artificial Intelligence
API	Application Programming Interface y
APR	Annual Percentage Rate
AUM	Assets Under Management
BCB	Brazilian Central Bank
BHIM	Bharat Interface for Money
BNPL	Buy Now Pay Later
BOT	Bank of Thailand
BPS	Brazilian Payment System
CBE	Central Bank of Egypt
CDNS	Central Directorate of National Savings
CEO	Chief Operating Officer
COD	Cash on Delivery
DBT	Direct Benefits Transfer
DII	Digital Intelligence Index
DRC	Democratic Republic of Congo
DSCR	Debt Service Coverage Ratio
EM	Emerging Market
ETF	Exchange Traded Funds
FI	Financial Institutions
FINTECH	Financial Technology
FM	Frontier Market
FRA	Financial Regulatory Authority of Egypt
FSC	Federal Shariah Court
GNI	Gross National Income
GSMA	Global System for Mobile Communications
ICD	Islamic Corporation for the Development of the Private Sector
ICT	Information and Communications Technology
IDB	Islamic Development Bank
IFC	International Finance Corporation
IFDI	Islamic Finance Development Indicator



Table of acronyms

IMPS	Immediate Payment Service
IP	Intellectual Property
IPN	Instant Payment Network
IPO	Initial Public Offering
ISDB	Islamic Development Bank Group
ISP	Internet Service Provider
ITU	International Telecommunication Union
IXP	Internet Exchange Points
KSA	Kingdom of Saudi Arabia
KYC	Know Your Customer
LDC	Least Developed Country
LDR	Loan-to-Deposit Ratio
LTE	Long-Term Evolution
LVR	Loan-to-Value Ratio
M2P	Merchant-to-Person
MBPS	Megabits Per Second
MDO	Microcredit Deposit Organisation
MENA	Middle East and North Africa
MFS	Mobile Financial Service
MIC	Middle-Income Countries
ML	Machine Learning
MM	Mobile Money
MNO	Mobile Network Operator
MOS	Monetary Authority of Singapore
MOU	Memorandum of Understanding
MSME	Micro, Small and Medium Enterprises
NBFI	Non-Banking Financial Institution
NEFT	National Electronic Funds Transfer
NPA	Non-Performing Assets
NPCI	National Payments Corporation of India
NPL	Non-Performing Loans
NSO	National Statistical Office
OECD	Organization for Economic Co-operation and Development
OIFI	Other Islamic Financial Institutions
OTC	Over-The-Counter
P2M	Person-to-Merchant
P2P	Peer-to-Peer
PAAS	Platform as a Service
PKR	Pakistani Rupees
POS	Point of Sale
PSP	Payment Service Provider



Table of acronyms

QR	Quick Response
R&D	Research and Development
RBI	Reserve Bank of India
RMG	Ready-Made Garment
RTGS	Real Times Gross Settlement System
SAAS	Software as a Service
SBP	State Bank of Pakistan
SDG	Sustainable Development Goals
SECP	Securities and Exchange Commission of Pakistan
SME	Small and Medium-Sized Enterprise
SMS	Short Messaging Service
STB	Shariah Review Bureau
TIN	Tax Identification Number
TMFB	Tameer Microfinance Bank
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPI	Unified Payments Interface
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
VC	Venture Capital
VPA	Virtual Payment Address
WB	World Bank
YE	Year-End
YOY	Year-Over-Year



Part I. Background



Background

Introduction

Sturgeon Capital is committed to investing in start-ups that create positive social impact through scalable technological solutions, aiming to address the needs of over 500 million people in targeted geographies across Central Asia, Middle East and North Africa (“Developing MENA”) and South Asia (ex. India). Our impact strategy tenets are financial inclusion, job creation and gender equality. This research aims to analyse the existing state of financial inclusion in Sturgeon’s target markets, which is being unlocked through government policy reforms, further digitalisation, wider internet and smartphone penetration and, ultimately, the development of Financial Technology (FinTech) solutions. Digitalisation has been especially prominent among younger users, who account for the majority of the populations in our markets with a median age of 20-25 years, while the development of FinTech solutions has been instrumental in boosting financial inclusion of the unbanked and underbanked adults across developing economies¹ of emerging (EM) and frontier markets (FM).

According to the World Bank (WB), financial inclusion is tied to seven of the 17 Sustainable Development Goals (SDG)ⁱ and is one of the main enablers of economic development, prosperity and poverty reduction. The *Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19* report points to over 1.4 billion unbanked adults in the world, pinpointing that distance from a financial institution, scarce financial resources, and lack of documentation are the main factors behind their inability to open a bank accountⁱⁱ. Consequently, the development of digital payment solutions through various channels, including mobile phones, has increasingly become a gateway for access to quicker and more seamless money transfers for a vast number of people in EM and FM, especially in the post-pandemic world.

Addressing the needs of the unbanked, who represent almost 20% of the global population, is critically important, and we believe that the development of FinTech solutions will aid in incrementally scaling up the financial rails of the ecosystem to allow for wider access to financial tools for all – the unbanked, the underbanked and the generally banked populations. The more immediate way private capital can be utilised is by directly funding businesses that help integrate the *underbanked* into the formal financial network more efficiently. This segment is comprised of people who have a checking or savings account with a financial institution or a mobile banking account yet rely on alternative methods of payments outside the formal financial system due to the potential challenges of the scarcity of well-integrated solutions, lack of confidence in the financial system and financial illiteracy, tax considerations, religious or cultural affinities that preclude the usage of certain products (e.g. interest-bearing loans), as well as high costs.

Experimental studies in three EM and FM economies have shown that expanding access to bank accounts to previously unbanked populations does not automatically translate into increased wealth unless financial products fit the needs of the consumers, with enabling policy and infrastructure mechanisms that propagate consistent usageⁱⁱⁱ. This phenomenon is especially apparent in countries where governments implemented payments schemes (i.e. emergency stimulus, state salary or pension payment) for digital transfer but did not fully update the underlying infrastructure to facilitate seamless transactions through the entire payment lifecycle. However, in most cases, having an account provides a gateway to using other financial products, with 83% of those receiving payment into their account also reporting making a digital payment^{iv}.

¹ EM/FM verbiage will be used in place of developing economies globally.



Background Introduction

Therefore, digitisation of government payments and private sector wages in EM and FM generally triggers the opening of an account with a financial institution (FI), with 57% of FI account users reporting they opened their account specifically to be paid by their employer or to receive payments from the government^{iv}. Given that there are over 85 million unbanked adults globally (1% of the global and 6.1% of the unbanked population) receiving government payments in cash, with a further 165 million (2.1% of the global and 11.8% of the unbanked population) receiving private wages in cash^{vi}, it presents an immense opportunity for start-ups to create digital workflow solutions, integrate with business and government networks and prompt further digitalisation of payments, thereby increasing the depth of financial inclusion.

Account ownership in EM and FM grew to 71% in 2021 from 63% in 2017, largely driven by the adoption of mobile money (MM) solutions^{vii}. Of these, 13% of account holders had an inactive account, defined as an account that had no activity (i.e. withdrawals, deposits, or digital payment transfers)^{viii} during one calendar year. Notably, the 2021 gender gap of 6% for women account holders in these economies has been reduced by 3% since 2014^{ix}, with further work remaining to bring about more gender parity in financial access among other areas.

Sturgeon's economies can be broken down into two main stages of development based on the gross national income (GNI) figures, from lower-middle-income countries of Bangladesh, Egypt, Kyrgyzstan, Pakistan and Uzbekistan (\$1k-\$4k of GNI per capita) to upper-middle-income countries of Georgia and Kazakhstan (\$4k-\$12k of GNI per capita)^x. The middle-income countries (MIC) segment is key to unlocking financial inclusion of a wider populace and generating global growth, since 75% of the world's population and nearly one-third of all the global GDP can be found in these economies^{xi}.

In this paper, we will review the adoption curve of various FinTech products across EM and FM societies and essential regulatory and infrastructural changes that have paved the way for growth in the breadth and depth of coverage of various financial tools in each market. We will also review non-traditional FinTech models, such as those covered by Shariah compliance (Islamic law). Although all of Sturgeon's economies are secular, they comprise mostly Sunni Muslim populations, and Shariah-compliant financial products have been gaining traction in recent years.

Finally, we will conduct four case studies with infrastructure and lending FinTech companies in Sturgeon's economies and adjacent markets to showcase how each tackled financial inclusion through their products. It is our goal to arrive at an opportunity set of different FinTech models for the next five to ten years that would be instrumental in bringing greater financial inclusion across economies covered by Sturgeon and unlock higher economic potential for the young and largely underbanked populations of Bangladesh, Egypt, Georgia, Pakistan, Kazakhstan, Kyrgyzstan and Uzbekistan.



Background

Framework and methodology

We will utilise secondary data sources based on a desk review of existing literature covering the digitalisation of each economy and specific financial indicators to arrive at the current state of financial inclusion of each country. We will then look at successful FinTech business models in our markets and other EM and FM societies to serve as a playbook of development for the future.

First, we will use the *Digital Intelligence Index (DII)*^{xii}, last updated in Q4 2021, to review the state of digitalisation in our markets as a basis for the further spread of digital financial tools. The DII displays interactive scorecards of the digital trajectory of 90 global economies over a 12-year period, developed in partnership between the Fletcher School at Tufts University and Mastercard. The data collected for the dashboard includes reports and surveys from organisations, like the United Nations (UN), WB, Euromonitor, Global System for Mobile Communications (GSMA), International Telecommunication Union (ITU), the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and others.

The DII measures digital evolution, which is underpinned by four drivers of digital transformation: 1) innovation; 2) institutions; 3) demand conditions; 4) supply conditions. The DII gives an overview of the current state of digitalisation, as well as the momentum that propels greater digital uptake, using 160 underlying indicators and placing countries into four trajectory zones:

- “**Stall Out**” (high digitalisation, low momentum);
- “**Stand Out**” (high digitalisation, high momentum);
- “**Watch Out**” (low digitalisation, low momentum);
- “**Break Out**” (low digitalisation, high momentum).

Each component of the underlying score will be reviewed and analysed for the main pain points and opportunities to speed up the overall digital ecosystem development, as well as to help us identify investable FinTech products that can address them.

In addition, we will look at the underlying data from the WB’s *Global Findex Database 2021* to dive deeper into the financial inclusion metrics of all countries as they stand today, especially Kyrgyzstan and Uzbekistan, due to their absence from the DII scorecards. We will look specifically at the proportion of adults (15+ years of age) with access to the internet, mobile phones, MM and FI accounts, inactive accounts, those who use digital payments or opened their account specifically to receive government payments and wages, as well as those with credit and debit cards.

Lastly, we will track the selected Findex indicators from 2011-2021 across other EM of India, Indonesia, Kenya (lower middle-income) and Brazil, China, Colombia, and Thailand (upper middle-income) that are ahead in digitalisation and overall economic growth, and can be used for comparative analysis of key initiatives and developments that have enabled further financial inclusion. We will track the comparators’ progress, and review parallels in penetration over the last decade to build a playbook of the most successful business models across EM and to inform possible FinTech development strategies across Sturgeon’s target markets.



Part II.

State of digitalisation in Sturgeon's markets



State of digitalisation in Sturgeon's markets

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Bangladesh, Kazakhstan and Georgia, with a combined population of 189 million, are all ranked as “break out” countries.

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Pakistan and Egypt, with a combined population of 329 million, are ranked as “watch out” countries, exhibiting a lower digitalisation state and momentum.

Digital Intelligence Index (DII)

Per the latest DII scorecard, Bangladesh, Kazakhstan and Georgia, with a combined population of 189 million, are all ranked as “break out” countries, as they exhibit a lower current digitalisation state, but a high pace of digitalisation or momentum, pointing to rapid digital growth. These economies are currently ranked 83rd, 55th and 47th, respectively, out of 90, showing more positive attitudes to digitalisation by their populations, having reached and sustained innovation-led growth but with weaker infrastructural and institutional mechanisms necessary for a full digital transformation.

Pakistan and Egypt, with a combined population of 329 million, are ranked as “watch out” countries, exhibiting a lower digitalisation state and momentum. The countries in this category are ranked 80th and 78th, respectively, out of 90, per their current state of digitalisation. They have infrastructural and institutional challenges, lower consumer demand and scepticism about digital solutions, exacerbated by lower digital literacy and issues with access to digital products.

Both DII zones of “break out” and “watch out” are considered to be in the “Digital South”, with opportunities to improve digitalisation rates through increasing affordability and access to broadband connectivity and mobile internet.

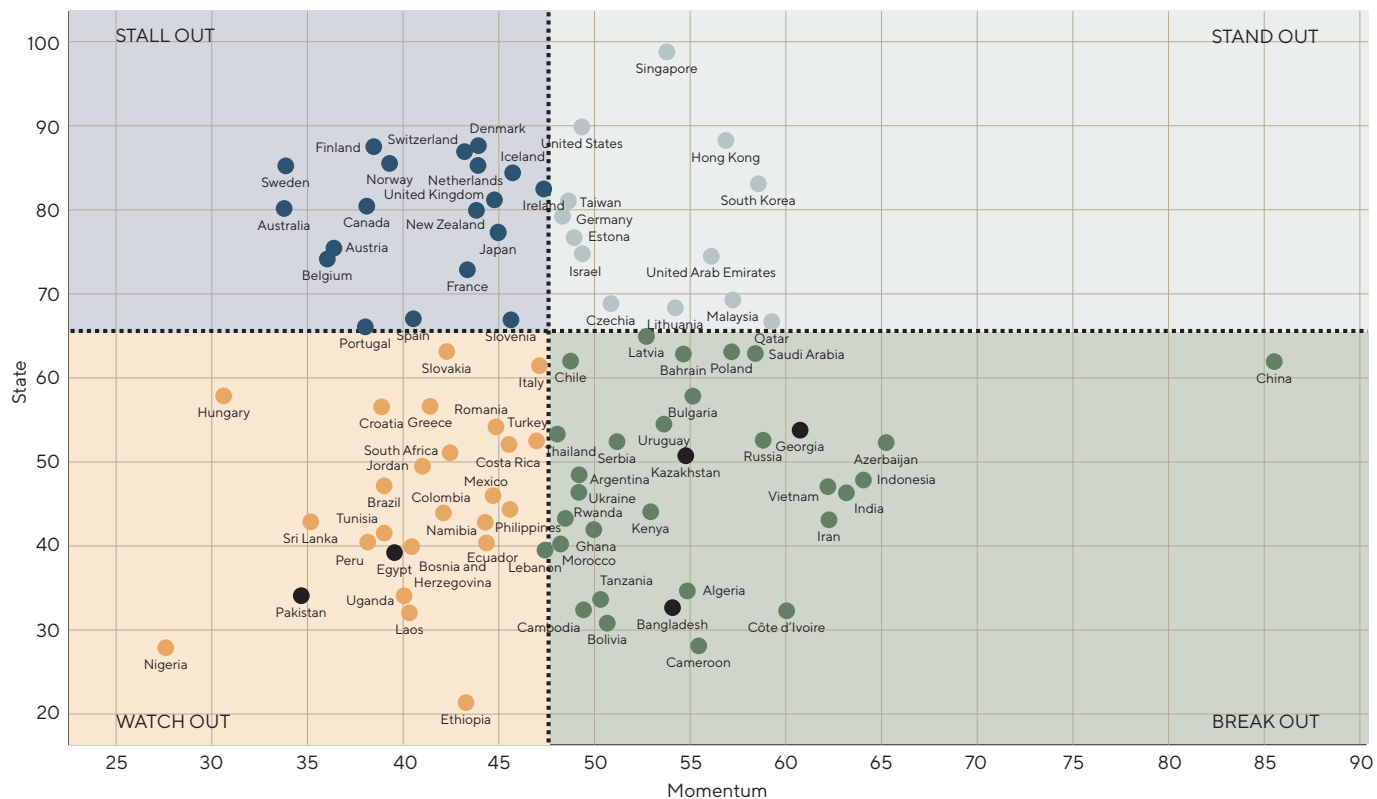
Uzbekistan and Kyrgyzstan, with a combined population of over 41 million, were not ranked in the DII research but will be reviewed in our analysis of financial inclusion through digital channels using the WB's Global Findex Report from 2021. However, it is worth mentioning

that both countries have achieved a high level of digitalisation in the last decade. Uzbekistan has put forth the “Digital Uzbekistan – 2030 Strategy” that aims to increase internet access across the country, with the Uzbek government committing to invest and implement 260 projects to develop its e-government infrastructure and the banking sector^{xiii}. Uzbekistan's internet penetration stood at 70% of the population in 2022 (compared to 51% in 2017^{xiv}), with mobile internet connection speeds increasing by 4.87 megabits per second (Mbps), representing a 55% increase YoY^{xv}. In addition, key infrastructural investments have been made to increase internet connectivity throughout Uzbekistan, with a remarkable sixfold increase in the country's fibre-optic communication lines since 2017, amounting to 118 thousand kilometres of coverage^{xvi}. The main objective of the Digital Strategy 2030 is to increase internet coverage and affordability, to bring more government services and industries online, to implement digital passports and mobile IDs in the provision of public services and to reduce the urban-to-rural digital divide^{xvii}. Kyrgyzstan's internet penetration stood at 34% in 2017^{xviii}, increasing to 51% in 2022^{xix}. The Kyrgyz government has also recently rolled out an “E-commerce Development Programme” for 2023-2026 to improve its legal framework for online businesses and ensure sectorial growth as part of its Vision 2040 development strategy^{xx}. As both countries' literacy rates among adults are at 99%, it serves as a strong foundation to build on for the further spread of digital solutions as they become more readily available and affordable.



State of digitalisation in Sturgeon's markets Digital Intelligence Index (DII)

Digital Evolution across 90 Global Economies



Source: Digital Intelligence Index (accessed in January 2023)

Diving into the digital evolution score for Bangladesh, Kazakhstan, Georgia, Pakistan and Egypt, we can highlight countries in relation to each parameter. Regarding supply conditions, or how evolved a country's access, fulfilment and transaction infrastructure is, Kazakhstan moved from being in the "break out" zone to the "watch out" zone due to lower scores in the provision of electricity. Conversely, the demand conditions score the highest in Kazakhstan, underpinned by low gender digital divide, higher digital literacy and their citizens' ability to adopt and request digital services. When considering institutional infrastructure, Georgia scores the highest in the current state, with top-performing scores due to

less government bureaucracy than other countries in the sample. However, it scores in the bottom quartile for the facilitation of Information and Communications Technology (ICT) strategy, pointing to an opportunity to create more digitally-enabled processes at government level. Regarding innovation, Pakistan is leading across Sturgeon's economies, ranking in the "break out" zone and demonstrating that the country is embracing technology despite institutional, supply and demand constraints. Notwithstanding its high scores in innovation, Pakistan ranks lowest in demand, both in terms of current state and momentum, pointing to a less digitally adaptive consumer base.



State of digitalisation in Sturgeon's markets Digital Intelligence Index (DII)

Digital Evolution Drivers – Top Results (1-90 on a descending scale)²

	Bangladesh	Egypt	Georgia	Kazakhstan	Pakistan
Demand	Rural digital divide (40/90)	Consumer spending (36/90)	Gender digital divide (17/90)	Gender digital divide (4/90)	Consumer spending (57/90)
Supply	Mobile access affordability (51/90)	Access to financial institutions (31/90)	Mobile access availability (25/90)	Mobile access affordability (13/90)	Electronic payments (54/90)
Institutions	Bureaucracy (57/90)	Legal environment for business (60/90)	Bureaucracy (7/90)	Bureaucracy (22/90)	Bureaucracy (36/90)
Innovation	Financing (74/90)	Start-up capacity (33/90)	Start-up capacity (1/90)	Start-up capacity (2/90)	Talent availability (49/90)

Source: Country Dashboards from Digital Intelligence Index (accessed in January 2023)

Digital Evolution Drivers – Bottom Results (1-90 on a descending scale)

	Bangladesh	Egypt	Georgia	Kazakhstan	Pakistan
Demand	Gender digital divide (88/90)	Class digital divide (89/90)	Rural digital divide (76/90)	Consumer spending (61/90)	Gender digital divide (90/90)
Supply	Access to financial institutions (88/90)	Communications infrastructure (79/90)	Traditional transport (62/90)	Access to financial institutions (81/90)	Communications infrastructure (89/90)
Institutions	Legal environment for business (89/90)	Transparency (83/90)	Government facilitation of ICT (89/90)	ICT regulatory environment (84/90)	Effectiveness of institutions (88/90)
Innovation	Value capture (89/90)	Business practices (89/90)	Business practices (84/90)	Business practices (81/90)	Value capture (86/90)

Source: Country Dashboards from Digital Intelligence Index (accessed in January 2023)

² Ranking of 90 countries, with 1 being the highest score, 90 the lowest score per indicator.



State of digitalisation in Sturgeon's markets

DII: Country-By-Country Summaries



Bangladesh has a substantial gender digital divide, scoring close to the bottom of the DII sample, pointing to inequalities related to lack of gender parity in account ownership, social media use, mobile ownership (29% gender gap^{xxi}), literacy rates, mobile internet usage (52% gender gap^{xxii}) and digital payments. This trend is rapidly receding, and the country scores better on the rural digital divide, with lower friction in the procurement of digital services between urban and rural populations. On the supply side, Bangladesh's top score comes from its mobile network affordability and availability, with widescale geographic coverage by at least a 3G or long-term evolution (LTE) mobile network, with 4G coverage reaching 95% of the population in 2020^{xxiii}. The country is on a slowly

advancing trend of declining bureaucracy and a less burdensome regulatory environment, but access to financial institutions remains limited, placing the country at the bottom of the sample in 88th place. There are fundamental challenges relating to the soundness of the banks, scarcity of credit information and financial services not meeting business needs. Regarding innovation, although shown as the category's top score, financing opportunities through venture capital (VC) in the country are still scarce, ranking in the bottom quartile of the sample. The value capture is also low, caused by a lack of application development, limited patents and intellectual property (IP) outputs for purchase and exports.



Egypt's consumer spending ranks high on the demand side of the DII, reaching \$313.49 bn in private consumption expenditures and \$3,165 per capita in 2021.^{xxiv} However, there is a sizable class digital divide, scoring second to last in the sample, with a lack of parity between different socioeconomic classes in account ownership, digital payments and internet usage. Access to financial institutions scores relatively well in the second quartile, but the communications infrastructure scores almost at the bottom. As of 2020, 72% of the Egyptian population used the internet, up from 57% in 2019 and 47% in 2018^{xxv}, which points to a rapid expansion of digital use in recent years. Egypt scores

low on the institutional side, with a lack of transparency and freedom of expression on the internet, driven by censorship of news sites and imprisonment of journalists and critics of the government^{xxvi}. The legal environment for business scores in 60th place, the country's highest indicator for the institutional vertical, with a need to reform communications policies to allow for unhindered data exchange online. Finally, the start-up capacity is ranked in the second quartile of the sample, with a slowly advancing positive trend, however, Egypt's business practices come in second to last place, signalling low technology penetration and internet usage by private enterprises.



State of digitalisation in Sturgeon's markets DII: Country-By-Country Summaries



Georgia's gender digital divide scores in the top quartile, signifying parity in internet usage across gender lines, but there is a much wider rural digital divide, with 83% of urban households having access to fixed broadband services, compared to only 5% in rural areas^{xxvii}. On the supply side, mobile access availability also scores high, with 3G coverage reaching 99% of the population and a further mobile connection penetration of 155%^{xxviii}. However, there are issues with fulfilment infrastructure and inefficiencies relating to the lower quality of roads and transport links. Georgia scores in the top quartile on the institutional side in its ability to tackle bureaucracy and corruption. However, the government's facilitation of ICT is scored second to last,

suggesting restrictions around digital trade data and the legal framework's inadaptability to digital business models. Finally, Georgia comes in first with its start-up capacity, indicating that it is relatively inexpensive and easy to set up and register businesses in the country. However, the bottom quartile results for business practices point to lower internet penetration among the country's small and medium-sized enterprises (SMEs).



Kazakhstan scores fourth in the sample in tackling the gender digital divide but with lower marks for consumer spending, which saw a negative growth rate of (-3.79%) year-over-year (YoY) in 2020 with a \$90.58 bn spend^{xxix}. On the supply side, mobile access affordability scored in the top quartile among reviewed countries in terms of handset prices and mobile tariffs, with 70% subscriber penetration and 73% smartphone adoption as of 2020^{xxx}. However, Kazakhstan scored lower in access to financial institutions, pointing to gaps in the depth of credit data and the ability of the banks to meet business needs. Kazakhstan ranks in the top quartile in its administration of tax codes and use of less red tape, but the

ICT regulatory environment scores in the bottom quartile, presenting a view into regulatory frameworks that have proven to be ineffective in creating market competitiveness, especially in regard to existing oligopolies in the electricity and telecommunications sectors^{xxxi}. Finally, Kazakhstan ranks second after Georgia in its start-up capacity, pointing to an environment where innovation is encouraged through a relatively easy and low-cost process of setting up businesses. However, most businesses still operate offline, as evidenced by a lower score in business practices.



State of digitalisation in Sturgeon's markets DII: Country-By-Country Summaries



Pakistan ranks at the bottom of the sample in its gender digital divide, which points to wide inequalities in how digital solutions are utilised and data is consumed across gender lines. The gender gap for women in mobile phone ownership stands at 38%, mobile internet at 49%, and the mobile money account gap is the largest at 94%^{xxxxi}. The demand conditions still prove challenging, with digital payments, device and broadband uptake remaining low, despite a slightly higher score in consumer spending with a YoY growth of 6.33%, reaching \$293.20 bn in 2021^{xxxxii}. The communications infrastructure scores second to last in 89th place, pointing to a scarcity of internet exchange points (IXP) in proportion to the country's vast population figures, which is key in ensuring internet service providers (ISP) and

server networks can connect. Pakistan's bureaucracy scores in the second quartile, which highlights a relatively well-intentioned structure of institutions, but their effectiveness is in 88th place, which is indicative of issues ranging from corporate corruption to government ineffectiveness and overall political instability. Pakistan ranks in the third quartile in talent availability and in the bottom quartile for value capture in applications developed per person, patent applications and entries in scientific and technical journals. More institutional support is needed to upgrade existing infrastructure to attain a higher rate of digitalisation and enable the development of digital channels that could tackle financial inclusion.



CASE STUDY: Success stories in Sturgeon's markets



PAKISTAN: EasyPaisa and JazzCash

Pakistan's mobile phone penetration stood at 63% in 2021, with an internet penetration of 30%.

Its digital payments share grew from 9% in 2011 to 18% in 2021, and the country has seen a rise in FI and MM accounts, growing from 10% in 2011 to 21% in 2021. The growing share of digital financial solutions in Pakistan can be attributed to the introduction of mobile payment solutions, such as EasyPaisa and JazzCash. These two companies produced apps that were the most downloaded finance mobile apps in Pakistan in 2022^{cliii}, and as a whole, the country saw a surge in app downloads, growing 35.4% YoY with 3.52 billion downloads, which ranked them 9th globally^{cliv}. This upward trend in mobile activity affirms the democratisation of mobile services, wider penetration and improved mobile experience with increasing download speeds and better 4G coverage.

EasyPaisa was launched in 2009 on the heels of a new branchless banking regulation introduced by the State Bank of Pakistan (SBP) in 2008. The new policy permitted banking institutions, licensed by SBP, to start offering financial products through non-branch channels^{clv} and resulted in banks running pilot programmes with physical agents, such as couriers and mobile network operators (MNO), to deploy financial solutions to those previously excluded from the formal economy. One such bank, called Tameer Microfinance Bank (TMFB), in partnership with its MNO parent company, Telenor Pakistan, launched EasyPaisa. The product became available for over-the-counter (OTC) utility payments with physical agents to anyone without a TMFB or Telenor account^{clvi}. By 2010, EasyPaisa processed five million transactions and introduced mobile wallet accounts for

Telenor users, allowing them to connect to several services offered by TMFB through their mobile phones. The OTC model was key in unlocking users that did not have a mobile subscription or were aligned to a different MNO, with 70% of its customer base coming from outside the Telenor network. EasyPaisa launched a mobile app in 2016, expanding its product offerings to savings and loans and recently introduced a Visa debit card for its customers, which will be tied to their EasyPaisa account and accepted at over 90,000 POS merchants and 16,000 ATMs across the country^{clviii}. EasyPaisa has over ten million active monthly users and 170,000 registered agents nationwide^{clix}.

Like EasyPaisa, JazzCash was launched through a partnership – between Jazz MNO and Mobilink Microfinance Bank in 2012^{clx}. JazzCash offers similar solutions to EasyPaisa, with products like Asaan Mobile Account, which enables individuals without a smartphone to make easy fund transfers, cash deposits, withdrawals and utility payments using a simple mobile phone and unstructured supplementary service data (USSD) codes^{clxi}. It also recently signed a memorandum of understanding (MOU) with the Central Directorate of National Savings (CDNS) to disburse savings digitally to over four million constituents^{clxii}. JazzCash has ten million monthly active users^{clxiii}, 27% women and 125,000 physical agents nationwide^{clxiv}.

EasyPaisa and JazzCash have played an instrumental role in allowing over 20 million Pakistanis who may have previously been excluded from the formal financial system to access financial tools online via OTC and mobile payment solutions.



Part III.

Financial inclusion in Sturgeon's markets



Introduction to Global Findex Report

The Global Findex Database Report, produced triennially by the WB Group, covers data on financial inclusion across global economies, drawing its findings from surveys of 128,000 adults across 123 countries^{xxxiv}. The report covers various financial data for 2011, 2014, 2017 and 2021, showing progression in countries' development vis-a-vis their populations ability to access financial tools. The report's data will be used to present underlying financial inclusion metrics for Bangladesh, Egypt, Georgia, Kazakhstan, Kyrgyzstan, Pakistan and Uzbekistan since 2011, reviewing the lowest and highest indicators, as well as checking our data against DII score opportunities (except for Kyrgyzstan and Uzbekistan that were not included). We will also contrast their growth trajectory with economies in EM for comparative analysis, specifically those of India, Indonesia, Kenya (lower-middle-income countries) and Brazil, Colombia, Mexico and Thailand (upper-middle-income countries).

The 2021 report's coverage is especially relevant in light of the paradigm shifts in technological adoption worldwide due to the global COVID-19 pandemic. Many economies were forced to establish regulatory frameworks for payments of social transfers during the crisis, often fully or partially completed via digital channels. As the world started to recover from the pandemic, many more challenges arose in the form of high inflation, food scarcity, energy insecurity and fears of a global recession. As a result, financial inclusion can serve as a barometer of a nation's wherewithal to recover from economic adversities and provide the poor, the unbanked and the underbanked – those most vulnerable to exogenous economic shocks – a means to survive and remain in the economic cycle. Accordingly, adopting digital channels for payment transfers has become more common, especially with wider broadband and mobile coverage in the EM and FM.

As a way to support further digitalisation of financial services, the authors of the Findex report stress the importance of developing policy frameworks that prioritise mobile phone penetration and affordable and universal internet coverage as the first major step on the way to becoming more financially inclusive. In addition, creating schemes to verify identity, ensuring interoperability between providers, and establishing regulatory practices for consumer protection should be the cornerstones on which any payments solutions are built. These metrics will be reviewed across Sturgeon's sample.



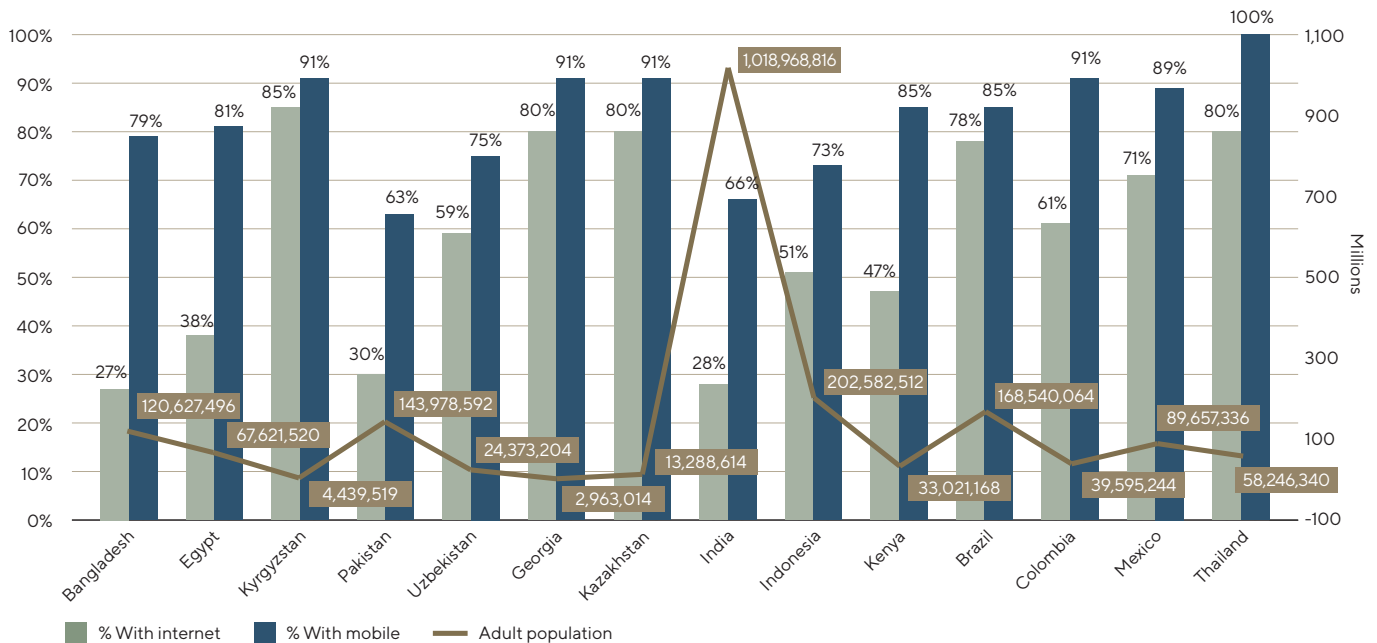
Financial inclusion in Sturgeon's markets

Findex Financial Inclusion Indicators 2011-2021

Findex data shows that an astounding 865 million people in the EM and FM economies opened their first FI account in 2021 to receive payments from the government^{xxxv}, with one-third of adults paying utility bills from an account since the pandemic began. Global account ownership has grown an impressive 50% since 2011, but with varying degrees of progress across high-income and low to middle-income countries. There are considerations related to gender, income, education, age, employment and rural vs urban settings that affect account ownership, especially in EM and FM.

In 2021, 74% of men and 68% of women in EM and FM countries had an account. The gap between rich and poor households is also more pronounced in EM and FM, due to lower account ownership overall and is evidenced by an eight percent gap across income lines. Generally, populations living in rural areas, women, the less educated and the unemployed continue to be underserved and/or financially excluded. Out of 1.4 billion unbanked individuals globally, 8% reside in Pakistan, 4% in Egypt, and another 4% in Bangladesh, pointing to a great opportunity to invest in companies that could change this.

Mobile Phone and Internet Penetration³



Source: Chart created using data from the Global Findex Database 2021 (accessed in January 2023)

³ All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

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It has been shown that higher internet and phone penetration has a significantly positive effect in the short and long term on access to financial markets... We can infer that further digitalisation, higher penetration of mobile and internet subscriptions and development of suitable financial tools and technology-enabled payments solutions can play an important role in increasing financial inclusion.

Improving internet and mobile access has been empirically analysed for influence on financial inclusion in the post-communist states of Eastern Europe in the *Technological and Economic Development of Economy* research paper, published by Vilnius Tech in 2021. It has been shown that higher internet and phone penetration has a significantly positive effect in the short and the long term on access to financial institutions and financial markets^{xxxvi}. As a result, we can infer that further digitalisation, higher penetration of mobile and internet subscriptions and development of suitable financial tools and technology-enabled payments solutions can play an important role in increasing financial inclusion. This has to be done in parallel with the creation of a robust regulatory environment that guarantees secure online payments and data privacy. In addition, increasing the digital and financial literacy of populations in economies that exhibit demand-side challenges (e.g. Bangladesh, Egypt, Pakistan) could help speed up the adoption of online financial tools as they become available.

As evidenced by the Findex data, the mobile phone and internet penetration in our sample is highest in Kyrgyzstan, Kazakhstan and Georgia, scoring in the 80-90% range, which is corroborated by high scores in DII supply conditions and the latter two countries' mobile phone affordability and availability. Pakistan scores lowest in mobile phone availability at 63%, which follows its low DII score on the supply side in failing to create a robust communications infrastructure for wider mobile and broadband use. Pakistan's latest levels of access to the internet and

mobile phones are similar to those of India, which in 2021 stood at 28% and 66%, respectively. However, Pakistan is behind Indonesia, which has twice the adult population as Pakistan and is in the DII's "break out" zone. 51% of Indonesia's adult population has access to the internet, and 73% have mobile phones. The country also scores in the second quartile of DII on the use of mobile digital money (demand side) and access to financial institutions (supply side)^{xxxvii}. Unlike Pakistan, Indonesia has a sizeable ICT infrastructure, with thousands of kilometres of terrestrial, subsea fibreoptics and transceiver stations. Indonesian government made it into their national priority to complete the 4G infrastructure and roll out 5G across the country^{xxxviii}.

In contrast, Pakistan has operational challenges in ICT, ranking almost at the bottom in its region for high-speed spectrum availability auctioned to telecommunications providers. Spectrum, or the radio frequencies necessary for transferring mobile data, is key in establishing coverage and providing a better user experience if higher frequencies are released. Additionally, over 30% of the cost of owning and using a phone in Pakistan is tied to tax, with a \$22 average annual payment per user^{xxxix}. Therefore, to increase access to mobile phones in the country, inadequate infrastructure and high costs have to be addressed. Pakistan is on the right track, having liberalised its telecommunications sector, which paved the way for investment in 3G/4G services by private companies, recently installing over 10K kilometres of optical fibre cables^{xl}.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

Bangladesh scores moderately well in mobile phone penetration at 79%, supported by a high DII score in mobile access affordability, but has a lower internet penetration of 27% among adults. The internet penetration of Bangladesh grew to 31.5% in 2022^{xli}, but issues with speed and coverage remain. According to Speedtest's Global Index of median internet speeds from December 2022, Bangladesh ranks 121st out of 141 countries

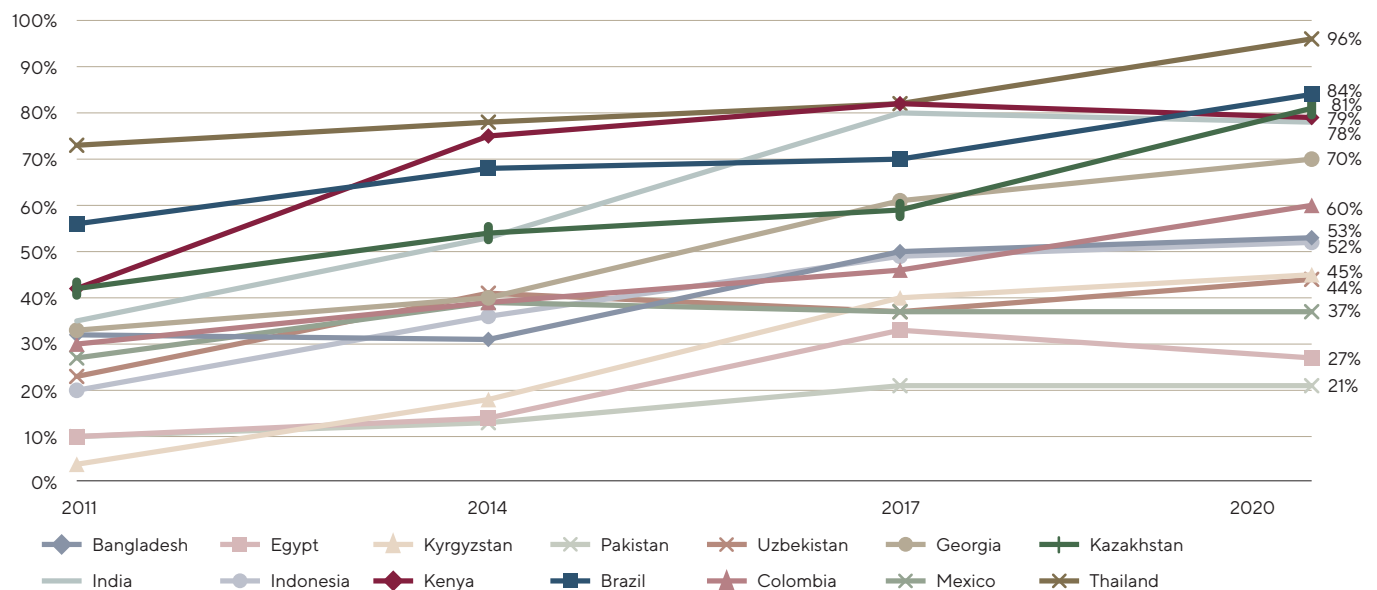
in its mobile internet speed^{xlii}, with an average download speed of 14.34 Mbps, ahead of Uzbekistan at 13.95 Mbps, but behind the global average of 36.74 Mbps. Like Pakistan, Bangladesh's government has to improve its ICT infrastructure to support wider bandwidth capacity and release more spectrum to cover existing users with faster performance and increase penetration, especially in rural areas.

Access to Financial Institutions (FI) or Mobile Money (MM) Accounts and Inactive Accounts⁴

Account ownership is an important indicator of financial inclusion, with greater account ownership numbers being shown to enable further integration into the financial services ecosystem, providing people with the tools to safely store and save for the future^{xliii}. We will now look at the proportion of people having reported access to FI and MM accounts, those with inactive accounts across Sturgeon's FM and in the comparable EM markets over the years.

The Findex report defines FI accounts as those "at a bank, credit union, microfinance, or post office that fall under prudential regulation by a government body"^{xliiv}. A MM account is a service offered by a regulated, deposit-taking mobile provider to "make payments, buy things, or send or receive money"^{xliv}. An inactive account is defined as an account that has not been used for deposit or withdrawal or for any digital payment^{xlvi}. All responses cover a 12-months period.

MM/FI Account Penetration



Source: Charts created using data from the Global Findex Database 2021 (accessed in January 2023).

4 All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.



CASE STUDY: Success stories in Sturgeon's markets



BANGLADESH: bKash

Bangladesh has been going through a digitalisation evolution, growing its share of adults using digital payments from 8% in 2014 to 45% by 2021.

The proportion of adults with FI or MM accounts increased from 32% in 2011 to 53% in 2021. Bangladesh is set to graduate from the Least Developed Country (LDC) by 2026^{xxxxvi} and has correspondingly introduced an expansive National Financial Inclusion Strategy (NFIS), covering years 2021 through 2026 and putting forth a vision for a more financially inclusive economy. The Strategy is distilled into seven objectives, 12 goals and 69 targets on financial inclusion. The seven objectives include increasing the proportion of financial accounts, presenting a variety of financial options that could serve different segments of the population, developing the financial rails to allow for appropriately priced and designed financial products, creating effective infrastructure for FinTechs and non-bank institutions, expanding financial literacy, tracking and monitoring the progress of financial inclusion for government statistics and transitioning grey sectors of society into formal economic frameworks^{xxxvii}.

The modernisation of financial regulations in the country dates back to 2011 when banks were allowed to create subsidiaries that could offer mobile banking services^{xxxviii}, which has spurred the development of mobile financial tools with the founding of Bangladesh's first unicorn, bKash. A subsidiary of BRAC Bank, with minority stake investments coming from the likes of the International Finance Corporation (IFC) and the Bill and Melinda Gates Foundation, bKash has in many ways been inextricably linked to furthering access to financial tools as the first mobile financial service (MFS) company in the

country. bKash's mobile solutions have increased access to financial tools for those at the bottom of the economic pyramid, specifically to millions of Bangladeshis living in rural areas far from a financial institution. The company initially partnered with a major mobile network operator (MNO), Robi, to connect users' phone numbers to bKash accounts^{xxxix}, and established a network of 5,000 agents as cash-in/cash-out points^{xxxx}.

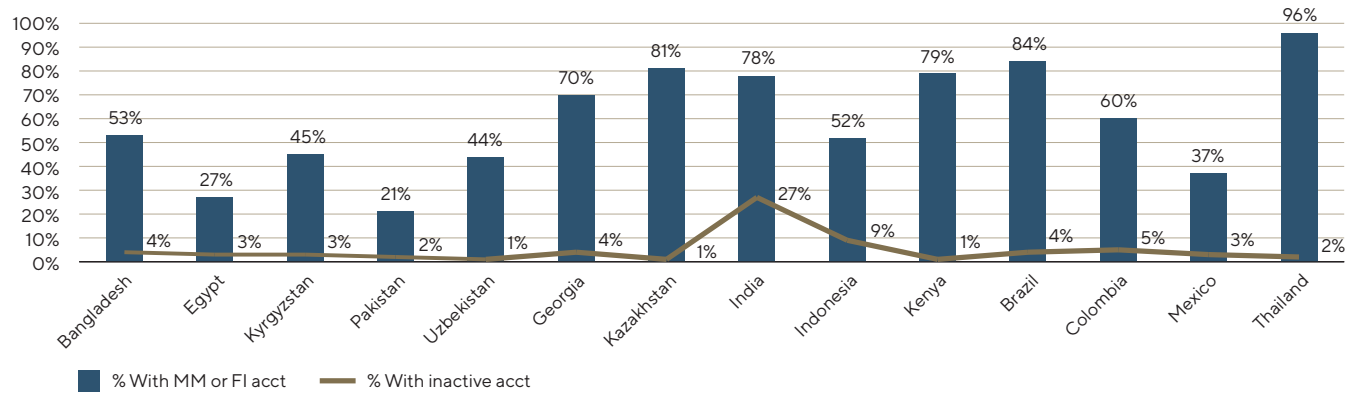
At the outset, bKash offered its product using the telecommunications companies' USSD interface, which allowed users with the most basic handsets to complete P2P transfers and make withdrawals and deposits with participating agents at a minimal flat fee. By YE 2013, bKash had grown its customer base to 10 million and expanded its agent network to 50,000, introducing a merchant payment system and an international remittance functionality^{xxxxi}. Overtime, bKash launched other features, including bill and tax payments, expanded its MNO coverage and created its own app in 2018. The bKash app added a QR code functionality to facilitate payments further across its network of customers and merchants^{xxxii}.

As of 2022, 300,000 agent merchants and 63 million registered customers are on bKash. The company recently partnered with three banks and one non-banking financial institution (NBFI) to facilitate savings using bKash accounts, reaching 650,000 customers with the new feature^{xxxiii}.

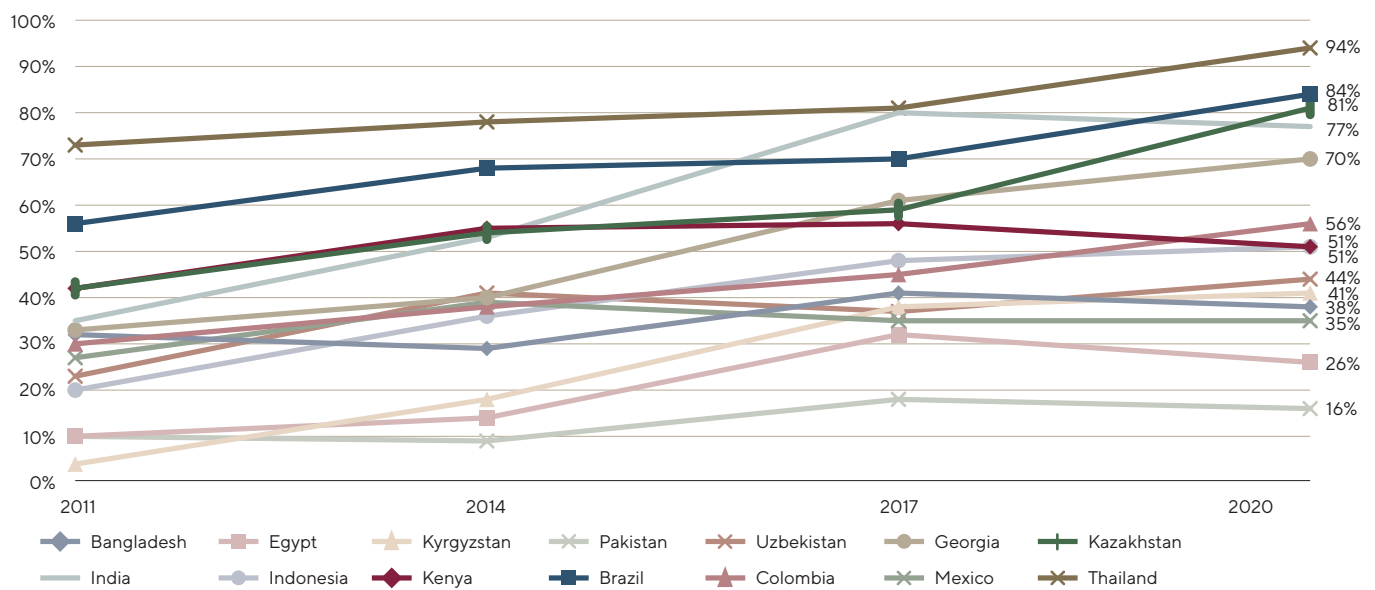


Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

Inactive Accounts across FI/MM Users in 2021



FI Account Penetration



Source: Charts created using data from the Global Findex Database 2021 (accessed in January 2023).⁵

⁵ All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.



CASE STUDY: Success stories in comparable EM



KENYA: M-PESA

Kenya's growth in digital payments has largely been driven by MM solutions, with a 69% penetration of MM accounts as of 2021^{cv}.

Mobile penetration has served as a catalyst for many Kenyans to start utilising non-cash methods of payments, with 82% of MM owners using their mobile phone to pay and 37% using their MM account to save – increasing the share of formal savings in the country^{cvi}. Kenya has the most mature MM market in Sub-Saharan Africa and boasts a 30% penetration in MM account borrowing^{cvi}. In 2007 the founding of M-PESA, a mobile money transfer service, was instrumental in unlocking the potential for greater financial inclusion in the country, utilising the 2G mobile network technology and basic mobile accounts to connect people to financial services over the phone.

M-PESA was launched by a top mobile operator in Kenya, Safaricom, part of the Vodafone Group, quickly growing to become the biggest money transfer channel in the country and the Sub-Saharan Africa region^{cix}. As of 2022, M-PESA has a subscriber base of 51 million customers and 465,000 businesses, transacting over \$314 billion annually across seven African countries, including the Democratic Republic of Congo (DRC), Egypt, Ghana, Kenya, Lesotho, Mozambique and Tanzania^{cx}. M-PESA uses a short messaging service (SMS) system that allows subscribers to deposit, transfer and withdraw funds using their mobile phones, and over 600,000 agents service the product in participating countries to allow people without a formal bank account to use M-PESA's services. Any funds collected by these agents are then put into checking accounts of M-PESA customers, with the mobile numbers acting as their account numbers. Furthermore, all transactions have proof

of receipt, with an SMS notification sent to the people exchanging the funds^{cx}. This transaction history then serves as a way to collect data and build out a credit profile of each customer, who can then access loans with M-PESA's bank partners.

Products like M-Shwari and KCB are organised as interest-bearing savings accounts that M-PESA customers can sign up for and then use to serve as collateral to access loans with varying limits and repayment schedules^{cxii}. In addition, M-TIBA was also introduced to allow customers to store money in their accounts to pay for medication or healthcare treatment at participating clinics and hospitals^{cxiii}. Since its launch in 2016, M-TIBA has facilitated 330,000 medical visits to clinics and covered millions in medical costs^{cxiv}.

Kenya has been going through an upgrade in its broadband coverage to 3G and 4G services in recent years, so M-PESA also introduced M-PESA Super App and M-PESA Business Super App in 2021^{cxv}, which allows users to access shopping, food delivery, and restaurant features online, while businesses can set up online storefronts and provide services through M-PESA Mini Apps^{cxvi}. The mini-apps can be created by businesses using simple templates without prior development experience or investment. Since the launch, more than 9 million customers and 320,000 businesses have signed up. M-PESA is a great example of the successful utilisation of existing infrastructure and mobile penetration levels to create a new payment channel that fits the market conditions.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

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The high account ownership in [...Kazakhstan and Georgia] tracks the high internet and mobile phone penetration of 80% and 91%. Kazakhstan and Georgia both have quite sophisticated banking ecosystems, with several players offering digital financial services.

Kazakhstan and Georgia score the highest in FI or MM account ownership, at 81% and 70% penetration levels, respectively. Georgia also has the highest proportion of inactive accounts in the sample at 4%. The high account ownership in these countries tracks the high internet and mobile phone penetration of 80% and 91%. Kazakhstan and Georgia both have quite sophisticated banking ecosystems, with several players offering digital financial services. Kazakhstan has a notable example of Kaspi, which started as a traditional bank in 1991 and became the region's most renowned FinTech. It had its initial public offering (IPO) on the London Stock Exchange in October 2020 with a \$6 billion valuation – the largest international tech IPO in London that year^{xlvii}. TBC Bank in Georgia, the largest in the country, also launched a digital neobank in 2020, Space, to expand its digital banking offerings and engage in cross-border banking activities^{xlviii}. Space has already expanded to Uzbekistan under TBC UZ, receiving its banking licence and starting operations in October 2020, achieving over 2.4 million downloads of its payment app by July 2022^{xlix}.

At the other end of the sample, Pakistan and Egypt have the lowest account ownership numbers across Sturgeon's sample. In 2011, very few in Pakistan had an FI or MM account, with a meagre 10% coverage. This figure has improved over time and now stands at 21%. However, with an already low penetration of account ownership, the 2% rate of inactive accounts can significantly reduce financial inclusion. Pakistan's current rate of account ownership is similar to that of Indonesia in 2011 when only 20% of Indonesia's population had access to an account. Indonesia has had the fastest growth in account ownership in the last decade, ahead of every EM in the region, rising from 20% in 2011 to 51% in 2021. It saw unprecedented growth in the number of digital banking companies granted licences by the government to operate, with the first digital bank, Jenius, launched in 2016ⁱ. Since then, 15 digital banks have been established, and many more e-wallet and payments players have come onto the scene, contributing to its high DII demand-side scores in the usage of mobile digital moneyⁱⁱ. However, the country still scored in the bottom quartile of the DII's financial inclusion indicator, which considers account ownership, credit and debit card penetration, and the proportion of people using internet banking. The subsequent sections will review these indicators to present a more holistic view of the many factors that may affect financial inclusion.



CASE STUDY: Success stories in Sturgeon's markets



KAZAKHSTAN: Kaspi

Kazakhstan ranks high across most financial inclusion indicators in our sample, with 80% penetration of the internet and 91% of mobile phones in 2021.

The country is also ranked high in its start-up capacity per the DII, scoring second only behind Georgia. Its digital payments penetration was 78% in 2021, up from 47% in 2014. One of the biggest success stories coming out of Kazakhstan is Kaspi, its largest FinTech unicorn, which went public on the London Stock Exchange in 2020.

Kaspi took root in 2002 as a small commercial and retail bank that was part of the then newly privatised Bank Kaspiyskiy catering for corporate clients and SMEs^{cxliii}. The majority stake in the company was acquired by a private equity firm (PE), Baring Vostok, which specialised in backing scalable tech companies out of Eastern Europe, Central Asia and the Caucasus. Shortly after the investment, a Partner of Baring Vostok's joined as CEO and set the course to transform the bank into the biggest FinTech company in the region^{cxliii}. Kaspi management focused on expanding its tech stack and transitioning its traditional infrastructure to become a technology-enabled solutions provider, eliminating its commercial operations and focusing on retail clients. Kaspi streamlined its product offering, left one checking and two lending products, and introduced a credit card that had one million customers by 2012^{cxliv}. However, the net promoter score (NPS) of the credit card business was subpar, and a decision was made to eliminate it, ensuring any subsequent products that were built needed not only to be technologically superior but highly customer-focused.

In 2012, Kaspi launched an e-wallet for commission-free online bill payments, which eliminated the need for customers to queue up at billers' locations (similar to Fawry in Egypt) and allowed for further digital penetration of payments^{cxlv}, while also providing an option to top up using a growing network of Kaspi's terminals in the country. In 2014, Kaspi launched a marketplace platform with a rewards programme and consumer financing products using instalment payment schemes. Kaspi charged sellers a 6% transaction fee on every purchase whilst providing SMEs and retailers access to a client base of five million Kazakhstanis^{cxlvi}. In 2015, Kaspi launched a Kaspi Gold credit card and introduced fulfilment optionality on the platform by partnering with the country's major logistics and delivery services. In addition, the company also set up e-financing for used cars^{cxlvii}.

In 2017, the company launched a mobile app, which brought all the products onto one platform and introduced P2P transfers for use with a credit card or a mobile phone number, free of charge between Kaspi's clients and incurring a small fee for any transaction to a third-party bank. Kaspi's employees in branch locations were encouraged to help any clients coming in through the doors by downloading the app and demonstrating its various features, resulting in half of the traffic for Kaspi's products going through the app in just one year^{cxlviii}. In 2018, Kaspi introduced a



CASE STUDY: Success stories in Sturgeon's markets

QR and face recognition technology at their ATMs, which lowered the risk of fraud and allowed clients to display their mobile QR code or put in their national identity number to make transactions without a plastic card on hand^{cxlix}. In addition, Kaspi also launched P2P global transfers to any card through their Business Mobile App and P2P using a QR code^{cl}.

By 2019, the Kaspi mobile app user base grew to 6 million, with 80% of transactions made through the app and 28% of the net income coming from Payments and Marketplace platforms and products^{cl}. Kaspi further cemented its leadership

position in digital payments, enabling customers to select payment methods via Kaspi's Super App^{clii}, and produce a QR code for merchants to scan upon payment. As of 2022, Kaspi had 422k active merchants, 10.9 million monthly active and 6 million daily active users on their payments platform, with the Kaspi Super App remaining the leading mobile app in Kazakhstan. Kaspi's success in driving customer-centric product development, as well as building out the digital rails of Kazakhstan's financial ecosystem, has played a key role in bringing about greater financial inclusion to the country's 19 million population.



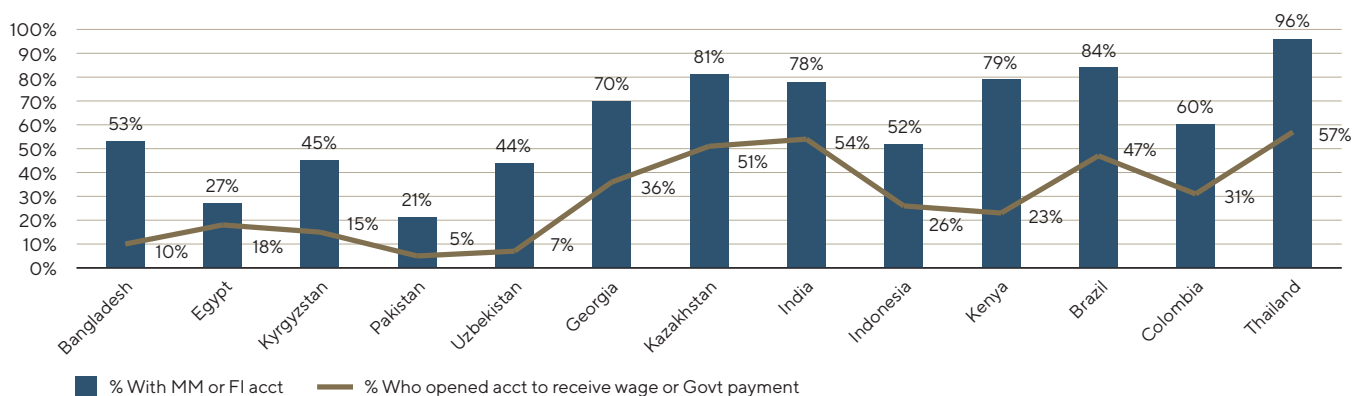
Financial inclusion in Sturgeon's markets Findex Financial Inclusion Indicators 2011-2021

Accounts opened for the first time to receive government payments and/or wages, use of digital payments, credit and debit card penetration⁶

It has been shown that the receipt of payments into an account in the EM and FM could be the first step in expanding the use of other financial products, such as digital payments, savings and loans, as long as there is an underlying enabling infrastructure in place to make these transactions digitally possible. Most consumers who receive a payment into their account in EM and FM also report using digital paymentsⁱⁱⁱ. Holding funds in an account provides consumers with a safe way to save and build up their income history, which can be leveraged in qualifying for loans and credit cards. Most consumers in high-income economies use credit cards as their main form of borrowingⁱⁱⁱ, whilst EM and FM populations still struggle to find well-priced and readily available sources of credit. Higher credit card usage means little, so it's reviewed along with other financial indicators. Ultimately, a market in which various financial products are available to consumers and SMEs, meeting the needs of different segments of the population and offered at competitive prices, serves as a good indicator of financial inclusion.

Based on the *Development Co-Operation Report 2021: Shaping a Just Digital Transformation* published by the Organization for Economic Co-operation and Development (OECD)^{iv}, digital payment schemes for social benefit transfers, introduced during the COVID-19 pandemic, have been key in driving increased volumes of digital transactions worldwide. In Bangladesh alone, the government provided support payments to workers in the ready-made garments (RMG) sector and mandated they be done digitally. This resulted in over 2 million digital account openings in just 25 days, many of whom were first-time users and women^{iv}. A similar program was implemented in Colombia via Solidario, with the pandemic relief payments transferred digitally to over 2.5 million households, comprising 1 million previously unbanked^{vi}. Data showed that 71% of those receiving relief payments to their e-wallets cashed out, as compared to 81% receiving it to traditional FI accounts, with a further 22% of people choosing to use their e-wallets for deposits thereafter.

2021 FI/MM Account Penetration and Proportion of Adults who Opened Account to Receive Government Payment or Wage



Source: Charts created using data from the Global Findex Database 2021 (accessed in January 2023).⁷

⁶ All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.

⁷ All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.

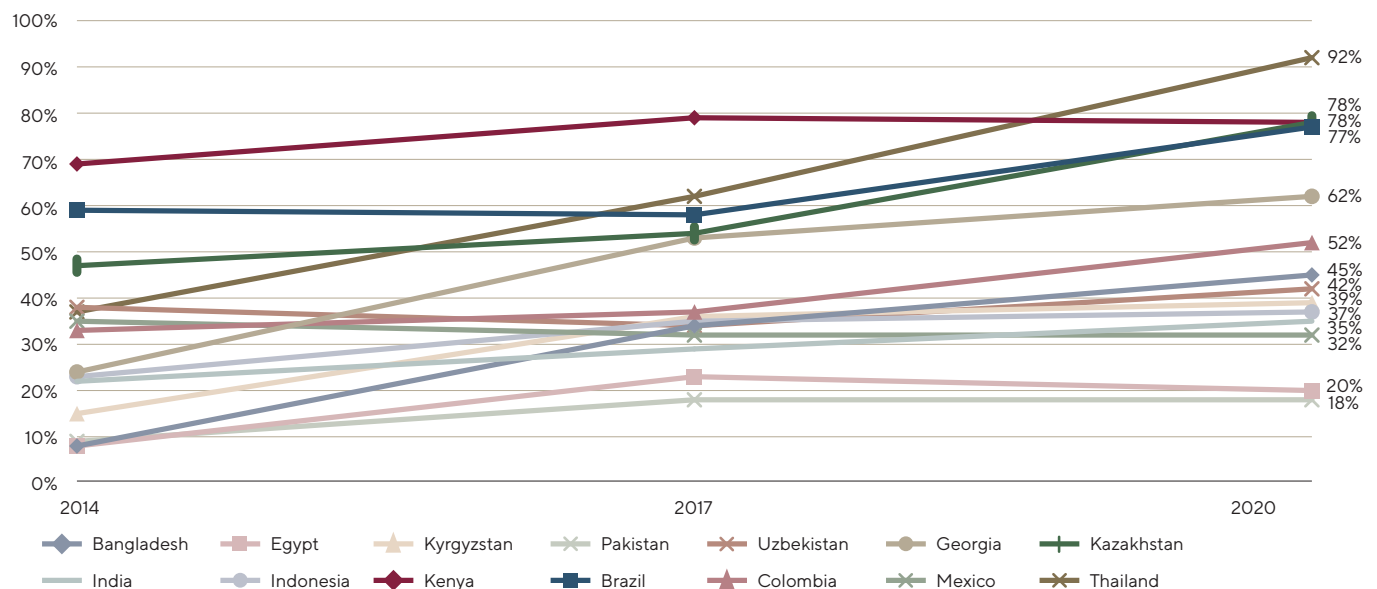


Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

In 2021, 51% of respondents in Kazakhstan and 36% in Georgia reported opening their first financial account to receive a payment from the government or a wage from a private employer. These numbers cover an indefinite period and could include previous years. On the flip side, only 7% of respondents in Uzbekistan and 5% in Pakistan reported opening an account to receive private wages or government payments. Given an already low FI and MM account penetration in Pakistan of 21%, digitalising wages and government payments could be one of the fastest ways to increase account ownership in the country. Pakistan can learn from its neighbour, India, where 54% of respondents report opening an account to receive a private wage or a government payment, with a 78% penetration of FI and MM accounts as of

2021. India's Central Bank, The Reserve Bank of India (RBI), introduced a Unified Payments Interface (UPI) in 2016 with the goal "to make transfers easier and safer by allowing multiple bank accounts on the same mobile platform for individual and business users alike."^{lvii} It recently introduced UPI to older devices without a touchscreen, which could help further onboard 400 million new users in rural areas^{lviii}. India's government has been focused on fully digitising its economy and financial services through the Digital India program agenda, including the launch of e-RUPI – a digital payments solution for direct benefits transfers (DBT)^{lix}. These government initiatives and private-public partnerships have been instrumental in tripling the number of digital payment users in the country to 750 million^{lx} in five years.

Digital Payments Penetration



Source: The Global Findex Database 2021 (accessed in January 2023)⁸

8 All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.



CASE STUDY: Success stories in comparable EM



INDIA: United Payments Interface (UPI)

India has grown its share of FI and MM accounts from 35% in 2011 to 77% in 2021.

Although its proportion of digital payments has increased at a lower rate from 22% in 2014 to 35% in 2021, behind many countries in our sample, the introduction of UPI or United Payments Interface of India has played a key role in the financial services evolution of the country.

UPI, developed by the National Payments Corporation of India (NPCI) and introduced in 2016, allows for P2P transfers with access to different bank accounts through one platform, person-to-merchant (P2M) transactions with a QR code^{xcv}, as well as merchant-to-merchant (M2M) transactions. UPI became the most popular payment method and the most widely used payment interface for merchants. Before UPI, various payment systems were used to transfer money between accounts, including RTGS, Immediate Payment Service (IMPS), and National Electronic Funds Transfer (NEFT) – all of which have different rules and standards for authentication^{xcvi}. The creation of UPI allowed for standardisation and simplification of the online payments process, resulting in higher interoperability between banks, higher digital payments penetration and a better user experience. UPI accounted for over 74 billion transactions in 2022^{xcvii}, contributing close to 70% of total digital transactions^{xcviii}.

As of YE 2022, there are 381 UPI member banks, with UPI-enabled digital transactions accounting for 86% of India's GDP^{xcix}. Some of the declining movement in card activity in the country could be attributed to the successful expansion of UPI and digital payments through the platform. One of the benefits of using

UPI-enabled apps is that a customer only needs to have a bank account linked to their mobile phone number to get started. Once the app of choice is downloaded and before the registration process is completed, a user is prompted to create a UPI ID, which is verified by their bank and generated for their online profile. A virtual payment address (VPA) is also created, like an email address, allowing users to start paying by phone and to link more bank accounts to their VPA^c.

In terms of functionality enabling greater financial inclusion, UPI users can send a text message to initiate a payment in case they do not have access to the internet or a smartphone^{cl}. Furthermore, there is no limit to minimum transaction amounts, which means that people at the lower end of the income spectrum can use it to make small daily purchases, with no transaction charge, unlike NEFT and RTGS-backed payment schemes^{cll}. Finally, UPI also supports the Bharat Interface for Money (BHIM) app with the Aadhaar Pay feature^{cliii}, which uses a unique 12-digit Aadhaar number with biometric identification details for each citizen, accepted in many financial institutions as a basis for Know Your Customer (KYC) verification^{cliv}. Merchants who use this feature would have a scanner attached to their POS terminal, with an option for customers to enter their Aadhaar number and place their fingerprints for verification and payment^{clv}. Thus, UPI has not only spurred further development of digital payment apps and improved user experience, but has also powered apps that support India's most marginalised underbanked populations through the Aadhaar Pay feature.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

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To tackle some of these issues, Pakistan's government, via the State Bank of Pakistan (SBP) and a payments gateway, Karandaaz, implemented its first instant payments system, RAAST, in January 2021. RAAST now allows instant and convenient peer-to-peer (P2P) transactions between individual bank accounts across close to 30 participating banks in the country.

The digital payments penetration indicates those who reported using a MM account, debit or credit card, or their phone to make a payment from an account or use the internet to pay bills or buy something online and in-store. Kazakhstan and Georgia again score at the top, with 78% and 62% penetration, respectively. This penetration is higher than most comparable EM countries in our sample, except for Thailand, which is leading the pack at 92% digital payments penetration. Thailand's 4.0 Strategy, launched by the Thai government in 2016, set out a plan to transform the country into a digital economy in 20 years and establish itself as a global digital leader^{lxii}. Starting with 37% digital payments penetration in 2014, similar to Bangladesh, Kyrgyzstan and Uzbekistan in 2017, Thailand's rate of digital payments growth has been nothing short of extraordinary. The government spurred the development of e-payment gateways to several e-commerce platforms for their welfare recipients, including Pao Tang (the number one app in the country) and Thong Fah^{lxiii}. As a result of these efforts, Thailand's transaction infrastructure and the corresponding access to financial institutions also rank in the top quartile of the DII index^{lxiii}.

Pakistan and Egypt have the lowest penetration levels of digital payments in 2021 among Sturgeon's economies, at 18% and 20%, respectively. They have the same penetration as India and Indonesia in 2014, at 22% and 23%, respectively, which grew to 35% and 37% in 2021, behind Bangladesh, Kyrgyzstan, Uzbekistan, Georgia and Kazakhstan. One of the biggest factors contributing to a low penetration level of digital payments in Pakistan could be infrastructural challenges, limited interoperability

between different payments providers, lack of trust, and low rates of digital literacy^{lxiv}. To tackle some of these issues, Pakistan's government, via the State Bank of Pakistan (SBP) and a payments gateway, Karandaaz, implemented its first instant payments system, RAAST, in January 2021^{lxv}. RAAST now allows instant and convenient peer-to-peer (P2P) transactions between individual bank accounts across close to 30 participating banks in the country^{lxvi}. RAAST enables citizens to use their mobile phone number as a basis for a RAAST ID, linking their bank account to their mobile number for payment transfers^{lxvii}.

Similarly, Egypt at 20% of digital payments penetration in 2021, has issues relating to a lack of trust and low digital literacy, with 72% of account holders paying their utility bills in cash^{lxviii}. Digitalising wages in Egypt could reduce its unbanked population by 20%^{lxix}, but doing so would also require educational campaigns and support, as 65% of the unbanked in the country would need help understanding how to open and use a FI account^{lxx}. The Central Bank of Egypt (CBE) approved an Instant Payment Network (IPN) in 2021, similar to RAAST in Pakistan, and launched InstaPay mobile app in March 2022 to allow instant electronic payments through a mobile device^{lxxi}, with 13 participating banks on the platform^{lxxii}. Unlike RAAST, the users of IPN need to have their bank account tied to their mobile phone number and then download the app and create a unique IPN account and pin number^{lxxiii}. Both initiatives can be instrumental in increasing digital payment coverage. However, those previously unbanked or underbanked, with limited knowledge and potential distrust of the financial system, must be given a high degree of support throughout onboarding and further servicing.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

Pakistan and Egypt can again learn from Thailand's experience and success in attaining rapid digital transformation and higher penetration of digital payments over the last decade. In 2016, the Thai government conducted a survey through its National Statistical Office (NSO) and the Bank of Thailand (BOT) to analyse levels of financial literacy and access to financial products. The findings became the cornerstone of the national policy strategy going forward^{lxiv}. In light of the findings, the

Thai government created a digital plan to drive complete interoperability of various financial systems, build out its payments infrastructure, pass laws enabling further digital development and encourage private-public partnerships to increase the financial literacy of its citizens^{lxxx}. As the payment rails were being solidified and consumers became more financially and digitally literate, this created an entry point to further financial inclusion through products like savings, loans, insurance and investments.

Credit and Debit Cards Penetration

		Bangladesh	Egypt	Kyrgyzstan	Pakistan	Uzbekistan	Georgia	Kazakhstan
CREDIT	2011	1%	1%	1%	1%	3%	9%	9%
	2014	0%	2%	3%	0%	1%	18%	11%
	2017	0%	3%	4%	1%	1%	15%	20%
	2021	1%	3%	3%	0%	4%	13%	21%
DEBIT	2011	2%	5%	2%	3%	20%	20%	31%
	2014	5%	10%	6%	3%	25%	30%	32%
	2017	6%	25%	19%	8%	24%	40%	40%
	2021	5%	22%	28%	8%	36%	42%	60%
		India	Indonesia	Kenya	Brazil	Colombia	Mexico	Thailand
CREDIT	2011	2%	0%	6%	29%	10%	13%	5%
	2014	4%	2%	5%	32%	14%	18%	6%
	2017	3%	2%	6%	27%	14%	10%	10%
	2021	5%	2%	6%	40%	13%	N/A	23%
DEBIT	2011	8%	11%	30%	41%	23%	22%	43%
	2014	22%	26%	35%	59%	30%	27%	55%
	2017	33%	31%	38%	59%	26%	25%	60%
	2021	27%	35%	22%	66%	29%	N/A	63%

Source: Tables created using data from the Global Findex Database 2021 (accessed in January 2023)⁹

⁹ All reported numbers are by adults, aged 15+; Mexico's reporting years in Findex cover through 2017.



CASE STUDY: Success stories in comparable EM



THAILAND: PromptPay

Thailand has seen a tremendous advancement in its digital payments penetration, growing from 37% in 2014 to 92% in 2021.

Its share of adults with FI or MM accounts has also grown from 73% in 2011 to 96% in 2021, with 100% of the adult population having access to mobile phones and a further 80% to the internet. The Thai digital transformation is largely due to the government's ambitious plan coupled with an actionable policy to transition to a fully digital, high-income economy by 2037. Thailand 4.0 Strategy introduced in 2016 and the passing of the National Strategy Act in 2017 established policy goals for digitalisation across all sectors, broken down into five-year intervals over two decades with actionable objectives^{cxvii}.

Thailand 4.0 Strategy has four main pillars of development: economic prosperity, social wellbeing, raising human values and environmental protection^{cxviii}. The economic prosperity pillar is tied to the policies addressing further development of higher technologies, encouraging innovation and R&D activities in the country, increasing the GNI per capita from \$5,970 in 2017^{cxix} to \$15,000 by 2037, and growing Thailand's GDP to its full potential of 5-6% annually^{cxx}. The GDP grew by 3% in 2022, below the forecast of 3.4% due to the slower recovery of its tourism sector since COVID-19, as well as declines in exports, public investments and private consumption^{cxxi}.

Nonetheless, one of the main success stories arising from the Thailand 4.0 Strategy was the creation of the PromptPay system by the Bank of Thailand (BOT) in 2017, which became the first mobile payment system in the country^{cxvii}.

PromptPay works similarly to other instant mobile payment solutions, where a Citizen ID (mandated by the Thai government for every citizen) or a mobile phone number is tied to the user's bank account to facilitate transfers of digital payments. As the FI and MM account penetration was already high in the country, the use of digital payments initiated through PromptPay has grown 100x from 327 billion Thai baht worth of transactions in 2017 to 32,741 billion Thai baht in 2021^{cxviii}.

By 2019, PromptPay was adopted by all the major banks in Thailand, and in 2021, the Monetary Authority of Singapore (MAS) and the BOT connected Singapore's PayNow with Thailand's PromptPay real-time payments systems allowing for a seamless and instantaneous exchange of funds and remittances between citizens of the two countries^{cxix}. This initiative was the first of its kind globally linking two distinct P2P payment systems across borders, with plans to facilitate Person-to-Merchant (P2M) and Merchant-to-Person (M2P) transactions during subsequent stages. The BOT has also launched partnerships with countries in the Association of Southeast Asian Nations (ASEAN) with close economic ties to Thailand, such as Japan, Laos, Cambodia, Vietnam, Malaysia, and Indonesia, to expand bilateral payments further. These initiatives will be facilitated via PromptPay QR cross-border linkages with other countries' payments systems^{cxx}, increasing the volume of economic activity and further uptake in digital payments across the region.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

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[...Kazakhstan] announced the launch of an Instant Payment System (IPS) in June 2022 [...] that will allow for real-time gross settlement (RTGS) of transactions between clients of different banks, similar to RAAST in Pakistan and IPN in Egypt.

Regarding credit and debit card usage, Georgia and Kazakhstan are once again leading Sturgeon's economies, whilst Pakistan and Bangladesh are in last place. Kazakhstan's penetration stands at 21% for credit and 60% for debit cards, similar to Thailand's in 2021, at 23% for credit cards and 63% for debit cards. Georgia's penetration stands at 13% for credit and 42% for debit cards, similar to that of Colombia in 2021 at 13% for credit cards and that of Brazil in 2011 at 41% for debit cards. According to the latest update from the National Bank of Kazakhstan (NBK) from December 2022^{lxxxvi}, there are currently 64.4 million payment cards in circulation in the country, with 79% debit cards and 18% credit cards, provided by 18 banks and KazPost (national postal operator). Most digital transactions take place over the internet and on mobile phones (80% of the total sum and 64% of all transactions), with the rest spread across point-of-sale (POS) terminals^{lxxxvii}. Kazakhstan's credit card usage has grown from 9% penetration in 2011 to 21% in 2021, whilst also recording an acceleration of internet penetration, rising from 50% in 2011 to 90% in 2021^{lxxxviii}. The country announced the launch of an Instant Payment System (IPS) in June 2022 through NBK that will allow for real-time gross settlement (RTGS) of transactions between clients of different banks^{lxxxix}, similar to RAAST in Pakistan and IPN in Egypt. Kazakh customers can use their mobile phone numbers for transfers and a quick response (QR) code framework for payments. At the time of the launch, four banks had started providing access to IPS, five were in the process of being

onboarded, and nine signed on to participate^{lxxx}. In addition, as part of the NBK's Strategic Roadmap for FinTech and the National Payment System Development Strategy covering years 2020 through 2025, Kazakhstan's main priorities are centred around growing IPS coverage, launching its digital currency using distributed ledger technology, called Digital Tenge, and creating regulations that would approve the development of an open application programming interfaces (APIs) to allow for Open Banking solutions. Similar to the penetration growth of credit cards, debit card usage in the country has grown from 31% penetration in 2011 to 60% in 2021. In general, the growth in non-cash card transactions can be observed in parallel to the increase in offline POS terminals, which in 2019 alone has grown by 27%, or from 126,000 to 161,000 units^{lxxxi}.

Georgia's credit card penetration grew from 9% in 2011 to 13% in 2021, recording a decline in usage from 18% in 2014. The country's debit card penetration rose to 42% in 2021. Georgia has been praised for its progress in contactless payments, with over 95% penetration of contactless payments reported by Visa in 2020, becoming a global leader in this category. However, many citizens still rely on cash to pay for purchases. The lower DII scores further corroborate this in the use of digital mobile money. There seems to be an inverse relationship between the higher supply of digital financial tools and lower demand for such tools, especially in digital payments.



CASE STUDY: Success stories in comparable EM



BRAZIL: Nubank

Brazil has the highest proportion of credit and debit cards as of 2021 in our comparable EM sample, at 40% and 66%, respectively.

In addition, it has one of the highest rates of digital payments penetration at 77% in 2021, behind Kenya and Kazakhstan at 78% and Thailand at 92%. The founding of neobank Nubank¹⁰ in 2013 has been instrumental in growing the user base of card owners and digital payment users in the country. The original product – a Nubank credit card – was offered through a free online app to people who qualified using proprietary credit risk models, as long as they were at least 18 years of age, residents of Brazil and had a national identification number¹¹ and a smartphone^{10xxvii}. The principal difference between Nubank and incumbent products was that its cards had no annual fees, which resulted in exponential growth, generating 19,000 new customers in the first six months of operation and amassing 350,000 by year-end (YE) 2015^{10xxviii}. Nubank's growth exceeded even the founding team's expectations and reached 6 million users by YE 2018, generating \$128.9 million in revenues with assets of over \$2.8 billion^{10xxix}.

In 2017, Nubank rolled out its second product – digital accounts underpinned by savings, debit cards and free money transfers, which resulted in three million new accounts by YE 2018. Even in 2018, the terms of the bank's financial offerings were in stark contrast to the presiding status quo, where the average interest on credit card debt was over 270% annual percentage rate (APR), and consumer loans were offered at 120% APR^{xc}. The country had five major banks that had amassed fortunes by charging corporations and SMEs exorbitant interest rates, which resulted in large spreads and revenues. The banks were not

focused on updating their pricing models and completely ignored the growing middle-class populations that had been shut out of the system. They also had an elitist and toxic culture – prospective clients were often judged on their appearance and turned away at the door when they tried to open an account – as experienced by the founder of Nubank.

Nubank's user base grew to reach 74.6 million customers in 2022 (70 million in Brazil alone), making the company the fifth-largest financial institution in Brazil and sixth largest in Latin America by number of active users^{xcii}. The Brazilian operation of Nubank grew its revenues 110% YoY, achieving a gross profit margin of 44% in Q4 2022^{xciii}. One of the key elements that enabled Nubank to launch its credit card offering was the regulatory liberalisation of the Brazilian Payment System (BPS). In 2018, the Brazilian Central Bank (BCB) allowed companies not associated with a financial institution to participate in the payments ecosystem via P2P lending^{xciii}. In addition, Nubank initially relied on the credit data from Brazil's credit bureau system but, overtime, developed its own robust credit underwriting strategy with over 2,000 variables^{xciv}, testing different scenarios and honing its risk profiles. The ethos of including previously marginalised populations also permeated through to customer service, with staff trained to explain financial terms in an accessible way. Most importantly, unlike incumbent banks that generated most fees through monthly card payments, Nubank prioritised payment facilitation itself, with most revenues originating through merchant fees.

10 Neobank – also known as a “challenger bank”, is digital bank offering banking services online or through mobile.

11 Also known as CPF – free universal, personal ID in Brazil; being assigned automatically from birth since 2017.



Financial inclusion in Sturgeon's markets Index Financial Inclusion Indicators 2011-2021

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It is no coincidence that the fastest-growing bank in Pakistan is Meezan, the country's first and largest Islamic Bank, offering riba-free products, growing its total assets by 35% between 2021 and 2022, from 1.90 trillion PKR to 2.57 trillion PKR (\$9.1 billion).

The lowest-scoring countries in their penetration of credit and debit cards are Bangladesh at 1% and 5%, and Pakistan at 0% and 8%. About two-thirds of Pakistanis borrow informally^{xxxii}, and many remain sceptical of plastic cards due to lower awareness of their benefits, high fees, potential cultural inhibitions and religious beliefs that prohibit their use, specifically Islam's ban of usury (interest), called “riba”^{xxxiii}. It is no coincidence that the fastest-growing bank in Pakistan is Meezan, the country's first and largest Islamic Bank offering riba-free products, growing its total assets by 35% between 2021 and 2022, from 1.90 trillion PKR to 2.57 trillion PKR (\$9.1 billion). With the latest announcement by the government that it will uphold the decision of the Federal Shariah Court (FSC) to transform its financial system to riba-free by 2027, the influence and tenets of Islamic Banking are here to stay^{xxxiv}.

Bangladesh's similarly low card penetration could be attributed to structural barriers, like mandated tax identification number (TIN) provision for credit card issuance – many citizens do not have one and 90% of rural inhabitants work informally^{xxxv}. The Buy Now Pay Later (BNPL) solutions are expected to grow in the country, projecting a compounded annual growth rate (CAGR) of 62.4% from 2022-2028^{xxxvi}. Aside from BNPL's convenience and a way to start building credit data for new consumers in the EM and FM countries, adopting such products in markets with low access to short-term credit also provides an alternative method to increase financial inclusion.



CASE STUDY: Success stories in Sturgeon's markets



EGYPT: Fawry

Egypt's proportion of adults with MM or FI accounts has increased from 10% in 2011 to 27% in 2021.

The share of digital payments has also increased from 8% in 2014 to 20% in 2021. Coupled with some of the lowest scores in the DII for the use of mobile and digital money, the country faces many challenges, starting with a lack of access to financial tools by most of the population and low uptake in digital payments. The Central Bank of Egypt (CBE) recently introduced a Financial Inclusion Strategy 2022-2025, which is centred around the provision of "fair, quality and affordable" financial products^{xxxxiv}, which is meant to be achieved through amending regulatory frameworks and upgrading financial technology infrastructure. But some progress has been made, and any growth in digital payments activity could arguably be attributed to the founding of the country's first and largest electronic payments network in 2008, called Fawry^{xxxxv}.

Fawry first launched as a bill payments and presentment solution using a unified electronic platform that connected billers with customers through a network of 5,000 POS locations^{xxxxvi}. Previously, customers had to pay all utility bills in cash at a biller's location, which often meant long queues and lengthy travel times to different parts of the city. With the introduction of Fawry, customers could pay at one of the many POS terminals in person or create an account with the company online to pay over the internet.

By 2012, Fawry was processing bill payments on behalf of all the telecommunications companies in Egypt^{xxxxvii}, and by 2013, Mastercard, Fawry and the National Bank of Egypt (NBE) launched mobile wallets to allow customers to complete various financial transactions online^{xxxxviii}. The growth did not end there and by 2014, Fawry was processing one million transactions per day and grew to 40,000 POS locations across bank ATMs, post offices, pharmacies, supermarkets and convenience stores^{xxxxix}.

In 2019, Fawry went public and became the first Egyptian tech unicorn^{cxl}. MyFawry app had 5 million downloads in 2021, with the company processing \$8.3 billion worth of transactions through a network of 36 banks and 270,000 agents^{cxli}. The company remains one of the pioneers of digital payments in Egypt, with more work to be done on the legislative and infrastructural side to allow for further FinTech growth and evolution in the country.



Part IV.

Islamic banking



Islamic banking

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Islamic finance has increasingly become a major force in the global financial system, representing a staggering \$4 trillion in assets as of 2021.

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Some of the fastest growth in the proliferation of Islamic banking products now comes from non-Shariah finance jurisdictions, such as Tajikistan [...] and Kazakhstan.

According to the *Islamic Finance Development Report 2022: Embracing Change*, developed in partnership between Refinitiv, the Islamic Corporation for the Development of the Private Sector (ICD) and the Islamic Development Bank Group (ISDB), Islamic finance has increasingly become a major force in the global financial system, representing a staggering \$4 trillion in assets as of 2021, with Islamic banking accounting for 70% or \$2.8 trillion worth of assets, “sukuk” (Islamic fixed income instrument^{clxv}) coming in second at 14% or \$713 billion in outstanding assets, and the rest spread across Islamic funds, worth \$238 billion (e.g. money market, equities and exchanged traded funds or ETFs), other Islamic financial institutions (OIFI), such as tech and investment firms accounting for \$169 billion, and Takaful (Islamic insurance) worth \$73 billion^{clxvi}.

The main tenets of Islamic finance are centred around Shariah law (which means “the way”^{clxvii}) and the concept that money on its own does not have any worth – instead deriving its value from an asset, service or product. In addition, Islamic finance activities cannot cause harm (for example, investing in tobacco, alcohol, pork products, weapons, gambling), and finally, operation according to Shariah compliance entails sharing and creating strong partnerships^{clxviii}. Consequently, profit and risks are often shared between the originators, consumers and investors, and charging interest is prohibited. With regards to banking, an interest-bearing mechanism on a checking/current account would be forfeited in favour of an interest-free loan, otherwise known as “sard”^{clxix}. In the case of a savings account, the money could be invested in a Shariah-compliant activity, and any profit made by the bank would be shared with the account’s owner. The bank acting as an agent of the client to invest in permitted activities is called “wakalah”^{clxx}, while any cost-plus financing, in which a bank may purchase an asset on behalf of the client who agrees to both the cost and the markup of the asset over time is called “murabaha”^{clxxi}. Another structure “mudarabah” entails sharing the

profit in a contractual obligation between the capital provider and the individual, but means any losses would be borne by the former^{clxxii}. Alternatively, “musharakah” is a joint venture between a financier and an individual in which both profits and losses are shared on an agreed-upon pro-rata basis^{clxxiii}. These are all examples of structures that replace a conventional loan.

Some of the fastest growth in the proliferation of Islamic banking products now comes from non-Shariah finance jurisdictions, such as Tajikistan, with an 84% YoY growth in 2021, and Kazakhstan, which was ranked among the top five by the number of Islamic FinTechs in the country after the Kingdom of Saudi Arabia (KSA), Malaysia, UK, and Indonesia. Kazakhstan-founded FinTechs like Tayyab, the first Islamic FinTech in the country, recently launched the first fully Shariah-compliant digital card in Central Asia that works with near-field communication (NFC) enabled phones (tap technology) and will soon also be available in Turkey^{clxxvi}. Tayyab currently offers physical and digital debit cards, which were approved for circulation by the Shariah Review Bureau (SRB) – one of the largest Shariah compliance corporate advisory firms, licensed and regulated by the Central Bank of Bahrain, with a global mandate to advise on product structuring, fund certifications, board setups and audit proceedings and with a large base of Islamic scholars covering different countries around the world^{clxxvii}. In addition, Tayyab offers other innovative products, including money transfers using phone numbers, zero-commission ATM withdrawals, Sadaqat transfers (voluntary charitable donation) to one of the onboarded charity funds through the mobile app, and other auxiliary features that improve stickiness, such as the Zakat calculator (obligatory donation in Islam, based on a certain proportion of wealth each year^{clxxviii}), a map of Halal cafes (adhering to Islamic rules in food preparations), mosques, prayer times and a Qibla compass (direction of the prayer in relation to the sacred site of Kaaba for Muslims in Mecca^{clxxix})^{clxxx}.



Islamic banking

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The median age in Central Asia stands at 27.6 years, representing 77 million people, most of whom identify as Muslim.

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Over 70% of the Kazakh population identify as Muslim, with 90% in Uzbekistan, Kyrgyzstan and Turkmenistan and over 95% in Tajikistan.

Over 70% of the Kazakh population identify as Muslim, with 90% in Uzbekistan, Kyrgyzstan and Turkmenistan and over 95% in Tajikistan. The rising popularity of Islam and corresponding products in the whole of the Central Asia region, especially among the youth, could be attributed to the re-establishment and re-imagining of national identity after over a century of Russian Empirical rule that started in the mid-1800s with the Soviet reign ending in the early 1990s. The median age in Central Asia stands at 27.6 years, representing 77 million people, most of whom identify as Muslim^{clxxxix}, so it is no coincidence that, although all countries in this segment remain secular in their civil affairs and government structure, there could be a growing interest in innovative Islamic products that combine the long-standing religious traditions of the region with a need for wider and more digitally-enabled access to financial tools, especially among the youth.

Alif Bank, founded in Tajikistan in 2014, is a good example of a FinTech that saw an opportunity to offer financial solutions to a consumer base sceptical of the formal banking sector, with low financial literacy and with limited options to transact in non-cash instruments. Alif Bank self-proclaims to be an “ethical FinTech”, following Shariah compliance across its products and services and espousing the tenets of Islamic banking rules. As of 2020, Alif Bank has a full banking licence under the Tajik law^{clxxxii}, having been previously structured as a Microcredit Deposit Organisation (MDO), which allowed it to take deposits, conduct foreign and domestic exchange transactions, as well as extend loans and BNPL products on a commission-free basis^{clxxxiii}.

In 2017, Alif Bank launched a marketplace, alif shop, which became the largest B2C platform in Tajikistan^{clxxxiv}, and introduced alif pay, the first online payment platform in the country^{clxxxv}. It then launched two BNPL cards, alif salom and alif nasia, that could be used online and offline, and introduced the first mobile wallet in the country – alif mobi, which has a QR technology allowing smartphones to serve as POS terminals. In 2020, the company expanded its e-money and payments operations into Uzbekistan and introduced an Alif Visa card the following year, which accounts for 50% of all Visa transactions in Tajikistan^{clxxxvi}. Alif Bank recorded a 150% YoY revenue growth as of June 2022, accumulating over 1 million users and having grown its assets to \$131 million^{clxxxvii}. The FinTech looked to get a digital banking licence in Pakistan, which would have allowed it to offer BNPL solutions, consumer and SME loans, and remittance services across borders^{clxxxviii}, but the company fell short in securing its spot on the list of five licence recipients last year^{clxxxix}. Nevertheless, FinTech has proven the appetite for Islamic banking products is on the rise across Central Asia and adjacent countries and could serve as one of the many channels for increasing financial inclusion in these markets.



Islamic banking

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Islamic finance is projected to reach the \$5.9 trillion mark by 2026.

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All these developments point to a need to consider Islamic banking products as one of the ways to increase financial inclusion across FM covered by Sturgeon, especially in light of changing government policies and consumer behaviour.

Another prominent example of the rising influence of Islamic banking is Pakistan's Meezan Bank which has become the fastest-growing financial institution in the country, surpassing its traditional banking competitors by recording a profit of 17.1 billion Rs (\$62 million) with a total deposit base of 1.57 trillion Rs (\$5.7 billion), representing an 8% YoY growth in 2022^{CXC}. Meezan, in partnership with Haball, a B2B Islamic FinTech, has recently launched a digital lending platform, Wisaaq^{CXCi}. The new product aims to bridge the gap in financing for SMEs through a completely digital supply chain platform, improving working capital levels and expanding the operational capacities of the businesses whilst also providing banks and corporates with information on risk profiles for financing decisions. The first major rollout on Wisaaq will be onboarding over 500 distributors of Coca-Cola beverages and providing them with payment solutions that are transparent and Shariah-compliant, which according to the survey done by SBP, is of great importance to these businesses^{CXCii}. Historically, the average cycle for B2B payments in the country could take up to six days, be primarily paper-based and dealt in cash, so Haball tried to solve it by creating an agnostic platform that offered multi-channel payment options to all parties in real-time, whilst also providing a view of the supply chain in a digital format^{CXCiii}. With the launch of Wisaaq, all the parties in the supply chain, including banks, distributors and retailers, can now access data for matching financing activities whilst doing so in a Shariah-compliant way through an end-to-end digital channel.

In summary, Islamic finance is projected to reach the \$5.9 trillion mark by 2026^{CXCiv}, with growth coming from regions previously not associated with Shariah-compliant activities, such as Central Asia. In addition, both Pakistan and Bangladesh, scoring eighth and tenth in the Islamic Finance Development Indicator (IFDI) ranking, show signs of the rapid development of Islamic banking. Pakistan, in particular, scored high in the governance and knowledge-sharing indicator of the IFDI, pointing to expanded publishing of Islamic finance research in the country and the government's focus on creating necessary regulatory frameworks for Shariah compliance in the structuring and accounting of Islamic products. One of the largest boosts to Islamic finance growth in the country is the ruling by Pakistan's FSC to move away from riba products by 2027, triggering the formation of a consultation committee in the Securities and Exchange Commission of Pakistan (SECP) to assist with this strategy going forward^{CXCV}. In 2022, Faysal Bank in Pakistan converted its 11 traditional banking branches to fully Islamic^{CXCvi}, echoing a growing demand for full Shariah compliance. Kazakhstan put forth a policy as part of the Islamic Finance Master Plan for the Republic of Kazakhstan 2020-2025, promoting initiatives to increase the share of Islamic assets in the country by 2025^{CXCvii}. The Financial Regulatory Authority (FRA) in Egypt has recently approved the first Islamic microfinance licence for Maksab^{CXCviii}. Bangladesh scored highest in the 2021 IFDI in the number of Shariah scholars, with 195 individuals, while Pakistan came in fourth with 90 people^{CXCix}. All these developments point to a need to consider Islamic banking products as one of the ways to increase financial inclusion across FM covered by Sturgeon, especially in light of changing government policies and consumer behaviour.



Part V.

Sturgeon's case studies



Sturgeon's case studies



Trukkr, a portfolio company of Sturgeon Capital, is Pakistan's first and largest online logistics management platform.

Having recently added embedded finance to its offering, the platform allows users to manage their logistics supply chain digitally while providing a historically underserved market of small and medium-sized carriers access to financial products.

Pakistan's logistics space is valued at \$35bn, with the trucking sector alone accounting for \$15bn, recording a 10% YoY growth. The economy of the country is largely organised as an agrarian and export-dependent. Consequently, transportation and logistics activities play an important role in the livelihoods of many Pakistanis and the country's overall economic output levels. Coupled with an inefficient railway system, over 300,000 trucks are moving a slew of products, from sand to textiles. Despite this, these shipping activities are mostly paper-based or undocumented, with the majority of the carrier SMEs remaining unbanked. Trukkr's founders saw this as an opportunity to reinvent how the trucking industry operates, launching an easy-to-use online platform in 2019, which enabled scheduling of rides, finding best matches for shippers and carriers, organising trips, and assisting with tracking shipments and deliveries. As a result, Trukkr has been able to digitalise a large set of crucial sector-related data, becoming the biggest logistical database in the country.

In December 2022, Trukkr became the first logistics company in Pakistan to be approved for a non-banking financial institution (NBFI) licence, enabling them to operate under Pakistan's Securities and Exchange Commission (SECP). Trukkr now offers working capital financing to carriers to scale up economic activities transmitted through the platform while increasing the financial inclusion of their truck driver community. The new product offering came from feedback from many carriers, who found it much easier and faster to find work through Trukkr once they were onboarded, but many still struggled with working capital to finance more trips. The question the Trukkr's founders asked themselves was: *"If we have complete visibility into a trip being executed for a large corporation, and we have seen this trip happening 150 times, are we comfortable providing the carriers with capital financing for their 151st trip?"* The answer was "yes", and Trukkr started deploying working capital to carriers, growing the loan book eightfold to \$1m/month, with steady monthly returns and 0% non-performing loans (NPL) thus far. To further extend its reach, Trukkr plans to introduce a Trukkr Credit Card in 2023 to digitalise the financing of carriers' operational costs, like fuel and parts, and allow for cashless transactions. Trukkr has onboarded 80 out of 150 major companies onto the Trukkr platform, with the biggest shipper generating over \$1.5bn in annual revenues. In addition, the company has vetted and onboarded over 15,000 carriers, representing a mere 5% of all trucks in Pakistan.

Sturgeon's case studies **PAKISTAN: Trukkr**

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Recognising the issue of the underrepresentation of women, Trukkr set out a plan to move the needle in achieving greater gender parity among its user and employee base.

Finally, it is generally accepted that the transportation and logistics industry worldwide has historically been dominated by men, and Pakistan is no different to other markets. Recognising the issue of the underrepresentation of women, Trukkr set out a plan to move the needle in achieving greater gender parity among its user and employee base. The company created aggressive targets for the employment of female talent and sought to establish partnerships with some of the first female truck drivers in the country, hailing from the mining desert region of Thar^{cc}. The team understands there are many challenges ahead in furthering financial inclusion of the whole trucking sector, with many drivers still underserved by incumbent banks, which, coupled with an economic slowdown and recent bouts of currency devaluation, leaves SMEs with very little room for error. In addition, according to insights gained by Trukkr's team through a series of surveys, there seems to be a growing interest in Shariah-compliant financing among the trucking community, so if such products become available, it could address the coverage of the previously unbanked populations on their path to financial inclusion.

Every crisis creates an opportunity, and Trukkr's mission is inextricably linked to financial inclusion, with the company being well-positioned and equipped to attract more businesses onto the platform, grow their loan book to offer more working capital to those who are squeezed, and introduce more innovative financial products to its increasing industrious customer base in the future.



Sturgeon's case studies



Oasis MFI, a portfolio company of Sturgeon Capital, is poised to become one of the key MFI players in Uzbekistan, focusing on lending to SMEs with a highly competitive value proposition of 24-48 hours in time-to-money disbursement of the loan.

Oasis aims to address the largely underserved SME sector, which contributes to 60% of the country's GDP, employing 78% of the country's 35 million population^{cci}. Globally, the development of the SME sector and the corresponding need to finance these businesses has become one of the main priorities for many EM/FM governments, as over 600 million jobs will need to be generated by 2030 to accommodate the world's growing population^{ccii}. Uzbekistan's government has set an aggressive economic agenda to achieve the status of an upper-middle-income country by 2030, which is inextricably linked to supporting local businesses and spurring more economic activity in the country^{cciii}. SMEs play a major role in job creation activities, accounting for seven out of ten formal jobs in the EM/FM; however, almost 40% of all SMEs across these economies are faced with a lack of financing, representing a financing gap of \$5.2 trillion annually^{cciv}. According to the Findex report from 2021, out of the 30% of Uzbekistan's adults who reported borrowing in the last year, 22% borrowed from informal sources, like family and friends, pointing to a vast and largely untapped opportunity to offer lending solutions.

Oasis MFI developed a thesis to solve the lack of financing opportunities for SMEs in Uzbekistan. The country's banking sector's assets account for 40-45% of the GDP, with a credit-to-GDP ratio of roughly 20-25%, most of which is being lent to state-owned or state-backed enterprises. The SMEs have 12-15% of the credit-to-GDP ratio, while the consumers have around 5-8%. Therefore, compared to economies of similar size and development, private capital is scarce for consumers and businesses. The Oasis team initially visited Uzbekistan in Q4 2019 and found few players in the MFI sector, with the biggest MFI having around \$10m in total assets, with loans fully collateralised on autos, a loan-to-value ratio (LVR) of 75-80% and the interest rates in the low 60% range. When contrasted against the \$2-2.5bn in lending capacity to SMEs in the country, the founders saw an enormous opportunity, as business owners were lined up outside existing MFI to discuss financing options, even with high-interest rates and collateral requirements. With no credit availability from formal financial institutions, these SMEs routinely rely on supplier or buyer credit to fund their working capital. As most SMEs have historically not had enough funds on hand to pay cash on delivery (COD), the implied interest rate on credit lines provided by suppliers could be as high as 110-120% APR, which is on par with other EMs, like Peru or Bolivia, a few decades ago.

Sturgeon's case studies **UZBEKISTAN: Oasis MFI**

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Oasis charges lower interest rates than their MFI competitors at 60% and although higher than the banks at 20%, they can offer uncollateralised lending.

When comparing Oasis to banks in their time-to-yes (approval for a loan) and time-to-money (disbursement of the loan) timeframes, the banks generally take three to four weeks to process loan applications, mostly due to the documentation and full collateralisation requirements. The SME entrepreneurs typically have little room for error regarding working capital levels and therefore tend to be much more sensitive to time constraints in receiving credit rather than interest rates. Consequently, Oasis charges lower interest rates than their MFI competitors at 60% and although higher than the banks at 20%, they can offer uncollateralised lending. To further amplify the competitive advantage, the company's goal for 2023 is to achieve a time-to-yes of one hour and a time-to-money of two hours. Oasis loan officers currently go into the field and approach SMEs to collect cashflow-specific data, such as the liquidity and debt service coverage ratio (DSCR) or the micro entrepreneurs' ability to repay debt obligations with available cash flows, which is then sent back to the underwriting department for decisions on microloans. As risk profiles of SMEs are built out with more repayment-related behaviour, as well as SME-related data – such as revenues per square metre, cash in the till, and space utilisation – Oasis will then further build out the underwriting algorithms to automate the processing of follow-on loans, expansion of credit lines, as well as onboarding of new SMEs with additional data points. The end-state would have an open API architecture alongside a software-as-a-service (SaaS) business.

Moving forward, as more SMEs get approved for loans and grow the country's economic output, the team hopes to see policy changes in the country's tax regime. The current process is paper-based, and most SMEs must stay below a certain threshold to qualify for a simplified tax compliance scheme. If this tax data is digitised and updated in real-time, whilst the tax rates are lowered to account for a wider user base, it would increase the tax revenues of the country and allow private companies to offer more wide-ranging financial products, increasing financial inclusion of SMEs whilst also growing the middle-class of the country to achieve the government's 2030 agenda.



Sturgeon's case studies



Datacultr, a portfolio company of Sturgeon Capital, is a platform as a service (PaaS) founded in 2020 that connects lenders to risk mitigation and collection management software, reducing loan defaults and non-performing assets (NPA) through its data-driven model.

The company specifically provides debt collection and risk management solutions to banks, MFI, FinTechs, NBFI and MNO, which are servicing the 'new to credit' populations in the lower to middle-income brackets across EM/FM, as well as some developed markets. The founders saw an opportunity to create technology that would fill the risk and credit data scarcity gap in EM/FM, which had historically prevented traditional FI from considering lending to previously underbanked or completely unbanked populations.

There are broad fundamentals every lender follows, such as the consumer's ability and intention to pay, which is largely driven by their credit score. When it comes to 'new to credit' populations with no existing credit history, decisions such as loan applications prove challenging, so various alternative data points could also be used, such as someone's personal data, work experience, salary slips and tax returns, to fill the gaps in assessing the risks. However, in many EM/FM societies, people work in unorganised or informal sectors, often receiving wages and transacting in cash. Furthermore, any informal economic activity remains untaxed, complicating FI's ability to assess the risk of these populations' creditworthiness. Additionally, servicing these consumers comes with higher costs, as they are harder to reach and may have financial and digital literacy challenges, so it is not only costly vis-à-vis revenue streams generated

from microloans, but the underlying FI infrastructure is not usually fit to onboard and support these populations.

Datacultr has organised its thesis on the idea that most EM/FM populations need access to a smartphone, which may be the only and the most important asset they will own. However, the company's founders realised that even a cheap device would be unaffordable to someone at the bottom of the socioeconomic pyramid if it costs more than 2% of their annual income. If 75-80% of the population makes \$3 or less daily, purchasing a new phone is a luxury. Therefore, where no alternative data for credit extension to service the underbanked and unbanked populations was available, Datacultr started partnering with FI to extend microloans for phone purchases. As these customers began making monthly payments, the FI were able to build risk profiles based on payment behaviour, capturing borrower information and building up their clients' credit history in the process. In cases of non-payment, Datacultr's partner FIs can lock the phone until such payment is made and help with collection in case of a default. To date, the company has established partnerships with FI across nine countries, extending 2.8 million loans through the Datacultr platform, amounting to a loan value of approximately \$560 million – directly impacting those previously unbanked populations and increasing their financial inclusion through Datacultr technology.



Sturgeon's case studies



Zypl is a SaaS company founded in Tajikistan in 2021, which applies artificial intelligence (AI) models at scale to advance financial inclusion in EM/FM economies.

Zypl's solution enables FI, MFI and other financial enterprises to underwrite loans instantly for consumers with limited or no credit history^{ccv}. The founding team saw the need to go beyond the number of loans given to the underbanked as a metric of greater financial inclusion and devised proprietary technology that uses not only traditional social markers, such as demographics and professional and work qualifications but also psychometrics (behavioural analytics), web tracing and macroeconomic indicators to arrive at credit risk profiles.

Zypl's genesis grew out of TajRupt, a non-profit organisation founded by the same team a few years earlier. It provides educational resources and extracurricular activities to students in Tajikistan to help them gain acceptance into prestigious universities in the United States. In 2019, TajRupt won a grant from the Islamic Development Bank (IDB) to launch an AI Lab Academy and trained high school students on machine learning (ML) and AI optimisation frameworks and tools. However, upon graduation from the Academy, many students could not find work in traditional banks or telecommunications companies, as their skillset in AI was far ahead of the prevailing understanding of the applicability of such tools amongst enterprises in the country. The team decided to launch a project that would showcase how AI models could be used in a business setting and approached two top MFI in Tajikistan to help them create a credit scoring algorithm for microloans. Upon completion of the project, and with MFIs successfully

adopting the new credit scoring models, the team was asked to develop a similar product for the number three corporate bank in Tajikistan, Spitamen Bank. The founders knew their product could be used more broadly across other financial sector players and beyond Tajikistan and decided to launch Zypl formally.

Since adopting Zypl's credit scoring solution, Spitamen Bank has been able to expand its product line to microfinance offerings, issuing \$12 million in microloans and servicing over 15,000 consumers, most of whom were previously underbanked or unbanked and did not have a formal credit history. Zypl currently covers close to two dozen partners in Tajikistan, Uzbekistan and Kazakhstan and is onboarding and expanding its coverage to financial companies in Azerbaijan, Jordan and Kyrgyzstan. The team is continuously improving and updating its algorithms, conducting quarterly testing for biases (e.g. gender) with regard to decision-making mechanisms and correlations. They have also partnered with regulators across EM/FM's Central Banks to help guide policy changes that would further improve credit scoring mechanisms. Zypl's team are big proponents of Open Banking and believe that establishing standard API mechanisms for data sharing across utility, mobile and financial companies would be instrumental in finetuning evolving credit scoring mechanisms. Moreover, it would improve accessibility to credit over time and increase financial inclusion among the previously unbanked and underbanked populations in the EM/FM economies.



Outlook for development

Sturgeon Capital's target geographies are primed for growth in the next decade, both in terms of digitalisation momentum and venture opportunities that will be further enabled through progressive and digitally-embracing policymaking, private-public partnerships, as well as the governments' commitment to reform and fully digitise their economies to achieve wider-reaching economic progress.

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The evolution of instant P2P payment systems, like RAAST in Pakistan and InstaPay in Egypt, will further transform the payments landscape and bolster the growth of digital transactions across covered FM, increasing financial inclusion.

Further digitalisation of public channels and services, investment in robust communications infrastructure, enhancement to existing regulatory frameworks and the creation of new legal foundations have all been instrumental in moving the needle on increasing financial inclusion in other EM. We are witnessing the growth and emergence of innovative FinTech solutions across our markets that will serve as a foundation for economic development in these markets for years to come.

Thus far, every government in our sample has put forth a plan for economic development that is inextricably tied to the digitalisation of their economies, from “Digital Egypt” and “Egypt Vision 2030”^{ccvi}, “Digital Bangladesh 2009” and “Vision 2041” to graduate to a higher middle-income country by 2031^{ccvii}, “Digital Transformation Strategy of Georgia 2021-2025”^{ccviii}, “Digital Pakistan Policy”^{ccix} and “Pakistan’s Vision 2025”^{ccx}, Kyrgyzstan’s “E-commerce Development Programme” for 2023-2026 and “Vision 2040” development strategy^{ccxi}, “Digital Uzbekistan – 2030 Strategy”^{ccxii}, and Kazakhstan’s “Strategic Roadmap for

FinTech and Innovation for 2020-2025” and the “National Payment System Development Strategy” through 2025^{ccxiii}. Every initiative reflects governmental shift to reform existing structures, better utilise human capital, attract investment and speed up economic growth.

The evolution of instant P2P payment systems, like RAAST in Pakistan and InstaPay in Egypt, will further transform the payments landscape and bolster the growth of digital transactions across covered FM, increasing financial inclusion. These solutions have shown high traction in other markets, like India, with its introduction of a UPI digital payments platform that has grown consistently YoY since 2016, increasing its daily transaction volume by 50% from 240 million to 360 million in just one year in 2022^{ccxiv}. UPI system processed a remarkable total of 7.82 billion transactions in 2022, amounting to Rs 12.82 trillion (approx. \$156 billion)^{ccxv}. India has achieved unprecedented advancement in its digital payments penetration since the launch of UPI, which has created fast payment rails for remittance transfers, mobile wallets and many successful FinTech use cases.



Outlook for development

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This research has shown that Sturgeon's target markets are five to ten years behind their EM comparator peers in terms of technology adoption and financial penetration.

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Given the complexity of building financial solutions at scale, we will focus on teams with first-hand, in-depth experience building financial products in EM.

All covered FM have the opportunity to develop more transparent and simplified taxation regimes with the right-fit income and reporting thresholds for SMEs and individuals, allowing more lending activities and data-driven credit FinTech solutions to flourish. As further digitalisation takes place in each country, it will be imperative to ensure the wider population not only has access to the internet but is also digitally literate – which can be supported through government action and private-public partnerships, as well as incorporated in FinTechs in the form of knowledge-boosting and behavioural engagement features in their product offering. More work needs to be done on the interoperability and API data connectivity between players to allow for seamless and secure data sharing, better user experience and introduction of more robust and data-driven FinTech solutions.

We would be amiss if we did not see traction in Shariah-compliant financial products across our markets that have not been historically associated with Islamic banking. These new FinTech models are unlocking ways to access capital previously unavailable to the more traditional segment of the population in each country. We will monitor their development and evolution, as they could become an important component of further growth in financial coverage and inclusion across Sturgeon's FM.

This research has shown that Sturgeon's target markets are five to ten years behind their EM comparator peers in terms of technology adoption and financial penetration. The advantage they have is twofold: firstly, the level of smartphone and internet penetration is growing faster and at a lower cost than it did in, for example, India or Indonesia ten years ago; and secondly, the technology and financial playbook has now been tested, refined and implemented across a wide range of countries. Together, these point to a

rapid acceleration in technology adoption and financial penetration within a shorter timeframe than their peers – a prime example of technological leapfrogging that characterises EM. However, it won't be as simple as a “copy and paste” job in each market to take business models that have been successful elsewhere and implement them locally. The idiosyncrasies of each market, such as the dominance of state-owned banks in Uzbekistan, Central Bank limits on interest rates in Bangladesh or a growing preference for Shariah-compliant financial products across Muslim-majority countries, mean that an in-depth understanding of local nuance and a high degree of localisation are required to be successful. Nor is each market at the same stage: Georgia and Kazakhstan are more advanced, driven by the success of TBC/ Bank of Georgia and Kaspi, respectively, while Uzbekistan, Bangladesh and Pakistan are still in the early stages of adoption but with much larger addressable markets.

Over the next five to ten years, Sturgeon will continue investing in FinTech Lending and FinTech Infrastructure business models. Given the complexity of building financial solutions at scale, we will focus on teams with first-hand, in-depth experience building financial products in EM. One of the key risks is that due to the size of these target markets and the low base level of financial penetration it can be easy to build initial traction and appear to have found product-market fit. However, building the systems and processes to grow from early adopters into the mass market is far more challenging, especially when it comes to handling regulators and building a scalable balance sheet, and this is where experience and know-how are vital. To solve the problems of financial inclusion in these markets, we need business models that are scalable, sustainable and profitable, and we will invest with teams who can demonstrate that they can grow their businesses into category leaders of the future.



Part VII.

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