REPORT | JUNE 2017

Reducing Costs and Scaling Up UK to Africa Remittances Through Technology

REDUCING POVERTY
THROUGH FINANCIAL SECTOR DEVELOPMENT

fsdafrica

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About the Authors - DMA Global

Headquartered in central London with a regional office in Sydney, DMAG is a leading payments consultancy engaged by both the public and private sector to deliver projects around the world. Since the company was founded in 2007, it has established a global team of over 60 experts. DMAG's core competencies include:

1. **Remittances and Payment Systems**
   Working with the public sector to maximise the development impact of remittances. Recent work includes high-impact market assessments, regulatory and policy reviews and quantitative and qualitative data collection across Africa, Asia, Europe, Australia and the Middle East.

   DMAG also works with private payment companies advising on market entry, product launches and commercialisation strategies geared towards developing and emerging economies. The team has worked with a range of FinTech companies in the design and launch of new business models and digital payment solutions, either online or via mobile phone.

2. **Financial Inclusion and Access**
   Expertise in product development and financial literacy aimed at enhancing financial inclusion and access to financial services in developing countries.

3. **Diaspora Investment**
   Research and analysis used to inform governments, multilaterals and the private sector on product design and outreach strategies for tapping diaspora savings for economic development.

This Report has been prepared by Leon Isaacs, Sarah Hugo, Nana Boakye-Adjei and Gemma Robson.

The views expressed in this report are those of the authors and in no way entirely reflect those of FSD Africa.

List of Contents

List of Figures

Glossary

Account-to-Account	Broadly refers to any transfer which goes directly from one account to another. Usually used in reference to a bank account to account transfer, but can also refer to a mobile wallet account or eWallet account transfers.
Agent-level Interoperability	Refers to agents of one service offering services to customers of another service.
Bancarisation	A measurement of the level of access to, and the degree of use of, formal financial services generally, and banking services particularly. Bancarisation mainly refers to the percentage of population with/without access and use of banking services.
Central Bank-issued Digital Currency	A central bank granting wider, electronic, 24x7, national-currency-denominated and potentially interest-bearing access to its balance sheet.
Country Policy and Institutional Assessment (CPIA)	An annual World Bank rating of 95 countries against a set of 16 criteria grouped in four clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions.
eWallet	An online prepaid account in which money can be stored. Money is usually loaded through an online transfer from a bank account and/or debit/credit card.
FinTech	Technology-enabled financial innovation.
Formal vs. Informal Transactions	Various definitions are used to describe informal vs. formal transactions, often interchangeably – for example, 'illegal' vs. 'legal', 'documented' vs. 'undocumented' and 'regulated' vs. 'unregulated' transactions. For this report, formal transactions refer to those transactions which are handled by regulated businesses in compliance with laws at both ends of the transaction. Informal transactions are therefore seen as those that are not fully compliant with the legal framework in either the send or receive country and/or which are carried out by an entity which is not licensed to undertake the transaction.
Platform-level Interoperability	Refers to the ability of customers to undertake money transfers between two accounts held with different commercially and technically independent service providers. It can refer both to money transfers between two services offering the same product, and also the ability to transfer money between different products and payment networks (e.g. mobile wallet to bank account).
Prepaid Card	A payment card in which money can be pre-loaded and stored.
Remittances	Broadly defined as repeated cross-border person-to-person payments of relatively low value.
Remittance Service Provider	A remittance service provider is a generic term that includes any provider that facilitates cross border person-to-person money transfer services, including banks, money transfer operators (MTOs), mobile network operators (MNOs) and prepaid card providers.

Abbreviations

A2A	Account-to-Account
ABRS	Aadhaar Based Remittance Service
ACH	Automated Clearing House
AEMI	Authorised eMoney Issuer
AFI	Alliance for Financial Inclusion
AML/CFT	Anti-Money Laundering/Counter Financing of Terrorism
API	Application Programme Interface
API	Authorised Payment Institution
ATM	Automatic Teller Machine
BoE	Bank of England
CBDC	Central Bank-issued Digital Currency
CDD	Customer Due Diligence
CFA	Central African Franc
CGAP	Consultative Group to Assist the Poor
CPIA	Country Policy and Institutional Assessment
COMESA	Common Market for Eastern and Southern Africa
DFI	Digital Frontiers Institute
DFID	Department for International Development
DFS	Digital Financial Services
EAC	East African Community
ECOWAS	Economic Community of West African States
EMI	eMoney Institution
FAR	False Acceptance Rates
FATF	Financial Access Task Force on Money Laundering
FCA	Financial Conduct Authority
FCAS	Fragile and Conflict-Affected States
FDI	Foreign Direct Investment
FI	Financial Institution
FX	Foreign Exchange
GBP	United Kingdom Pound Sterling
GPS	Global Positioning System
HH	Household
HMRC	Her Majesty's Revenue and Customs
ID	Identification
ID4D	Identification for Development
IFAD	International Organisation for Agricultural Development
IOM	International Organization for Migration
ISO	International Organisation for Standardisation
KYC	Know Your Customer
MFI	Micro-Finance Institution
MFS	Mobile Financial Services
MG	MoneyGram
MMA2A	Mobile Money Account to Account (mWallet to mWallet)
MNO	Mobile Network Operator
MTO	Money Transfer Operator
MVNO	Mobile Virtual Network Operator
NBFI	Non-Bank Financial Institution
NGO	Non-Governmental Organisation
NIMC	National Identity Management Commission, Nigeria
NPCL	National Payments Council of India
ODA	Overseas Development Aid
ONS	Office for National Statistics
OTC	Over the Counter
P2P	Peer to Peer
PI	Payment Institution
PPC	Prepaid Card
POS	Point of Sale
PSD2	Payment Services Directive 2
PKI	Public Key Infrastructure
RACH	Regional Automated Clearing House
RPW	Remittance Prices Worldwide (remittanceprices.worldbank.org)
RSP	Remittance Service Provider
RTGS	Real-Time Gross Settlement
RTL	Real Time Line
SADC	Southern African Development Community
SDG	Sustainable Development Goal
SEMI	Small eMoney Issuer
SIM	Subscriber Identification Module
SIRESS	SADC Integrated Regional Settlement System
SPI	Small Payment Institution
SSA	Sub-Saharan Africa
SWIFT	Society for Worldwide Interbank Financial Telecommunication
UNCDF	United Nations Capital Development Fund
USD	United States Dollar
USSD	Unstructured Supplementary Service Data - a Global System for Mobile (GSM) communication technology that is used to send text between a mobile phone and an application program in the network.
WAEMU	West African Economic and Monetary Union
WU	Western Union
XRP	Ripple Currency

Executive Summary

Image:
Kristina Just © 2014

Executive Summary

Over the past two decades, there has been a digital revolution with pioneering developments in the form of the internet, email and mobile phones transforming the way information is accessed and communication takes place. For many market analysts, cross-border payments are the next frontier, where innovative technologies will challenge the expensive, clunky business models that currently exist. Mobile phone technology, mobile money, digital currencies, distributed ledgers, electronic identification and cloud technology together have the capacity, for the first time, to technically make cross-border payments negligible in cost, instant, auditable and accessible to everyone.

In light of this, the objective of the report is to assess whether the appropriate application of 'new' technologies could be leveraged by donors and other development agencies to increase formal remittance flows into Africa and/or reduce the cost of sending money home.[1] Fragile and conflict-affected states (FCAS) are of particular interest given the importance of remittances to livelihoods and post-conflict development, as well as the exacerbated challenges that are often faced in these jurisdictions.

Sender to Recipient - Digitising the Remittances Value Chain

Surveying the 'Financial Technology' (FinTech) landscape, and assessing technologies in relation to the challenges facing Remittance Service Providers in the UK to Africa corridors, has shown that in the current operating environment, no single technology offers a complete solution. Instead, there are a range of technologies that are, or can be, applied to different segments of the chain. Once scaled these technologies have the potential to improve the efficiency of the market, drive down costs and promote formal flows.

The UK to Africa remittance market is heavily cash-based, both in the UK and in the African-receive markets. Analysis suggests that digitisation of the value-chain, from the sender in the UK to recipient in Africa, is the only mechanism through which technology can be used to drive down costs. Digitisation will not only reduce the dependency on cash agents in both the send and receive country, who currently contribute to sustaining high transaction fees, but will also address many of the risks, barriers and costs associated with know-your-customer (KYC) and security.

In the UK, low adoption of the digital, more competitively priced, and technologically sophisticated remittance services among migrant communities minimises potential benefits gained from new technology based services. Understanding the reasons behind this observed 'stickiness of cash' will be key to driving behavioural change amongst African remittance senders in the UK.

It is, however, in the African markets themselves, especially in FCAS, that most of the challenges exist. The absence or weakness of: a digital payments infrastructure and acceptance network; a financially included population; and/or an identification system, means that many of the traditional digital remittance services, such as terminating into a bank account or mobile wallet, are not always available. Invariably the more innovative financial technologies for cross-border payments, including those terminating into a range of electronic wallets, using biometrics, cryptocurrencies or distributed ledger technology, are also not appropriate for much of Africa.

Building the capacity and readiness of the end-user to access and adopt technology based solutions as well as creating an enabling environment to foster the development and roll out of such solutions, will be just as important as the solutions themselves, if scale is to be achieved and the anticipated benefits realised.

Recommendations for Donor and Development Agencies to Reduce Costs and Achieve Scale

The report makes a series of recommendations to improve the efficiency of the UK to Africa remittance market through the application of technologies; reducing costs and scaling the flow of formal funds. Recommendations focus on the different segments of the remittance value chain (the first, middle and last mile) and complement one another in application (see Figure 1 and 2). They are primarily targeted at donors and other development agencies. Of the recommendations, five are prioritised. Improving financial inclusion and developing electronic identification schemes linked to digital payment instruments are viewed as key longer-term objectives. However, are not prioritised, as they have broader development agendas beyond remittances.

[1] To be in line with the UN's Sustainable Development Goal 10.7c.

Figure 1: Summary of Recommendations

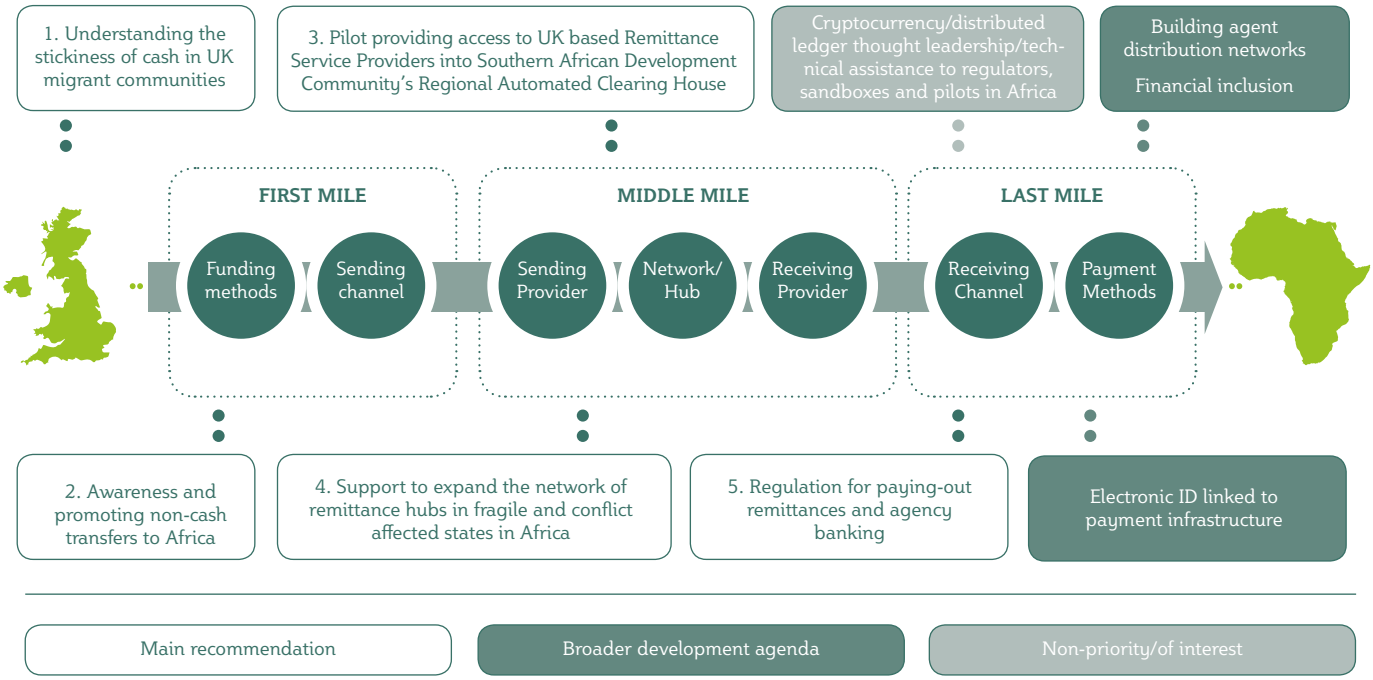


Figure 2: Estimated Costs, Timeframes and Impact of Priority Recommendations

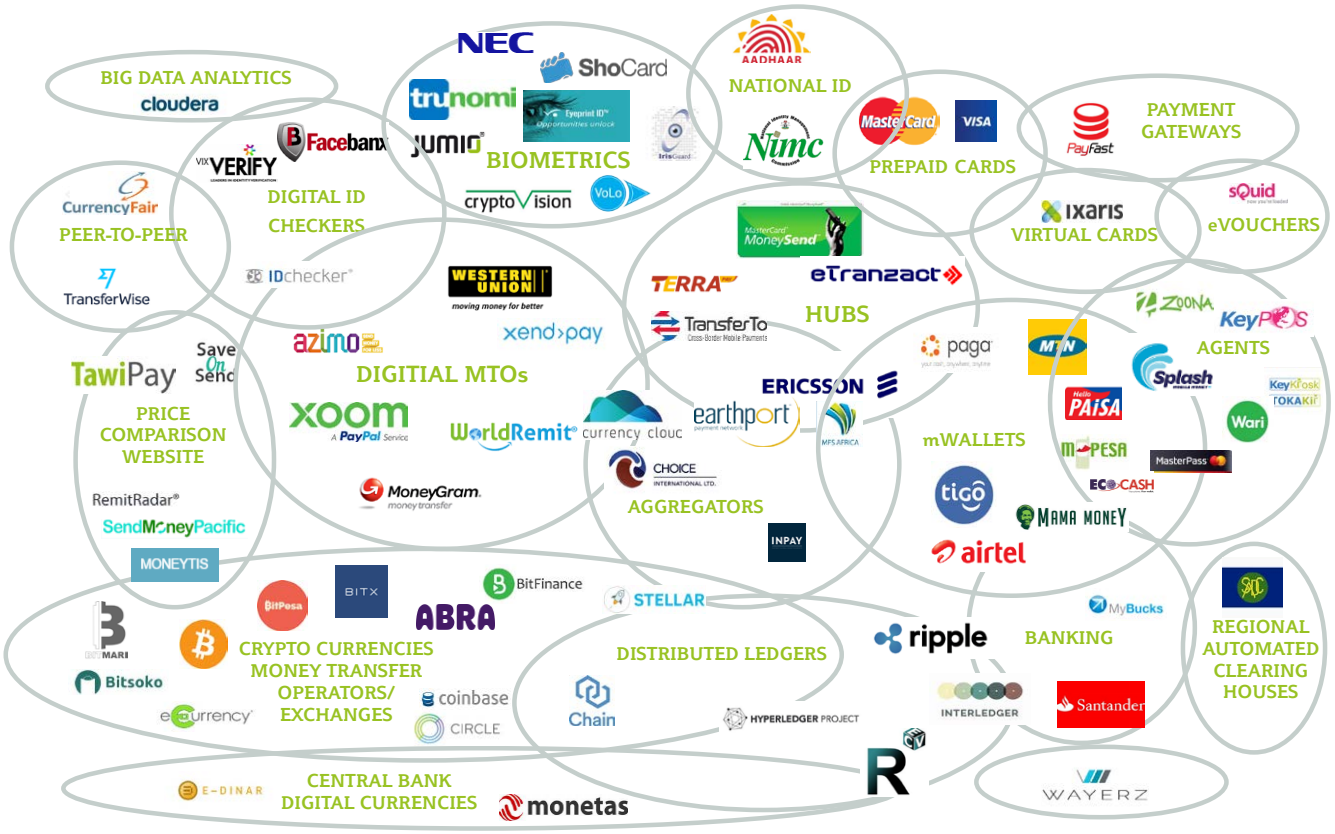
1. Understanding the stickiness of cash in UK migrant communities					
Costs	£45-60k	Timeframes	3 months	Impact	Low; information for programme design
2. Awareness and promoting non-cash transfers to Africa					
Costs	£100k - £300k	Timeframes	1-2 years	Impact	Medium; changing consumer behaviour in the UK
3. Pilot providing access to UK-based remittance service providers to southern Africa Development Community					
Costs	£100k - £200k	Timeframes	1-2 years	Impact	Direct impact low; potential to change market high
4. Support to expand the network of remittance hubs in fragile and conflict affected states in Africa					
Costs	£500k - £5mn	Timeframes	1-5 years	Impact	Medium/high
5. Policy influencing for non-bank financial institutions to be able to pay-out remittances and agency banking regulation					
Costs	Limited	Timeframes	0-5 years	Impact	High

Main Findings – For Impact, There Must Be Scale

A review of the FinTech landscape was conducted between April and August 2016. Figure 3 provides a visual overview of the primary areas of technologies assessed and a few of the service providers in each.

FinTech providers, such as WorldRemit and Azimo, are offering a more streamlined money transfer service online, cutting out the need for an agent in the UK, and often in the receive market too, and utilising digital onboarding and identification checkers. This digitized process is reflected in their competitive pricing models. Remittance processing hubs are also capitalising on technological advancements, including application programming interface (API) technology (which enables different systems to "talk" to each other) and the increasing access to the internet, smart phones and alternative digital payment instruments across the globe. Remittance processing hubs, such as MasterCard Send, MFS Africa, TerraPay, Ericcson, TransferTo, are interconnecting payment providers (banks, mobile network operators, money transfer operators, etc.) across multiple payment channels (cards, banks, eWallets, mWallets and cash)

Figure 3: Map of the Range of Technologies Surveyed in Relation to the Remittances Value Chain



Source: Author's own

and across borders through one single connection and contract with service providers. As digital acceptance networks develop domestically across Africa, and in FCASs and usage becomes more widespread, hubs are in a prime position to open these networks to international remittance flows. At present, volumes through digital MTOs and remittance processing hubs are still relatively small. As volumes increase it is anticipated that costs per transaction will also be driven down.

The development of regional automated clearing houses (RACH) in Africa also presents a channel for improving the efficiency and reduce the cost of low-value cross-border transfers into Africa. RACHs develop a shared payment infrastructure to facilitate the automated clearing of funds between countries. One example is the Southern African Development Community (SADC), where 11 countries and 95 banks are currently linked into SADC Integrated Regional Settlement System (SIRESS). Extending this infrastructure to include mobile wallets in Africa and providing access to UK-based RSPs will improve interoperability between payment instruments and across borders.

Distributed ledger technology is at the forefront of cross-border payment innovations and is currently being tested by large financial institutions globally with respect to its potential to overhaul the speed, complexity and costs incurred through correspondent banking, reducing counterparty and operational risk in the financial system and the risk of fraud. These advancements could result in banks being able to provide competitive and fast person-to-person cross-border payments from one banked customer to another.

Cryptocurrencies are pushing the boundaries in traditional payments, with burgeoning business models globally and both into and within Africa. Their potential is exciting and they are currently being tested technically and for acceptance, predominantly within the developed world. Their applicability and ability to achieve scale in UK-to-Africa corridors is currently limited due to low levels of financial inclusion in Africa, ability to scale models and an undefined regulatory environment. However, they are an exciting technology worth monitoring into the future.

A developed digital payment infrastructure and acceptance network, together with a national biometric electronic identification (ID) scheme have the potential to address many of the challenges in scaling formal remittances into Africa at competitive costs.

However, both financial inclusion and digital ID schemes also have much broader applications and benefits beyond remittances and achieving these goals involves long-term strategies that require significant resourcing and commitment.

In 2014 in sub-Saharan Africa, as many as 55% of individuals did not have an official identification record.[2] Globally, it is estimated that approximately 375 million unbanked adults in developing countries (18%) are prevented from obtaining an account because they lack the necessary ID documentation.[3] A biometric electronic ID linked to digital payments addresses key challenges around KYC and financial inclusion. Examples of this include the Aadhaar scheme in India and the Nigerian Identity Management Commission (NIMC) linked with MasterCard payment functionality.

The UK-to-Africa Remittances Market

Whilst there is no official data on the volume of remittances sent from the UK to Africa, the authors conservatively estimate that flows totalled £4.1 billion in 2015.[4] Nigeria is the largest African corridor from the UK, receiving an estimated £2.4 billion in 2015, 57% of remittances from the UK. Other significant remittance corridors from the UK include Kenya, Zimbabwe and Somalia.

The UK remittances market is robust, generally competitive and fragmented. Despite several different business models available on the market, it is still heavily dominated by cash-to-cash payments, where sender and receiver visit a physical agent location to deposit or collect cash. Cash-to-cash transfers account for around 90% of all transfers from the UK to Africa. Average costs into Africa are around the global average of 9.4% of the send amount (when sending GBP120 in Q1 2017), the cost of cash-to-cash transfers averages 10.7% of the send amount compared with 7.8% for transactions initiated digitally. There are encouraging signs that where remittance transactions are digitalised, prices are reducing. Prices are, however, more competitive in markets where the volume of remittance transactions is large. For example, the total average cost for sending £120 from the UK into Nigeria, Kenya and Zimbabwe are on average less than 7% of the send amount.

[2] World Bank (2016), 'Payments Aspects of Financial Inclusion', Committee on Payments and Market Infrastructures.
[3] ID4D (2016), Identification for Development; Strategic Framework.
[4] The authors have used the World Bank's bilateral remittance data for 2015 combined with migration data and proxies for average transaction size to estimate bilateral volumes where data is missing.

Section 1
Introduction

Image:
Kristina Just © 2015

1. Introduction

Remittances are an important source of income for many people across Africa. Formal remittances to Africa are estimated at USD66 billion for 2015, three times larger than overseas development assistance (ODA) and more stable than most other forms of finance[5]. Formal flows from the UK account for roughly a tenth of Africa's remittance flows and are estimated conservatively at USD6.4 billion for 2015.[6]

Sending money home can be expensive relative to the often-low incomes of migrant workers and the rather small amounts sent (typically no more than a few hundred dollars or its equivalent at a time). Sending money to Africa is more expensive than sending to any other region globally, averaging 9.8% of the send amount in Q1 2017 (compared to the global average of 7.45%)[7].

In 2015, the UN adopted the Sustainable Development Goals (SDG). SDG 10.7c states that by 2030, the global average price for remittances should not exceed 3% of face value, with even the most expensive corridors not being more than 5%. Furthermore, the Valetta Summit of 2015 and other gatherings have encouraged quicker progress towards this goal to be made for Africa.

In light of this, this research is specifically designed to identify both the reasons why remittance prices from the UK to Africa are high, and to examine whether the appropriate application of 'new' technologies could help develop scalable solutions in order to reduce these prices. Fragile and conflict-affected states (FCAS) are of particular interest, given the importance of remittances to livelihoods and post-conflict development as well as the exacerbated challenges that are often faced in these jurisdictions.

The report begins by providing a high-level overview of the main challenges and imperfections in the UK-to-Africa remittance market, particularly those which are contributing to higher costs and affecting the scaling of formal flows. It goes on to present detailed findings from the scoping of the FinTech market, with information on the different categories of technology that can – and are – being applied to the market. This includes a detailed analysis of the relevant business models, service providers, and, most importantly, applicability to address the challenges identified. From this, the report concludes by identifying a series of recommended concepts for the applications of technology to improve the UK-to-Africa remittances market, with each concept having been tested with multiple market experts.

[5] African Union Commission, 2016.

[6] Based mainly on the World Bank's Bilateral Remittance Estimates for 2015 using Migrant Stocks, Host Country Incomes, and Origin Country Incomes. See Appendix 3 for more details.

[7] World Bank, Remittance Prices Worldwide, Q1 2017.

Section 2

Methodology

Image:
Kristina Just © 2014

2. Methodology

The research was divided into four phases:

For this study, DMA used a variety of research methods as described below.

Desk-based Research

DMA conducted a review of publicly available data and literature, including press releases, product reviews, service provider websites, news and web articles and published reports. Given innovations in technology are taking place so rapidly in this space, much of the information was gathered from commentators and journalists and subsequently verified with service providers. Data was collected, and interviews took place between May and August 2016. Appendix 1 provides a bibliography.

Primary Research

Interviews were held with a range of stakeholders including remittance service providers (RSPs), new technology providers, regulators, commentators and donors. Appendix 2 contains a list of companies and other stakeholders that were interviewed.

A sounding board of experts was created to enable the testing of concepts and to obtain feedback on key elements of the project.

Mystery shopping was undertaken to understand the provision of certain services and the pricing differential between different types of service providers.

In addition, the DMA team attended a number of industry events in 2016 to gain information, assess current developments and test certain concepts. These included:

- SWIFT Business Forum London.
- The Secure Trading Remittance Forum – Innovation in Money Transfer.
- International Money Transfer Conference EMEA, Barcelona.
- A workshop was held with Cenfri, who are experts in financial inclusion and specialise particularly in Africa. The workshop tested the process and methodology, and acted as a forum to develop new ideas.

Report Structure

Section 3 provides an overview of the UK-to-Africa remittances market, outlining business models and existing value chains. Section 4 provides a framework for identifying and assessing the main challenges that currently exist in this market, which could be contributing to higher operating and consumer costs. Section 5 both maps and details the findings from a comprehensive scoping exercise to understand the application of FinTech to this market. Based on the combined findings from Sections 3, 4 and 5, Section 6 presents seven concepts; technologies that – if scaled and applied to the remittances market – would help to reduce the cost of remittances from the UK to Africa. It also provides stakeholder feedback on each. Section 7 concludes with recommendations for donor intervention.

Section 3

The Remittance Market from the UK to Africa

Image:
Kristina Just © 2014

3. The Remittance Market from the UK to Africa

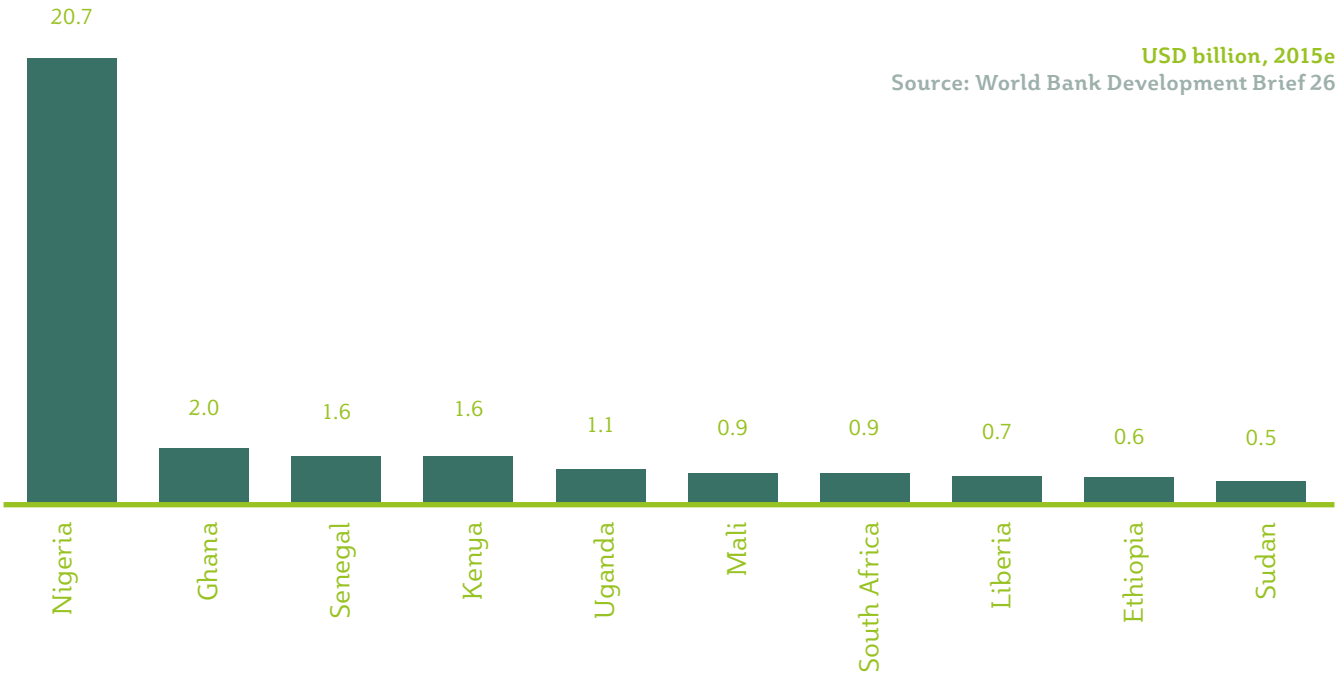
This section frames UK-to-Africa remittances within a global context, before providing a more detailed look at the UK-to-Africa remittances market and the challenges or 'pain points' that are contributing to higher prices and preventing scaling.

3.1 Remittance Markets – Global and Africa

Remittances are commonly defined as cross-border person-to-person payments of relatively low value, traditionally made by migrant workers sending money home to friends and family. Remittances make an important and growing contribution to poverty reduction, growth and welfare in developing countries. Remittance flows from developed to developing countries were estimated to be USD432 billion in 2015, over three times the size of official aid. Total global flows are estimated at USD582 billion.[8] It is estimated that approximately USD66 billion[9] flows into and within Africa as formal remittances, and some analysts argue that as much as 50% more flows in through informal channels[10].

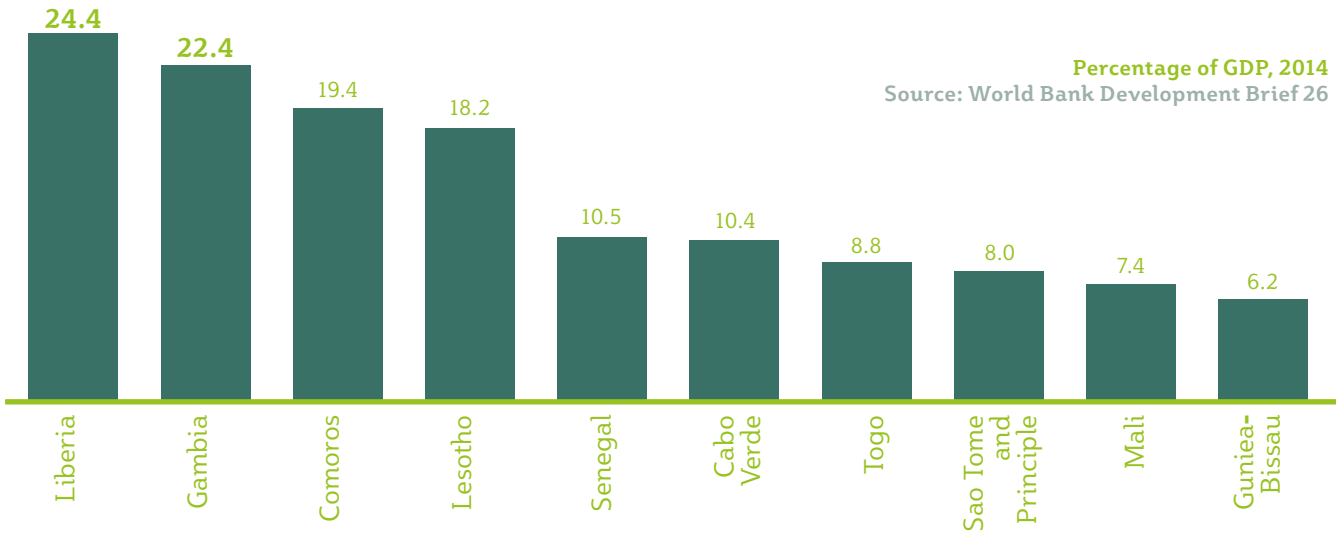
Nigeria and Egypt are the sixth and seventh largest recipients of remittances globally, receiving USD 20.8 billion and USD 20.4 billion respectively in 2015. As Figure 4 shows, Nigeria is the largest receiver of remittances in sub-Saharan Africa, accounting for nearly two-thirds of the volume to the region. This is consistent with the global data for money being transferred to sub-Saharan Africa where Nigeria accounts for $21 billion out of a total of $35 billion[11]. Ghana, Senegal, Kenya, Uganda and Ethiopia also receive large volumes. For countries such as Liberia and the Gambia, remittances account for over 20% of GDP (Figure 5).

Figure 4: Global Flows of Remittances into Africa, 2015e



[8] Source: World Bank Migration and Development Brief 26.
[9] African Union Commission, 2016.
[10] Maloumby-Baka, R. & Kingombe, C. (2016).
[11] World Bank (2016) 'Migration and Remittances Factbook 2016'. According to the UN's 2015 migrant stock data, Nigeria has the 8th largest diaspora in the UK (and the largest African diaspora in the UK), with 216 thousand Nigerians living in the UK. The real number may be significantly higher as the UN migrant stock data only includes formal migration. According to web reports, in December 2015, the Nigeria Immigration Service told the Senate Committee on Foreign Affairs that no fewer than three million Nigerians were illegally living in the United Kingdom.

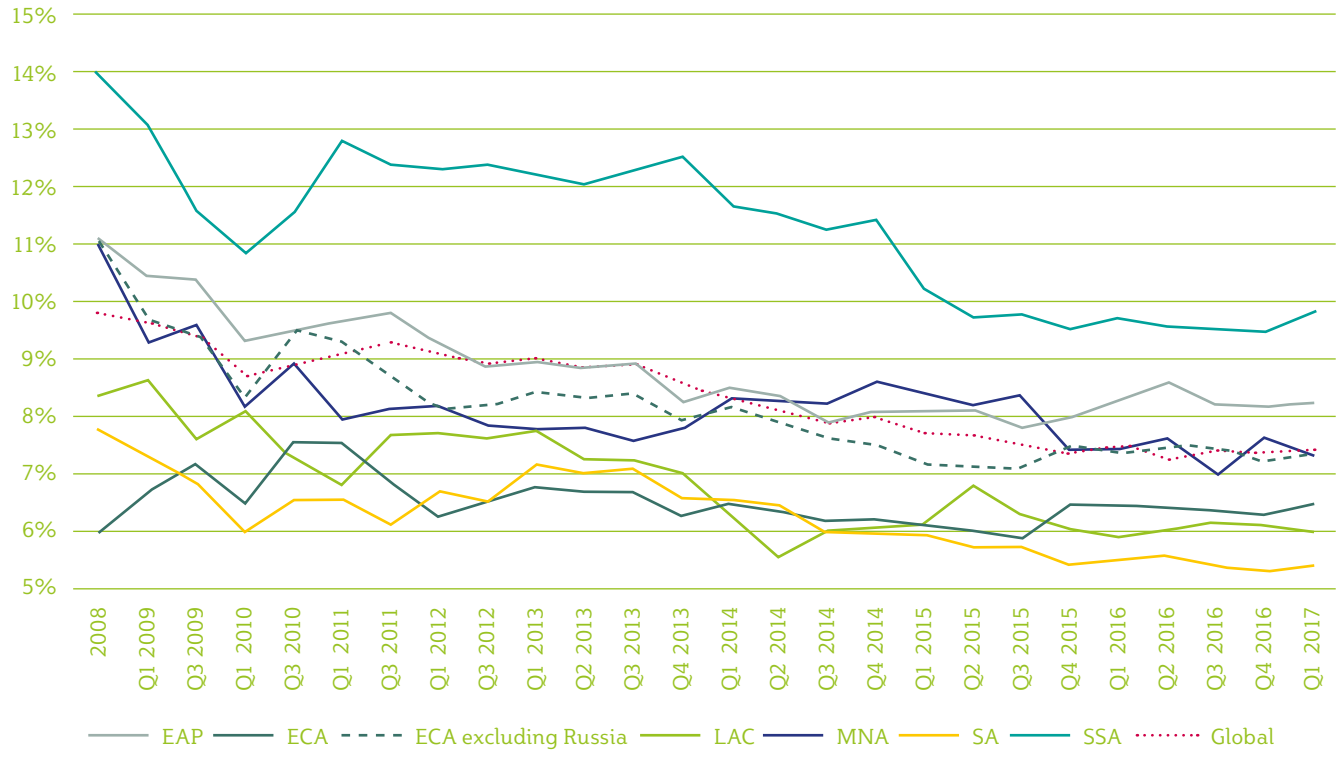
Figure 5: African Countries' Dependency on Remittances, 2014



Whilst the global average cost of sending USD200 in over 365 corridors is estimated at 7.5% of the send amount in Q1 2017, the average cost to sub-Saharan Africa is 9.8% in the same quarter (see Figure 6).

Costs vary by sending country, with intra-African transactions generally significantly more expensive, reaching 18-20% of the face value.

Figure 6: Average Cost by Region of the World, Q1 2017[12]



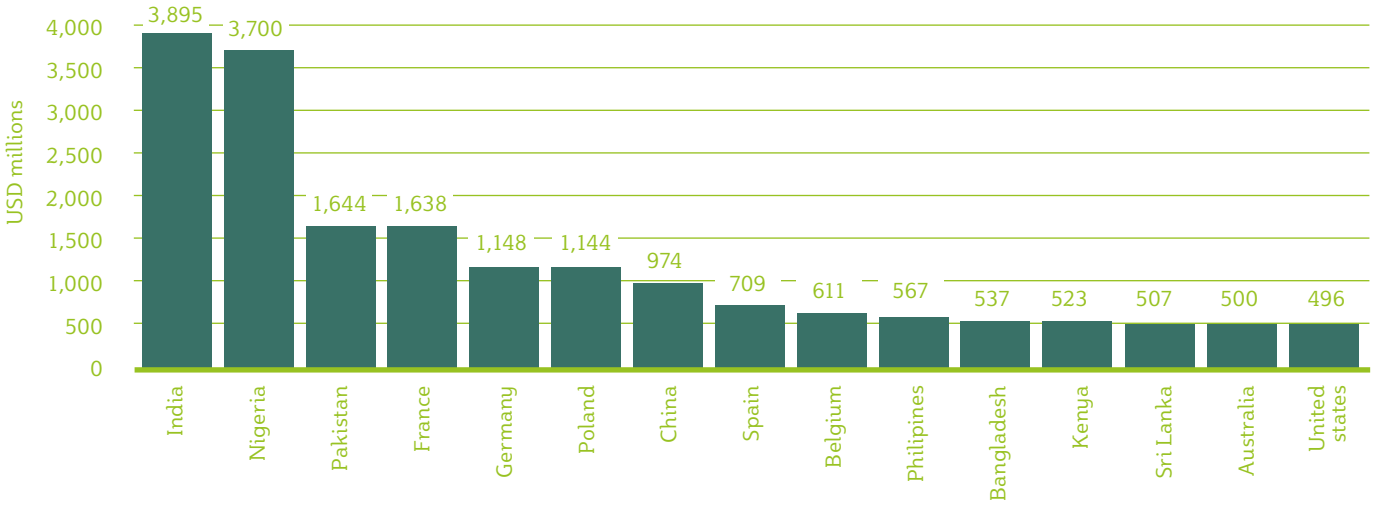
Source: World Bank, Remittance Prices Worldwide, Issue 21, March 2017

[12] SA = South Asia; LAC = Latin America and Caribbean; ECA = Europe and Central Asia; MNA = Middle East and North Africa; EAP = East Asia and Pacific; SSA = sub-Saharan Africa.

3.2 The UK-to-Africa Remittance Market

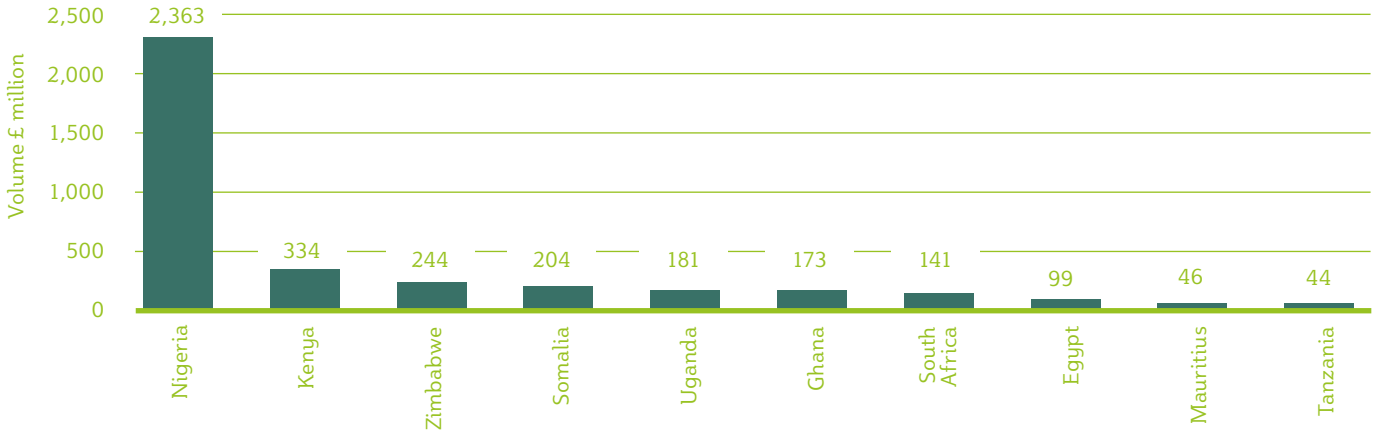
There is no official data on the volume of remittances from the UK and therefore no data on the flows to Africa. The authors conservatively estimate that USD6.5 billion (£4.1 billion[13]) was sent to Africa from the UK in 2015.[14] Nigeria is the second largest recipient of remittances from the UK and the largest in Africa, with the UK accounting for about 20% of the total funds received by Nigeria. Other significant remittance corridors from the UK to Africa include Kenya, Zimbabwe and Somalia which each receive over £300 million per annum.[15] (see Figure 8).

Figure 7: Top 15 Remittance-Receiving Corridors from the UK in 2015



Source: World Bank T4 Bilateral Remittance Data 2015

Figure 8: Volume of Remittances Sent from the UK to Africa in 2015



Source: World Bank Bilateral Remittance Data 2015 and author's own[16]

[13] Exchange rate used is from the 1st July 2015 when 1 GBP = 1.5662 USD.

[14] The estimate is based on World Bank T4 Bilateral Flow Matrix 2015 where data is available and estimates using UN migrant stocks where data is missing. See Appendix 3 for further detail.

[15] World Bank T4 data for remittances by corridor is the primary source. The T4 database includes estimates where data is unavailable and as such are not always accurate. However, it is the only comprehensive global corridor remittances dataset available. As an example of the disparities in remittance data, the official World Bank estimates for formal remittance flows from the UK to Ghana are USD272 million, but the Bank of Ghana reports remittance at over USD2 billion.

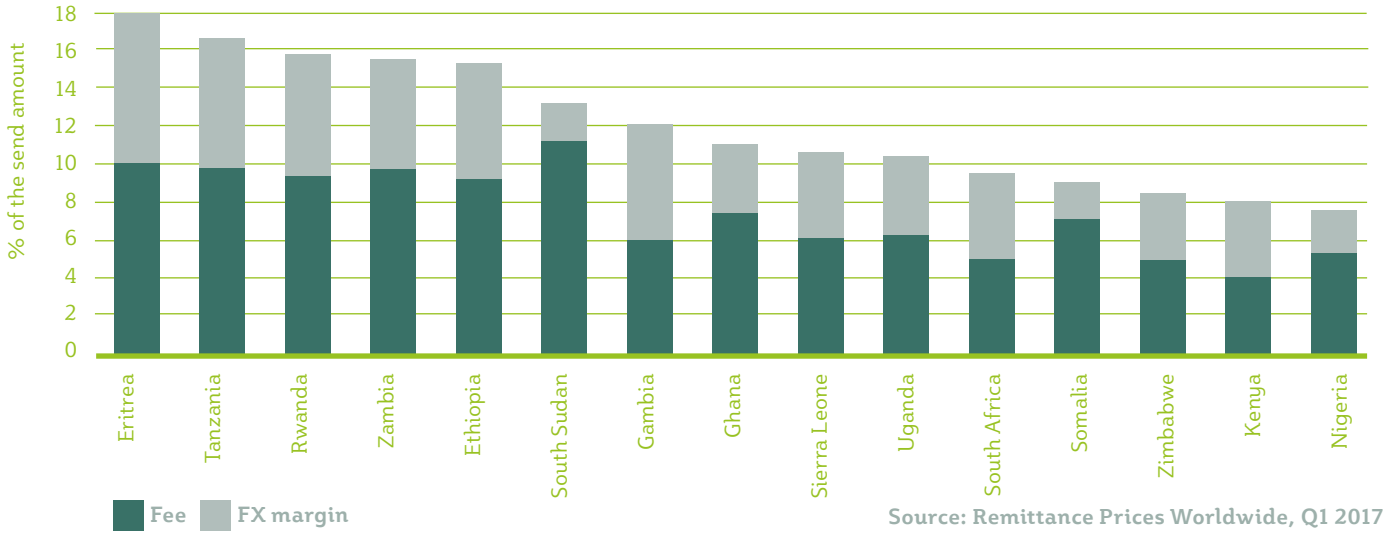
[16] These are analytical estimates based on logical assumptions and derived from a global estimation of bilateral remittance flows worldwide. They are not actual officially reported data. The caveats attached to these estimates are: (a) the data on migrants in various destination countries are incomplete; (b) the incomes of migrants abroad and the costs of living are both proxied by per capita incomes in PPP terms, which is only a rough proxy; and (c) there is no way to capture remittances flowing through informal, unrecorded channels. Remittance volumes for the UK to Zimbabwe and Somalia have been estimated as it was missing from the database, but both countries have large diaspora in the UK.

The UK is generally regarded as a competitive remittances market. The average cost of sending £120 of remittances from the UK overseas is 7.9% of the send amount, compared with a global average of 7.5% of the send amount[17]. The average cost of sending money from the UK to Africa is above average at 9.4% of the send amount. Prices are more competitive where volumes are large. The total average cost for sending £120 from the UK into Nigeria, Kenya and Zimbabwe are on average less than 7% of the send amount.

Sending money to Eritrea, Tanzania, Rwanda, Zambia, Ethiopia, South Sudan and Gambia from the UK is relatively expensive compared with the global average and other countries in Africa. All four countries are small volume corridors from the UK and as such RSPs do not compete for customers on price. The high FX margins when sending money to Rwanda and Gambia are driven by volatility in the exchange rate. In South Sudan, the high cost is driven by small volumes, few operators and poor infrastructure in the last mile.

Figure 9: Cost of Sending Money from the UK to Africa by Corridor

Average cost of sending £120 from the UK to Africa Q1 2017

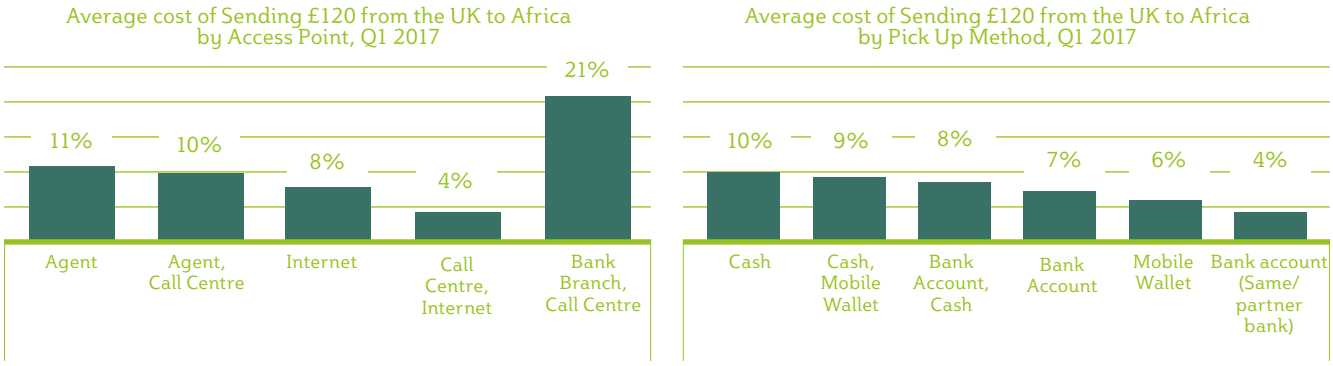


Source: Remittance Prices Worldwide, Q1 2017

For all UK-to-Africa corridors, the average cost of sending remittances is above the UN's Sustainable Development Goal (SDG) 10.7c. SDG 10.7c states that the global average cost of remittances should be no more than 3% by 2030 with no single corridor being more than 5%.

The costs of sending remittances also vary according to product. Transactions either initiated or terminated digitally are on average more competitively priced than cash-based remittance services, averaging 7.8% in Q1 2017 compared with 10.7% for cash-to-cash services (see Figure 10). There are encouraging signs that where technology is being used for remittances, prices are reducing.

Figure 10: Average Cost of Sending Money from the UK to Africa by Access Point and Pick-Up Method



[17] All remittance pricing data is based on data collected for the World Bank's Remittance Prices Worldwide database, unless otherwise stated.

3.3 Business Models and Value Chains

The UK remittances market is robust, generally competitive and fragmented. There are over 250 Authorised Payment Institutions (APIs), 800 Small PIs and 100 eMoney issuers registered. Despite a number of different business models available on the market, it is still heavily dominated by cash-to-cash payments, which account for around 90% of all transfers (see Figure 11).

Figure 11: Products and Stakeholders in the UK Remittances Market

Product	Operator	Market share (est.)	Volume remittances p.a. UK to Africa (est.)	UK stakeholders
Cash at agent-to-cash at agent	MTOs	90%	£3.7 billion	Market leader – Western Union – 17% market share globally. MoneyGram (MG) and UAE Exchange globally 4%. 91% of WU business is cash-to-cash. Other global players incl. Ria, Sigue MT, SmallWorld. Africa/Corridor Specialists incl. UnityLink, Dahabshill, Iftin and Express.
Transactions initiated online via bank transfer/debit card	MTOs	10%	£410 million	Western Union and MoneyGram conduct 40% of online transfers. 9% of WU revenue is generated from digital channels. TransferWise and WorldRemit (specialised online service only) have raised large investments. WorldRemit valued USD 500 million conducted 400,000 digital transactions in Dec 2015.
Terminating into an mWallet	MTOs	1-2%	£40-80 million	MoneyGram, Skrill (eMoney issuer), WorldRemit. A number of MTOs offer an app to facilitate instruction through the mobile. However, no MNOs in the UK are currently offering mobile wallet-to-mobile wallet remittance service. Mobile makes up <1% of WU revenue.
Bank account-to-bank account	Banks/ MTOs	2%	£80 million	Ghana International Bank – specialised service to Ghana. MTOs, such as WU and MG, also offer A2A. UK high street banks' costs are often non-transparent and expensive.

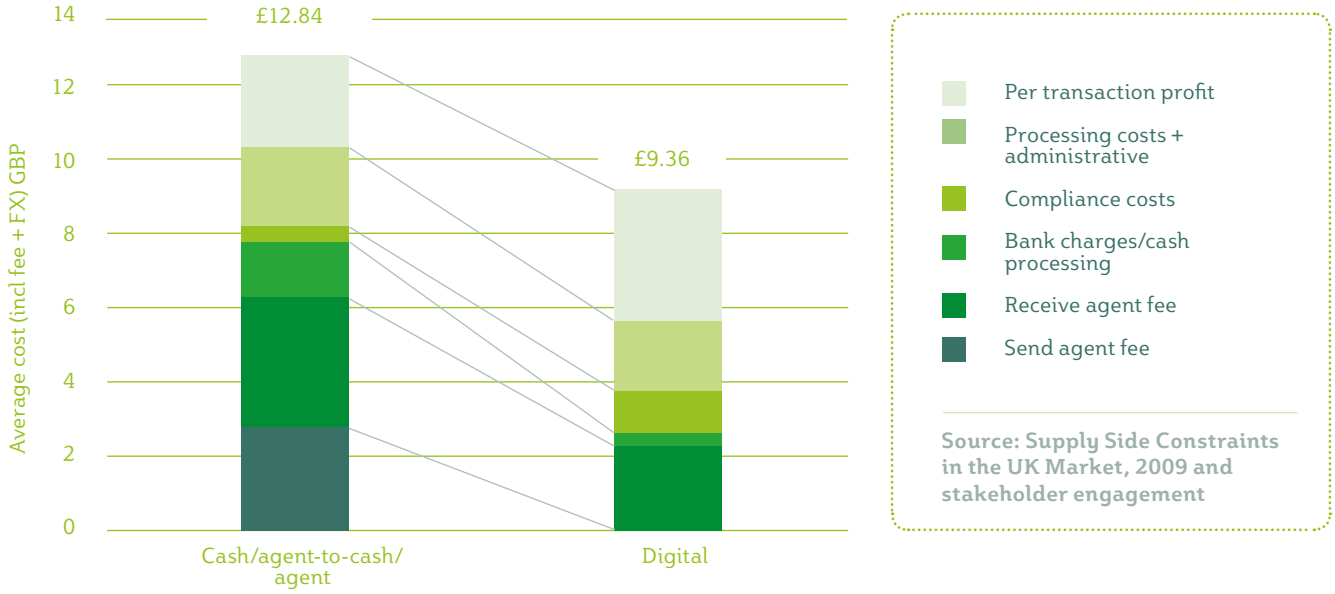
3.3.1 Operational Costs

The dependence on agents in the cash-to-cash model has a significant impact on the service provider's operational costs. Figure 12 shows the average cost (fee + FX margin) for sending money from the UK to Africa according to product (£12.84 for sending £120 using cash-to-cash versus an average of £9.36 for sending £120 using a digital channel for initiating the transaction[18]). The total revenue earned from each transaction is further broken down by indicative operating costs and profit for each business model[19].

[18] Based on the weighted average (according to number of services surveyed) of online, bank transfer and card payment from Remittance Prices Worldwide data for UK to Africa, Q1 2017.
[19] Operating costs are based on DFID (2009) Supply Side Constraints in the UK Market and updated through stakeholder engagement.

Figure 12: Indicative Cost Breakdown of Different Remittance Products

Average Revenue Breakdown of Sending £120 from the UK to Africa, Q1 2017



What this shows are the significant sums taken by both the send and receive agents in the cash/agent to cash/agent value chains (often 25% of the revenue at each end) and the more streamlined cost structure of digital solutions. In this scenario, the digital solution still assumes an agent is being used for cashing out the remittance in the last mile. Operating with agents is the single most expensive cost in the traditional remittance business model.

Extrapolating this to the UK to Africa remittance market highlights the scale of fees earned by agents. If we estimate that formal flows from the UK to Africa are £4.1 billion, and 90% of funds are sent using a cash-to-cash service, where the average cost is 10.7% for using these services, then it follows that on average £400 million is collected per annum in revenue (fees + FX margin) by service providers offering cash-to-cash services in the UK to Africa corridors. Of this, an estimated £200 million is earned by agents in the send and receive countries (see Figure 13). Removing the dependency on agents in the remittances value chain, in both the send and receive markets, is thus a clear way to reduce transaction costs.

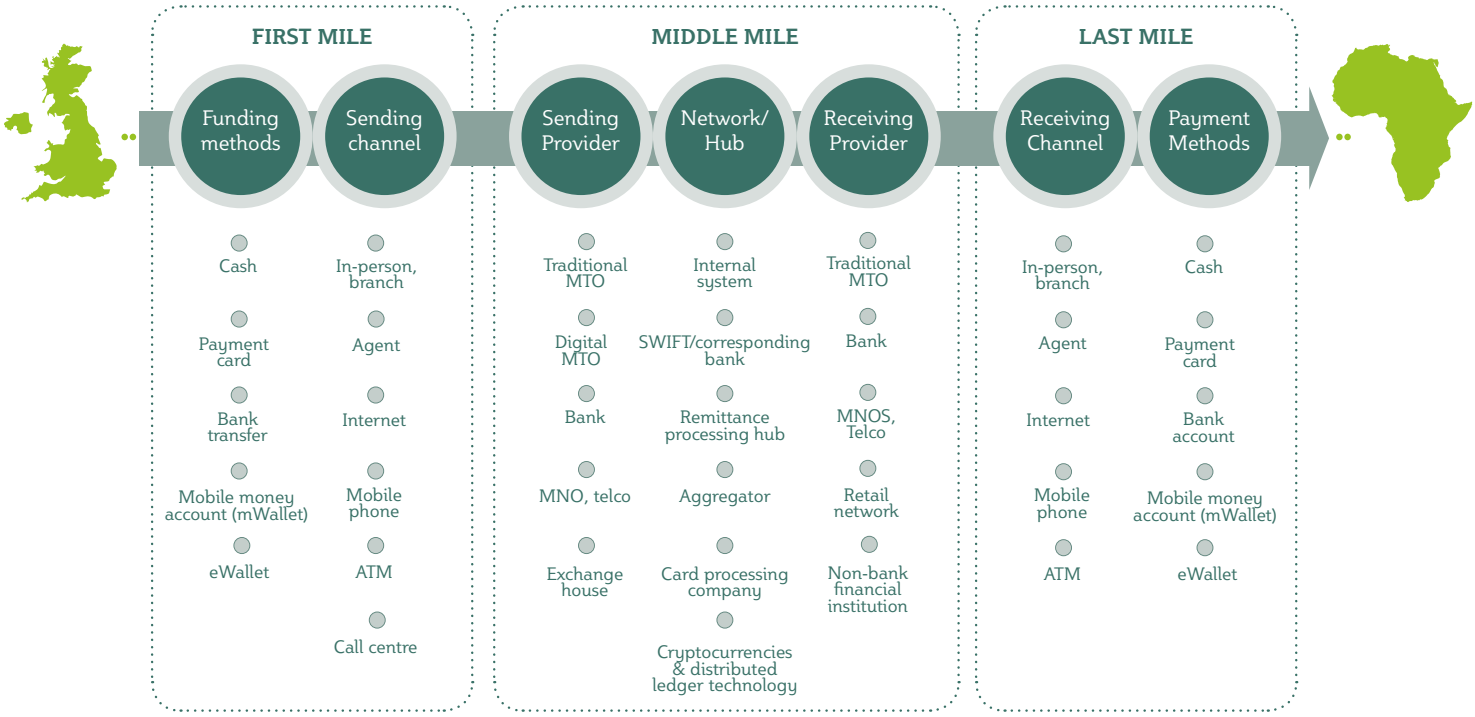
Figure 13: Breakdown of Costs for Different Business Models According to Estimated Volumes of Remittances from UK to Africa

Revenue generated (from fees and FX margin) by remittance service providers in the UK to Africa corridors per annum with indicative operator costs and profit per transaction

3.3.2 Value chains

The remittance value chain is relatively complex but to simplify it, it can be divided into three sections: first, middle and last mile.

Figure 14: The Remittances Value Chain by Mile[20]



First mile: where the sender makes the payment instruction and pays for the transaction. As Figure 14 shows, there are a range of funding methods and channels in which this can take place. Historically this element has been undertaken at a physical location and payment has been made in cash. This is changing with online methods (whether using a computer or mobile phone) becoming more common. For these digital options, customers in the UK are normally paying using a debit card or via a bank transfer.

Middle mile: where the information is exchanged between the first mile and the last mile. The process is handled by the remittance service provider (RSP) (including money transfer operators (MTO), banks, mobile network operators (MNO) etc.) and covers all of the technical elements required to make the transaction work (commonly known as back office functionality). Functions performed include: transmission of payment instructions; exchange of value into pay-out currency; settlement of pay-out funds; anti-money laundering (AML) and counter-terrorist financing (CTF) checks; and reconciliations.

Last mile: where the receiving customer obtains the funds sent to them. This is still mainly at a physical location and collected in cash from a paying-out agent. However, increasingly, and especially in Africa, payments are being made to a mobile wallet, which removes the direct need for a paying-out agent. Other options, such as a credit card to a bank account or potentially a prepaid card, are also possible.

See Appendix 4 for the different business model value chains and other stakeholders also involved in the remittances value chain.

[20] Amended from MasterCard value chain diagram.

Box 1: Fragile and Conflict-Affected States (FCAS)

Remittances from the UK to FCAS in Africa are estimated at £640 million[21] in 2015. However, the true magnitude of these flows is believed to be significantly greater as considerable sums are sent through informal channels and therefore go unreported.

Whilst there is no universal definition of an FCAS, the World Bank does produce a 'Harmonised list of Fragile Situations', which is based on the Country Policy and Institutional Assessment (CPIA) and the UN peacekeeping/peacebuilding missions in the last three years. Consequently, there are 15 African countries on the current list. These are: Burundi, Central African Republic, Comoros, Democratic Republic of Congo, Côte d'Ivoire, Eritrea, Guinea-Bissau, Liberia, Libya, Madagascar, Mali, Sierra Leone, Somalia, South Sudan and Zimbabwe.

Data collection is a particular problem in many of these countries, which clearly undermines the development of policies and interventions. Globally, the availability of remittances data is sketchy and such data for FCAS is even more problematic.

Whilst remittances are a major source of development finance for FCAS (see Figure 15 and 16), when it comes to receiving money, recipients tend to face additional challenges compared with other African countries. Whilst circumstances vary between countries, there are sufficient similarities for consideration to be given as to whether there are specific technology-driven solutions that can be used to aid FCAS in their recovery.

Fragile states are generally characterised by poor infrastructure, in terms of roads and electricity, and restricted availability of technology for either mobile or internet usage. They typically have weak financial systems, where banks are not connected to international financial markets, have poor capacity and internal controls and limited AML/CFT procedures. Weak financial infrastructure can result in cash reticulation challenges and an absence of cashing-out networks, especially in remote areas. During times of crisis, banks can leave areas entirely, automated teller machines (ATMs) are often left empty and currencies can collapse through inflation and depreciation of the currency.

FCAS also present some major challenges for money transfers, including a higher risk of terrorist financing or funding conflicts, a higher risk of money laundering, and having many displaced people who have their own requirements in terms of accessing funds or receiving remittances, especially around identification. In the absence of a well-functioning formal financial system there is increased reliance on informal mechanisms. This, in turn, often leads international banks to de-risk the situation by closing correspondent bank accounts, which then forces more payments into informal payment methods. Thus an ever-decreasing circle leading to more informality is perpetuated.

However, given remittances are often vitally important for these countries, and the diaspora is a key resource as remittances are frequently a main flow of funds into the country, remittance senders and receivers are highly resourceful. They invariably find a means to send/receive money through informal channels where no official method exists. For example, there has been a large volume of work conducted in the case of Somalia where Oxfam estimates (2015) that $1.3bn[22] is received per annum – which could be up to 50% of GDP. Despite many challenges, remittances are often a lifeline for communities in FCAS. Appendix 5 provides a spotlight on remittances into Somalia and the work-around solutions.

[21] Estimates are generated using the methodology outlined in IFAD's (2009) Estimating Global Remittance Flows with UN migrant stock data for 2015 in the UK as there is very little data available on remittance flows into these countries.
[22] Oxfam (2013) Aid agencies call on Barclays to scrap plans to cut Somali financial lifeline.

Dependency on Remittances in FCAS

Remittance flows are a vital source of income for fragile lesser developed countries (see Figure 15). Figure 16 shows remittances sent through formal channels as a proportion of national income for FCAS in Africa. For many of these countries, their real dependency on remittances is significantly larger due to the sums of money brought in informally. Unfortunately there is little or no reliable data available on informal flows, making FCAS's true dependency difficult to quantify.

Figure 15: Remittance Flows Dominate in Fragile Lesser Developed Countries, 2011

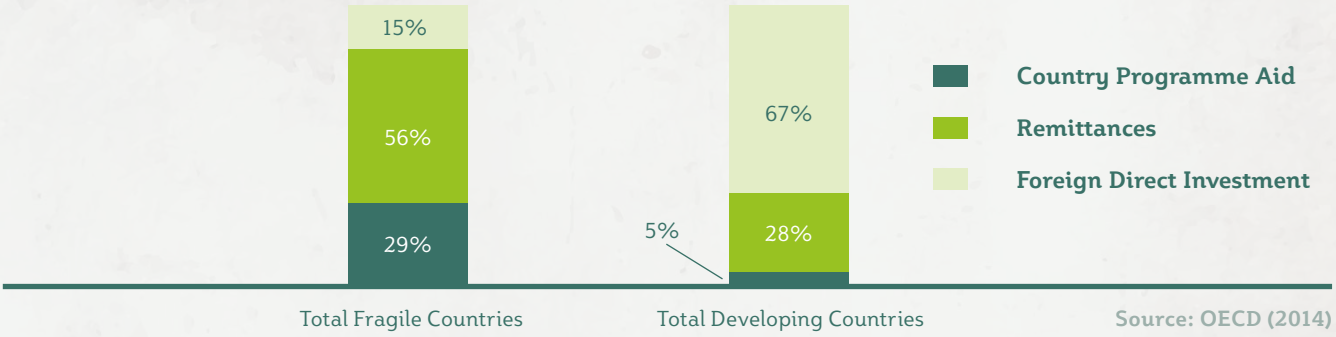
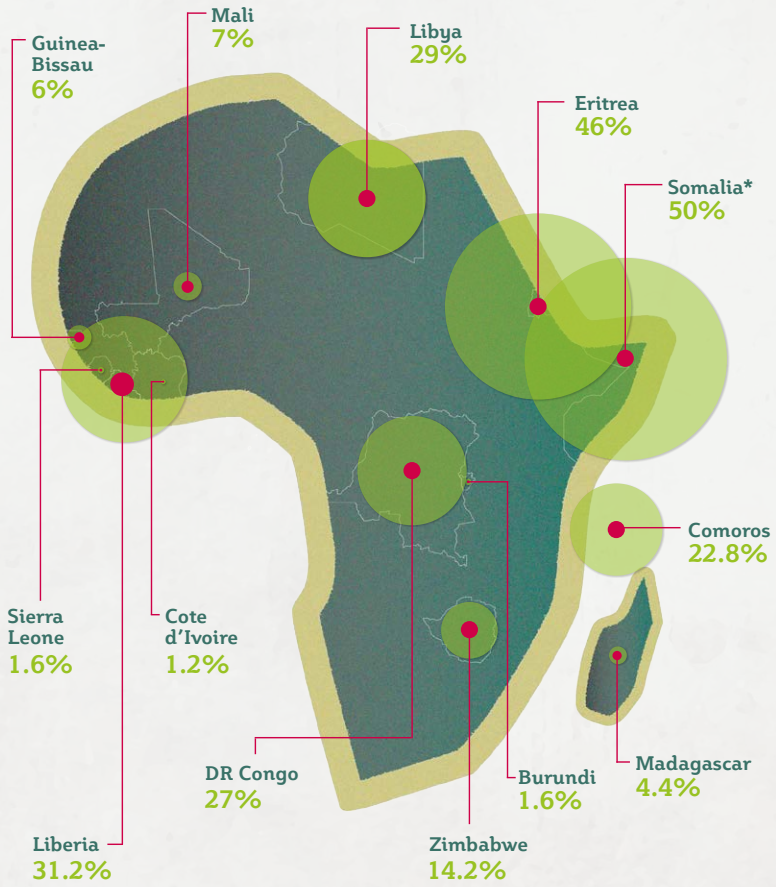


Figure 16: Formal Remittances Received as a % of GDP (2015)



*Due to the local regulatory environment there are no formal remittances

Section 4

Key Pain Points in the UK-to-Africa Remittance Corridors

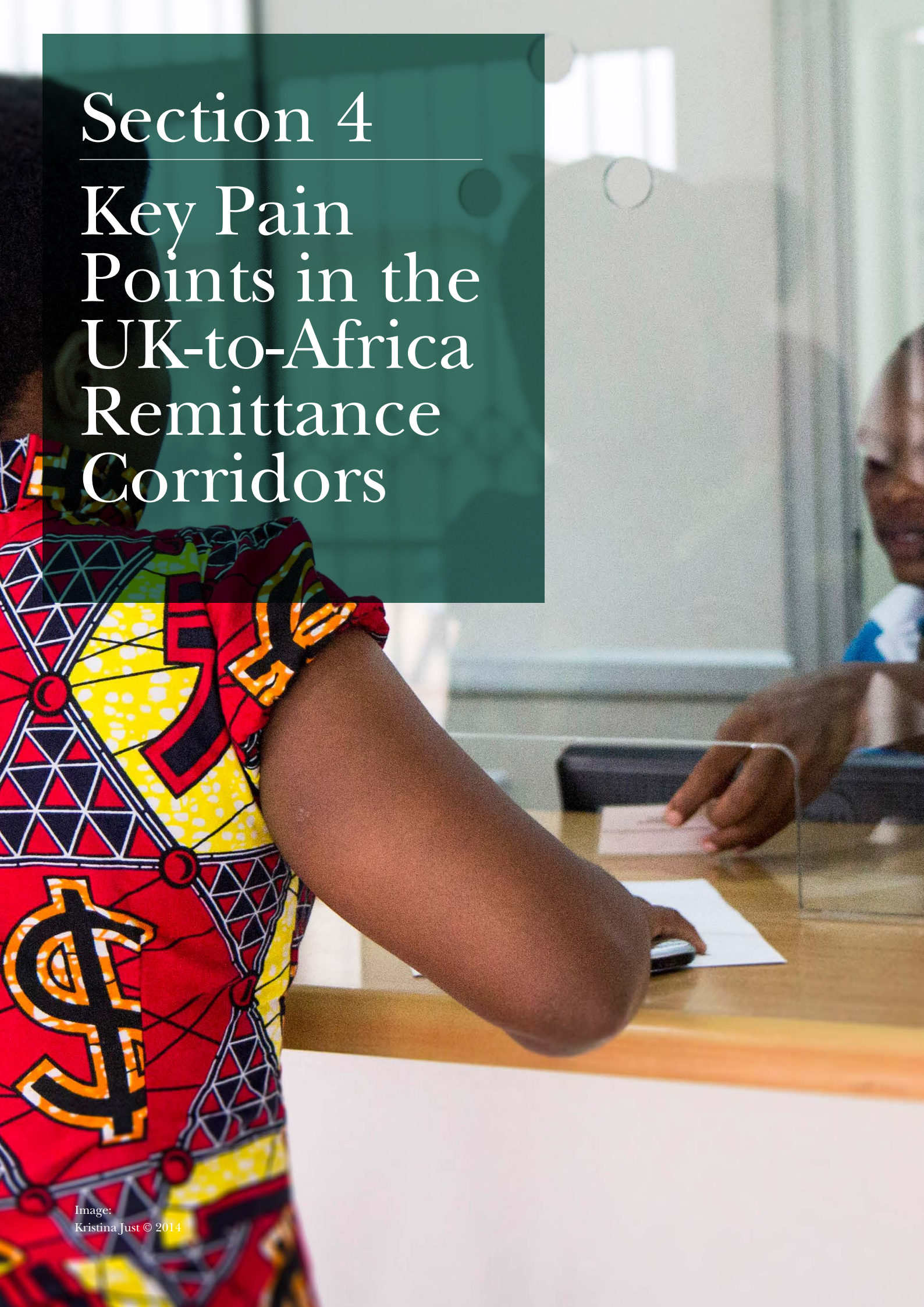


Image:
Kristina Just © 2014

4. Key Pain Points in UK-to-Africa Remittances Corridors

Consultation with industry operators and stakeholders has been the basis for identifying 'pain points' that are affecting the UK-to-Africa remittances market.

For the purposes of this report, 'pain points' are defined as factors that are:

1. contributing to costs and that, if addressed, would result in a more streamlined cost structure to the operator. The assumption is that any saving can be passed onto the consumer in the form of reduced prices.

2. restricting the scaling of formal remittances into Africa, especially into FCAS (see Box 1).

Sections 4.1 to 4.3 identify the challenges at each mile for sending remittances from the UK into Africa. For each challenge, the relevant stakeholder affected by the specific 'pain point' is identified and an indication as to the relative impact on both (a) remittance costs and (b) Scaling of formal remittance flows is offered. Appendix 6 provides an explanation for each of the assigned scores. As an indicative key:

High		Costs	If addressed will directly reduce the cost structure of service providers by more than 10% of the fee + FX
		Scalability	Directly affects the viability of business or flows and/or significantly affects the scaling of formal remittances
Medium		Costs	If addressed will directly reduce the cost structure, but by less than 10% of the fee + FX and/or have a significant indirect impact on costs
		Scalability	Moderately affects – does not affect the viability of business or flows, but impacts the potential to scale services/flows
Low		Costs	The direct impact on costs is marginal and the indirect impact is not guaranteed to reduce costs or is outside of the scope of this project because it cannot be addressed by technology
		Scalability	Little or no effect on the scaling of formal remittance flows

4.1 First Mile Challenges

For the first mile, the main challenge is to try to remove the need for agents at all. In addition, solutions that help businesses/agents move away from cash and towards card payments are important.

1 Challenge: Stickiness of cash				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
2 Challenge: Revenue share with send agents				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
3 Challenge: Cash handling fees and costs and services				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
4 Challenge: Consumer awareness and trust in online financial services				Perspective: RSP/consumer			
Cost	Low		High	**Scale**	Low		High
5 Challenge: Managing and training agents				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
6 Challenge: Financial literacy and inclusion				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
7 Challenge: Computer literacy and access to internet				Perspective: RSP/consumer			
Cost	Low		High	**Scale**	Low		High
8 Challenge: Non-transparent, not easily comparable pricing				Perspective: Consumer			
Cost	Low		High	**Scale**	Low		High

4.2 Middle Mile Challenges

The middle mile deals with the back-offlce functions that are required to make the transactions happen. Of critical importance in this section of the value chain is for MTOs to have access to bank accounts (in order to avoid de-risking) and to create interoperability to ensure faster scaling of services.

1 Challenge: Access to UK bank accounts for MTOs				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
2 Challenge: Correspondent banking model				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
3 Challenge: KYC/AML and regulatory approaches different in each jurisdiction				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
4 Challenge: Interoperability				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
5 Challenge: Fixed exchange controls				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High
6 Challenge: Systems				Perspective: RSP			
Cost	Low		High	**Scale**	Low		High

4.3 Last Mile Challenges

The last mile, representing where the money is collected or delivered in Africa, provides many of the most significant challenges in the remittances market place. Key issues include: the use of agents from both a cost and an availability of cash viewpoint; the availability of digital infrastructure in the country; financial inclusion; KYC/customer verification; and, a regulatory environment that often does not allow non-banks to be able to offer remittance services. Box 2 provides details on the regulation of remittances in Africa.

A further key consideration in the last mile is the 'real' cost of remittances – looking at not only the fee and FX margin, but also factoring in travel costs and the time taken, in terms of opportunity cost, to collect the funds for recipients.

1 Challenge:	Inability to verify KYC and conduct comprehensive customer due diligence			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
2 Challenge:	Access to pay-out locations (esp. rural)			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
3 Challenge:	Liquidity of agents (esp. mobile money)			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
4 Challenge:	Lack of financial inclusion and literacy			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
5 Challenge:	Limited knowledge and trust in mobile money and other new payment mechanisms			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
6 Challenge:	Non-bank FIs are often not allowed to handle remittances and foreign transfers			Perspective:	RSP/Consumer		
Cost	Low		High	**Scale**	Low		High
7. Challenge:	Revenue sharing with receive agents			Perspective:	RSP		
Cost	Low		High	**Scale**	Low		High

Box 2: Regulation in Remittances from the UK to Africa

The influence of regulation on remittances is critical at all stages of the transaction process. It is vitally important to understand the impact of remittances in the first mile, the middle mile and the last mile. Regulation varies by country and, despite overall guiding principles and some standardised approaches, the challenge for many operators is to understand and comply with regulations that pertain to each country involved in the transaction.

Regulation of remittances tends to focus on: licensing requirements of those allowed to offer money transfers; AML/CFT; consumer protection, including transparency and complaints handling; exchange controls, which are especially important in African countries where many countries still maintain some form of exchange control which often results in a parallel (black) market for exchange rates; and, the operating environment in receive markets, which can include the types of businesses that can pay out transactions, the removal of exclusivity clauses, etc.

In the UK, HM Treasury is responsible for oversight of the regulatory environment. Its role is multi-dimensional and covers the licensing of a business under either the Payments Services Directive or the Electronic Money Directive, which are both managed by the Financial Conduct Authority (FCA), as well as AML/CFT for which the supervisor is Her Majesty's Revenue and Customs. The application process is straightforward and the FCA pays particular attention to a range of areas, including the processes used to transfer the value, the business model, financial efflcacy and governance. The regulatory environment in the UK is relatively clear and straightforward to navigate and is considered proportionate by most stakeholders.

In the Africa context, although there are some similarities, there are also significant variations between different countries in their national-level regulations, which makes it challenging for many operators to operate efflciently in multiple countries. In many cases, local regulations are also not conducive to innovation.

Areas of particular concern include: the restriction of approved pay-out operators to pay out to banks and their agents – retail agents are often not allowed to offer remittance pay-outs at all; the AML/CFT regulations and especially KYC rules, particularly for people who do not have any formal identification (ID) documents; restrictions on the types of businesses that offer domestic or cross-border mobile payments; an absence of consumer protection legislation; and, finally, regulations that prohibit or restrict the sending of remittances from many African countries.

On a positive note, there are a number of encouraging examples of enabling regulations being introduced, such as in Kenya, Tanzania and Zimbabwe.

4.4 Summary of Challenges

There are a number of challenges at all stages of the value chain for both RSPs and consumers. Cross-border remittances are are complex, being multi-dimensional, multi-jurisdictional and involving multiple stakeholders.

Digitising the remittances value chain to facilitate straight-through processing would address many of the existing challenges in the market, by removing send and receive agents from the business model, and creating a digital audit trail to address challenges from de-risking. However, there are significant barriers to achieving this. The main challenges in the UK (first mile) stem from the consumer preference for cash. However, the majority of the pain points are in the last mile, where the viability of more competitive business models is compromised due to the operating environment, and access to remittances for the consumer is limited or inconvenient.

Section 5

FinTech and Cross-Border Payments

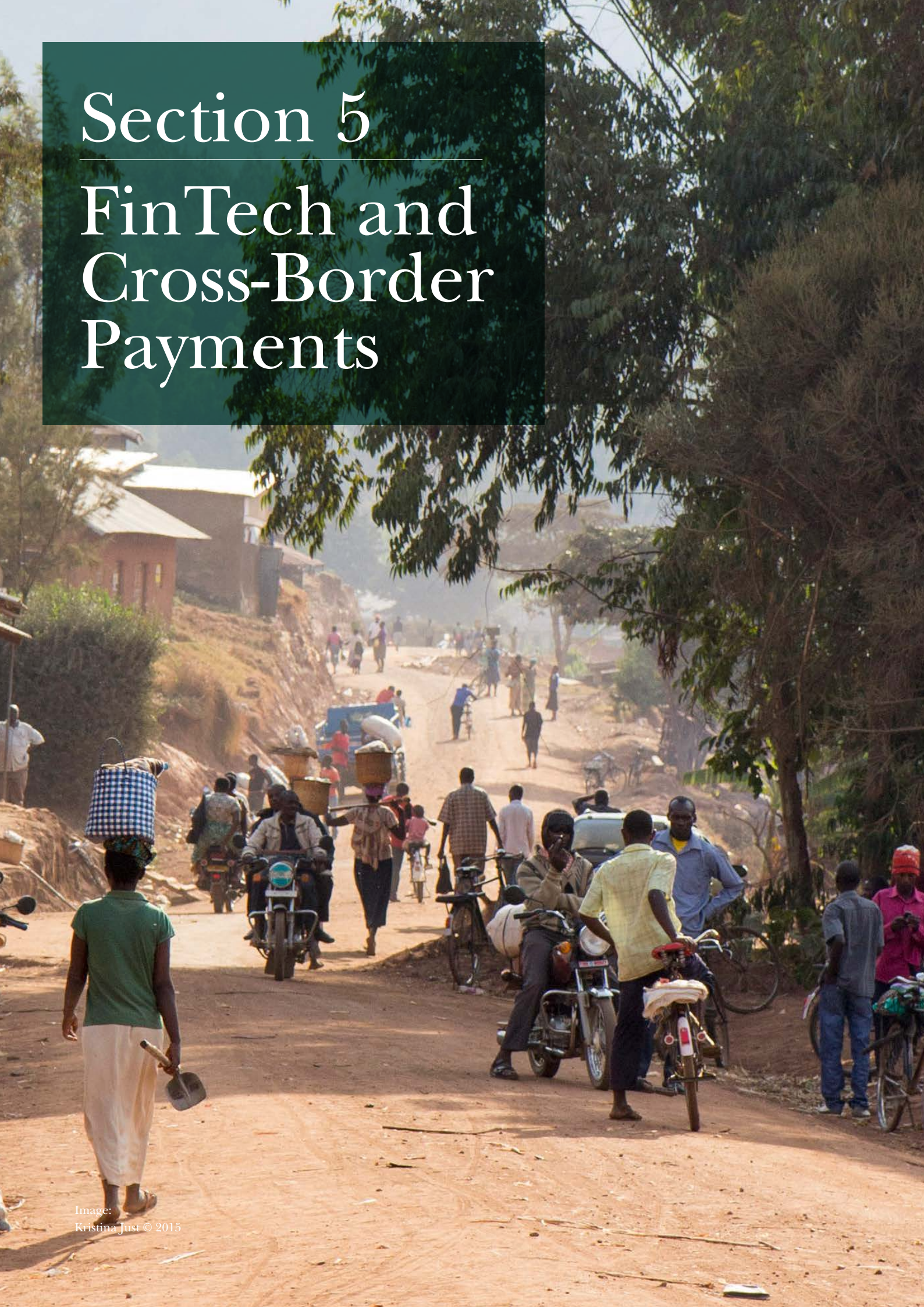


Image:
Kristina Just © 2015

5. FinTech and Cross-Border Payments

Over the past two decades, there has been a digital revolution with pioneering developments in the form of the internet, email and mobile phones transforming the way information is accessed and communication takes place.

For many market analysts, cross-border payments are the next frontier, where new technologies will challenge the expensive, clunky business models that currently prevail. Mobile phone technology, mobile money, digital currencies, distributed ledgers, electronic identification and cloud technology together have the capacity for the first time to technically make cross-border payments negligible in cost, instant, auditable and accessible to everyone at their fingertips.

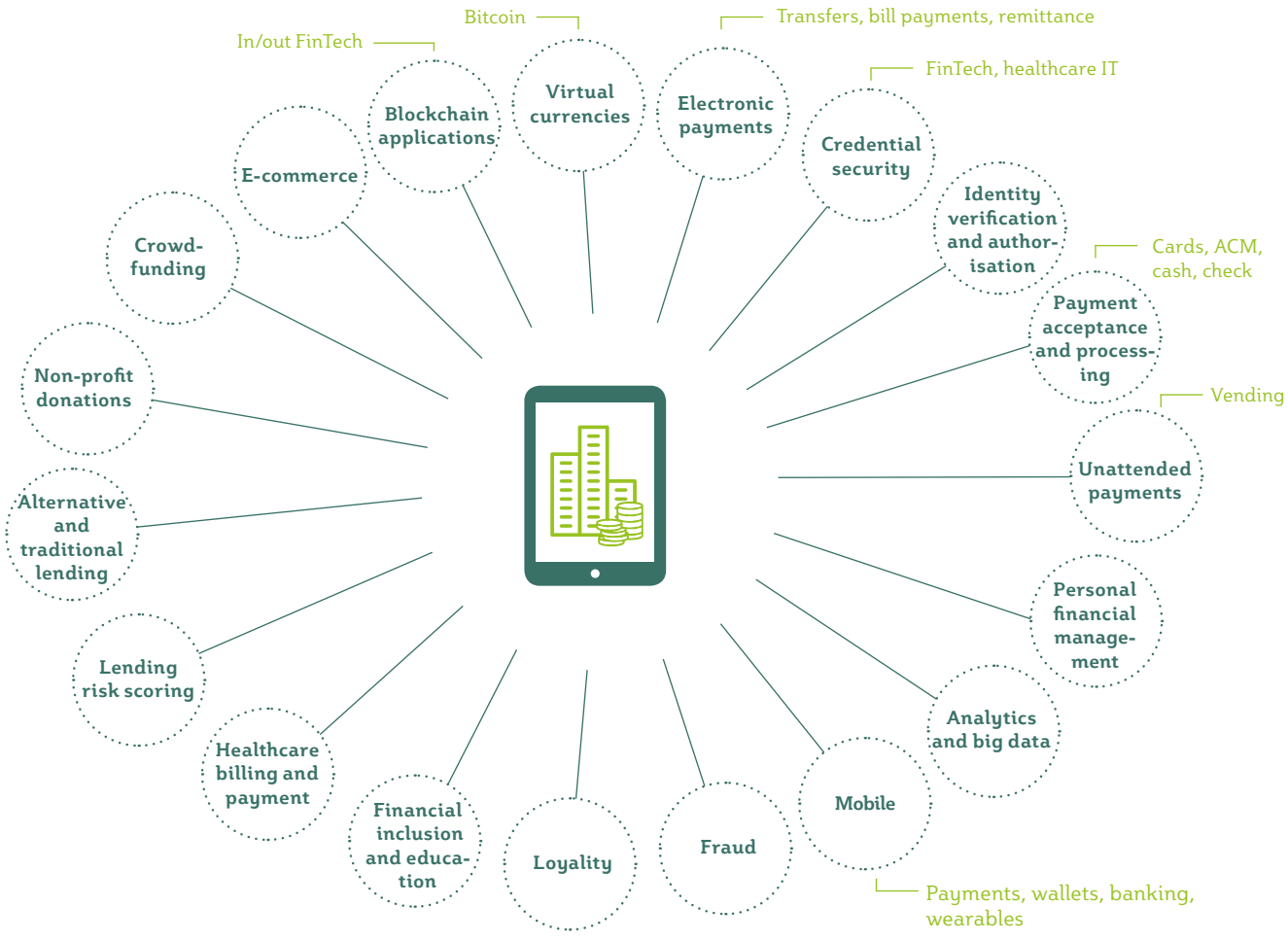
For the UK-to-Africa remittance corridors, which remain predominantly cash-based, to what extent these technological advancements will benefit the market, and when, will depend on the capacity and readiness of the end user to adopt them and market participants, including regulators, to create an environment that is enabling.

5.1 Structure of FinTech Currently

FinTech in the UK is geared towards payments, and whilst there are new areas being explored in insurance and credit, disrupting traditional payment value chains remains the focal point of the industry.

The visual below (Figure 17) outlines the areas that new 'FinTechs' are disrupting and disintermediating in the traditional banking model.

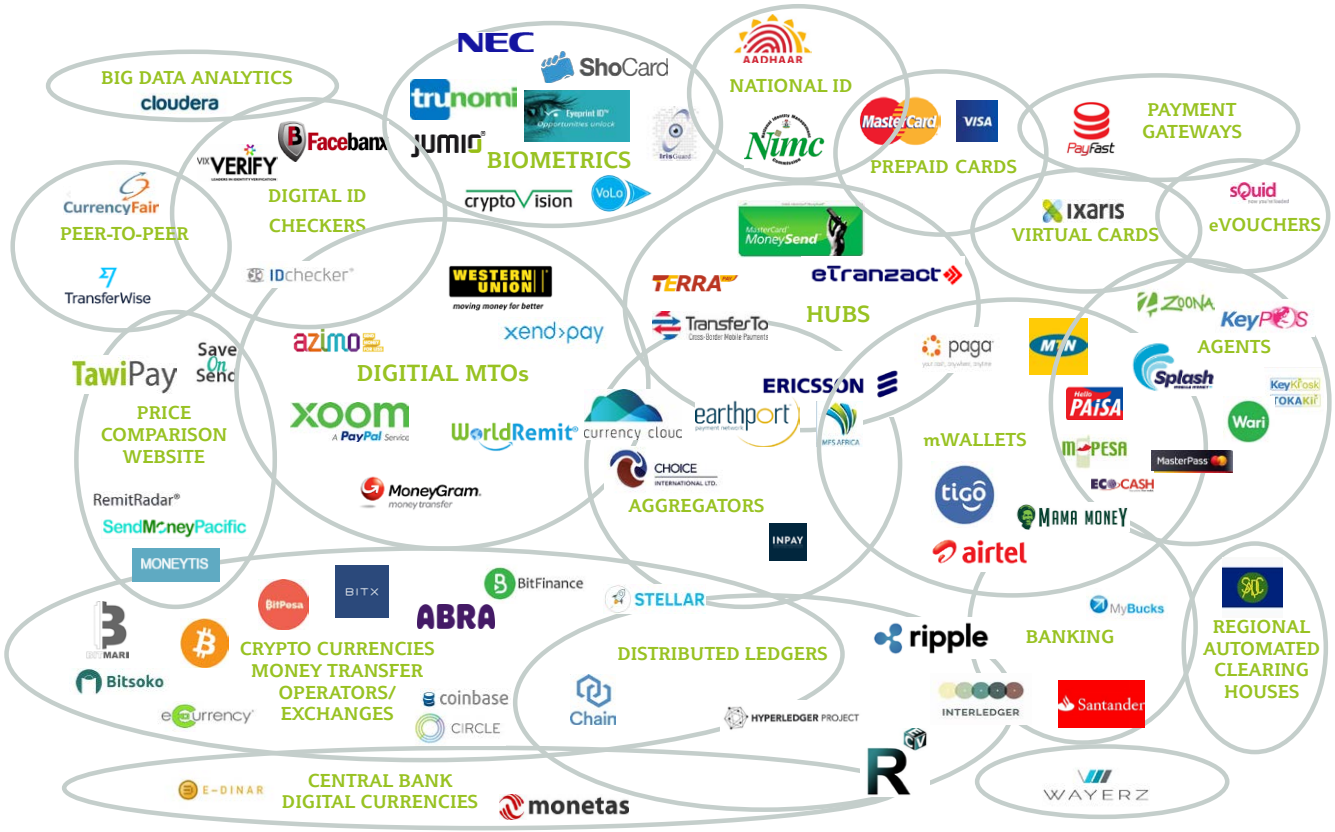
Figure 17: Areas of FinTech Disintermediating the Traditional Banking Model



Source: WorldPay image

For this study, technology providers were consulted to better understand the technology; the benefits and successes; the costs, challenges and prerequisites; and the applicability and potential for the remittances market. Figure 18 provides an overview, mapping the categories of technologies surveyed and detailing some of the service providers in each.

Figure 18: Map of the Range of Technologies Surveyed in relation to the Remittances Value Chain



Source: Authors' own

As depicted, there are a broad range of technology solutions that can be applied to different sections of the chain. Notably, there is also significant overlap between many of the categories as providers themselves offer multiple solutions and make use of a range of technologies to provide a more complete technology-driven solution.

5.2 FinTech in Remittances to Africa

This section provides further detail on the main technologies of potential interest for the UK-to-Africa remittances market, broadly aligned with the categories depicted in Figure 18. For each technology category, service providers have been identified, the pain point(s) that the technology could/does address have been considered, and the potential impact the technology could have in reducing the cost of sending money from UK to Africa and scaling formal flows has been assessed.

Each category has been assigned a high-level indicator with respect to the priority of the pain points addressed (see Section 4 for key) and the authors' assessment with regards to the current potential impact for the UK-to-Africa remittances market.

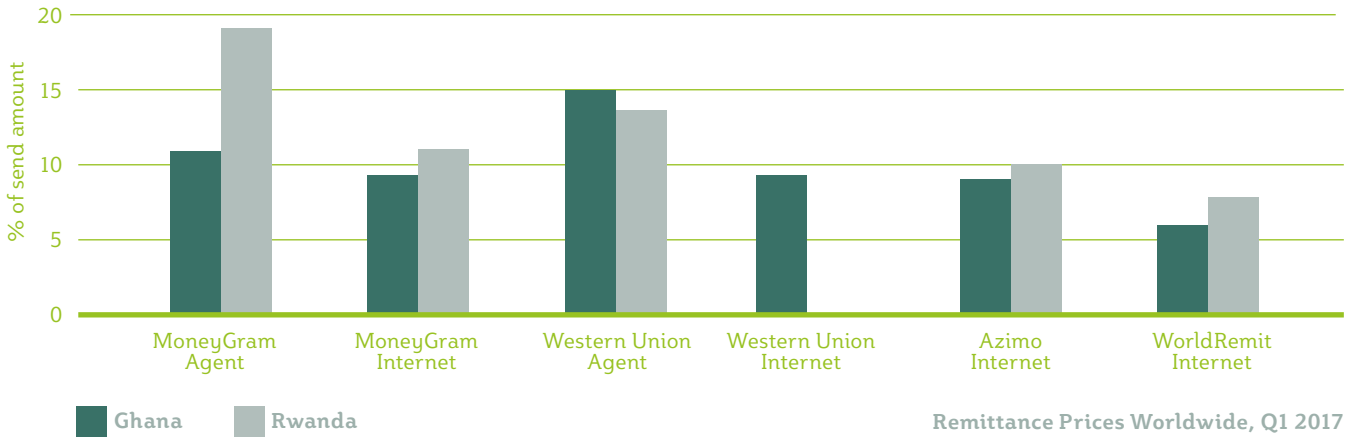
Appendix 8 provides a summary table of the contents of the following section, outlining the technology and the appropriateness for reducing costs in the UK-to-Africa remittances market.

5.2.1 Digital MTOs

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

The last decade has seen the emergence of a new classification of RSP – the 'digital/online' MTO – where the money transfer is initiated by the sender online. Depending on the provider, corridor and receive country infrastructure, pay-out of the remittance is available into a bank account, mobile wallet or in cash via an agent. Examples of such providers in the UK are WorldRemit, Azimo and XendPay. The traditional MTOs such as Western Union and MoneyGram also offer such digital services. Given their streamlined business model, digital MTOs are able to provide more competitively priced services, thus driving down costs in the UK (see graph) and should, from assessing their business model, further have the capacity to lower prices as remittance volumes scale. In the UK-to-Africa remittances market, the send-agents take approximately £100 million per annum.

Figure 19: Average Cost of Sending £120 to Africa; Digital Versus Cash-to-Cash, Q1 2017



Pain Point Addressed:
Digital MTOs address pain points in the first and middle mile by:

1. removing the need for a send agent in the UK, who take on average 25% fee + FX margin

2. removing the bank fees for cash deposits

3. removing the KYC risks associated with cash, as transactions are initiated via bank transfer thus creating a digital audit trail of the flow of funds (demonstrated by the fact that digital MTOs operating in the UK have not been subject to de-risking by UK banks, and are unlikely to be. They have maintained accounts).

Challenges:
Despite high levels of financial inclusion, financial literacy, access to the internet and computer literacy among UK-based migrants, the market share of digital MTOs is still low (less than 5% in the UK-to-Africa market[23]) and there is a real stickiness to cash (see Box 3[24]).

[23] Whilst companies are experiencing growth in annual volumes, for example WorldRemit achieved 80% year-on-year growth in remittance volumes in 2015, market share is only growing incrementally due to the increase in year-on-year remittance volumes (Money Transfer Startups: Race Against Time?, Saveonsend.com, Oct 2016).
[24] Survey results are taken from World Bank (2015), Greenback 2.0.

Conclusion:
The adoption and use of digital RSPs by UK senders will be key to reducing the cost of sending money from the UK in the future. Addressing the stickiness of cash in the UK and digitising the send-end of the transactions will also help to overcome challenges in depositing cash[25] and accessing bank accounts in the UK in the current environment of de-risking.

Box 3: Understanding the 'Stickiness of Cash' in the UK for Sending Remittances

In the UK, the preferred method for sending remittances to Africa is cash. 93% of Western Union's revenue is generated from cash-to-cash services and digital service providers in the UK estimate their collective market share at between 5 and 10%. The Greenback 2.0 survey found that over 90% of transactions were initiated at a counter, at the post office, or at a store and less than 5% online. At present, there is a lack of research explaining this behaviour.

What we know is:

- Online services are, on average, more competitively priced than cash-to-cash services (see Figure 19).
- Access does not seem to be the major barrier, with 90% of migrants surveyed in Greenback 2.0 in 2015 having a bank account in the UK, and over 95% having a mobile (the majority smartphones) and access to internet.
- Cash is stickier for money transfers than for other payments among diaspora; with half using online banking and 76% of adults conducting internet shopping.
- Half of UK migrants surveyed saw no downsides to using their existing service and the majority (~95%) have not changed their service provider since arrival.
- Each community surveyed consistently underestimated the actual cost of sending their remittances and as such only 15% report their service as expensive.

What we do not know is what is causing the stickiness of cash. Is this an issue of trust? Tax evasion? Language barriers? Poor marketing, awareness and consumer education? Remittance senders' age and computer literacy? Or is it that remittance senders are price inelastic?

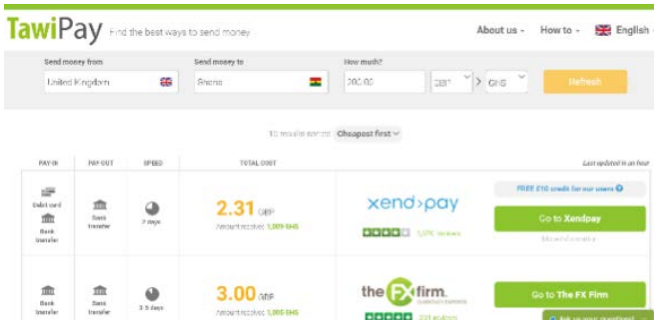
More research is needed to understand the barriers that may exist to using digital payment methods and online services in UK migrant communities and what, if anything, can or should be done to help migrate remittance senders to initiate transactions online in the UK.

5.2.2 Price Comparison Websites

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Price comparison websites are available online and through mobile apps displaying information on the range of different services available in a specific corridor and the associated fees, FX and speed of delivery. There are a few websites available in the UK, namely Tawipay.com (Monito), RemitRadar.com, Moneytis.com, as well as others overseas, including sendmoneypacific.org from Australia and New Zealand to the Pacific Islands, and SaveOnSend from the US. Typically, sites are free to use and earn their revenue either through donor contributions (where World Bank certified) or through click-through changes from the RSPs.

Figure 20: Example of Price Comparison Website - TawiPay



[25] Whilst there is no official information in the public domain, the authors are aware that the Post Office stopped offering cash deposits in Q4 2016 to some MTOs. However, the companies affected have found a work around which is more expensive but is enabling businesses to keep operating.

Pain Point Addressed:
Price comparison websites aim to address the lack of transparency in the market with regards to products and fees and generate awareness to customers with regards to the different options available to them.

Challenges:
Price comparison websites face a number of challenges:

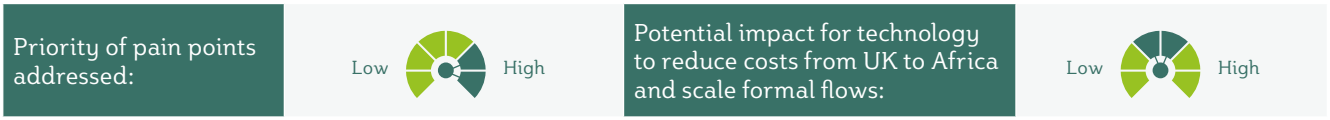
1. the number of corridors surveyed on sites are low
2. the range of services surveyed is not comprehensive and does not reflect the diversity in the market
3. the accuracy of the data is inconsistent
4. as an online service, sites generally only attract an online audience and as such traffic is low
5. sites require an extensive marketing budget to gain traction among remittance senders.

Conclusion:
Currently there is not a remittance price comparison website in the UK[26]. DFID trialed the world's first price comparison website with www.sendmoneyhome.co.uk in 2005. Whilst it provided useful information for consumers, commercially it failed as it was unable to raise the revenue required whilst retaining the impartiality of its data.

Considering the challenges and costs associated with marketing to different migrant communities in the UK to generate significant awareness, the costs in relation to the potential benefit on overall remittance prices seem relatively low. Before advocating that such a site be supported in the UK, it will be key to understand whether the stickiness of cash observed in the market is due to lack of awareness and poor transparency or other factors.

Should the research demonstrate that these factors are important, then consideration should be given to developing and funding such a site. It should be noted that other countries that have similar sites, such as Australia, Germany, Sweden and others are all government funded. Private sector sites that exist are only able to provide data that is digitally collected and many of the largest and most popular money transfer companies do not have complete pricing information on their own sites.

5.2.3 Peer-to-Peer Remittance Model



Peer-to-peer MTOs/currency exchanges use online technology to match users across borders based on the currency they have and require and then net and re-route money domestically to facilitate a secure swap. No money actually moves across borders, but RSPs use a 'netting-off' approach. Theoretically, consumers do not pay an FX margin; the sender gets the FX interbank spot rate. Online providers include TransferWise, CurrencyFair and KlickEx. TransferWise is the most successful and states on its website that transfers are 89% cheaper than with a bank. From the UK, there is a flat fee of £1 on send amounts up to £200 and the exchange rate offered is the real mid-market exchange rate. Both KlickEx and TransferWise offer a service to the South African Rand (which is expensive at £16 for sending £120; 13.3% of the send amount), but otherwise African currencies are not supported. CurrencyFair offers services into Africa, but not into local currencies.

Pain Point Addressed:
The innovative peer-to-peer business model circumvents the use of correspondent banking, offering a more competitively priced service and a fast/instant international money transfer. As a digital MTO, it also removes the need for a send agent and the challenges and risks associated with cash.

Challenges:
In remittance-dependent countries there are far more people sending money in than out, making this model less viable. Where there are not reciprocal flows, the RSP operates with partners in the respective country to acquire local currency.

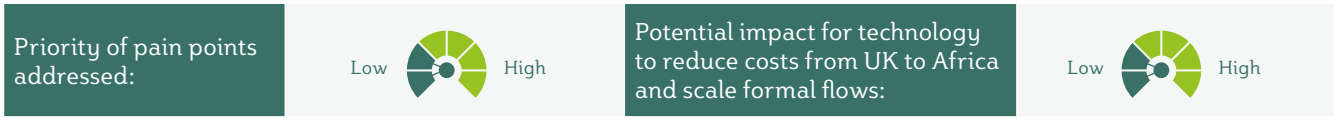
Anecdotal evidence suggests that for some providers only one in every five transfers is actually performed by matching, while the remaining transactions use traditional rails.

[26] There are a number of sites that provide information on international payments but these are targeted at transactions of £1,000 and over. Even if they advise that they provide information on remittances they do not have complete information and effectively provide paid-for marketing for service providers.

In Africa, the potential impact is also constrained by KYC requirements and financial inclusion, as the service is only available to those with bank accounts in both send and receive countries.

Conclusion:
Whilst peer-to-peer is a simple and effective business model that addresses many of the challenges in the first and middle mile, it is not currently viable for the UK-to-Africa remittances market in its present form due to non-reciprocal flows.

5.2.4 Digital Identification (ID) Checkers



Online ID checkers use a camera on a computer, tablet, or mobile to auto-populate customer data from government-issued ID documents into registration forms and authenticate the ID document. They provide checking services against FATF and other lists. These technologies are provided by third party providers and are currently integrated into the digital onboarding process through a variety of means.

The technology is provided by companies such as Jumio, IDScan, IDChecker (Mitek), vixVerify, facebanx, iProov and Yoti, and is currently being used by companies such as WorldRemit, Transfast, Payward, Azimo, Barclays, Metro Bank and foreign banks for onboarding customers. The typical business model is fee-per-new-customer for account opening and tiered schemes for authentication.

Pain Point Addressed:
Digital ID checkers can assist in anti-fraud measures, improved security and creating a digital audit trail of customers. Currently, digital ID checkers are being used by online MTOs to help to remove the need for a physical agent in the UK for meeting KYC and Customer Due Diligence (CDD) requirements in account registration. It was estimated by one operator to "help reduce remote account opening drop-off, which at the moment means up to 75% of online applications are never completed because of the inconvenience caused to the customer".

Conclusion:
The efficiencies provided by digital ID checkers are in many cases already being passed on to consumers by digital MTOs in the UK and, as such, scaling such initiatives will not significantly impact the market. These services could be applied to non-digital MTOs and their agents to help create a digital audit trail of cash remittances. However, given that there is a general trend away from the use of agents in the UK, investing in technologies with agents is probably not cost-effective.

In the receive markets, digital ID checker technology will become useful further down the line with the roll out of electronic IDs (see Section 5.2.5).

5.2.5 Biometrics and Digital Identification Schemes for Payments

Biometric technology is not new, but its application is becoming more widespread, especially within financial services in terms of verifying and authenticating that a person is who they say they are. Biometric data include: facial, voice, fingerprint, finger vein, iris scanning, eye, and DNA recognition. Data is captured using a range of methods including smartphones, computers and special cameras. Each technology has different levels of success in terms of their levels of false acceptance rates (FARs)/accuracy. Biometric indicators are often used in combination with one another to improve overall accuracy.

Biometric data is generally captured on account registration and stored in a database to facilitate (1) checking for de-duplicates at the time of registration and (2) verification in subsequent transactions for authentication. Cost is a key consideration as technology is not cheap and needs to be considered commercially viable and proportionate in relation to the risk. Whilst costs vary by technology, generally the lower the FAR of the technology, the more expensive it is. For example, facial and voice can be collected cheaply by taking a photo on a smart phone, whereas fingerprint and iris scanners require less available and more sophisticated technology.

The typical business model is a licence fee and per transaction fee. There is a push to revise the payments International Organisation for Standardisation (ISO) standards to include both sender and receiver biometric and identity references, and international standards are developing to support biometrics being used as the identifier at both ends of the system.

There is controversy and concern surrounding the collection of biometric data in terms of who has ownership and access to the data and the risk of theft and/or misuse. Distributed ledger technology is a possible longer-term solution to address some of these concerns and facilitate non-centralised data storage and real-time authentication (see Section 5.2.8).

5.2.5.1 Send Market

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

The UK does not have a national ID scheme, however other forms of ID such as passports and driving licences are used. In the UK, many of the digital ID checking companies also offer biometric functionality, and Apple Pay uses fingerprint for authentication. It is reported that with the introduction of the European Union's Payment Services Directive 2 (PSD2) regulation, there will be more stringent ID-checking requirements coupled with rules regarding not holding ID data, which will promote the use of biometrics, especially with regards to electronic payment transactions.

Pain Points Addressed:
Lack of ID of senders is not found to be one of the major pain points in the UK market, although it may help to bring confidence to banks for cash senders.

Conclusion:
The UK is likely to see increased use of biometrics in financial payments. However, given weak ID is not a major pain point in the UK market, it will not significantly improve the efficiency of the market and could add another layer of costs.

5.2.5.2 Receive Markets

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Creating unique digital identities, often using a person's biometric information, is a growing worldwide trend and high on the agenda of many governments in developing countries. The specifics and uses vary by country. Aadhaar in India is the most successful to date, capturing the fingerprints and iris scans of 1 billion people by April 2016 (93% of the population) on an open system. In Africa, electronic IDs are underway in many countries including Nigeria (National Identity Management Commission (NIMC), which collects 10 fingerprints, facial image and a digital signature), Ghana, Kenya, Egypt, Senegal (launched 2016), DRC and Malawi (just launching, 2016). ECOWAS is also considering a biometric eID. See Appendix 7 for further details on each. South Africa recently set standards on biometrics.

Biometric-based identification cards can also be used as smartcards for various purposes, including the distribution of government services and social security benefits, as well as acting as an electronic passport, voter identity document, border security credential, and identification for healthcare and welfare service distribution.

Linking Digital ID and Biometrics to Payment Instruments:
eIDs are being linked to payment instruments. Examples include: the Aadhaar unique ID is seeded with payment functionalities through a Unique Identification Authority of India (UIDAI) Authentication application program interface (API) to provide online authentication using demographic and biometric data (see Box 5), NIMC in Nigeria, who are offering their eID with Mastercard prepaid card functionality; and Egypt, where the eID is linked to the national mobile payment gateway.

In Jordan, UNHCR is working with Iris Guard to provide digital identities for refugees and linking them to financial services and international MTOs, providing access to a previously excluded group[27]. In India, the use of point of sale terminals with fingerprint authentication has been rolled out with varying success.

Pain Points Addressed:

Access to remittances for consumers

A lack of appropriate identification in a financial system is a major issue in sub-Saharan Africa, and can be particularly acute in FCAS. This can completely cut off the possibility of receiving remittances and other financial services. In the countries comprising sub-Saharan Africa, for example, in 2014 as many as 55% of individuals did not have an official identification record.[28] Globally it is estimated that approximately 375 million unbanked adults in developing countries (18%) are prevented from obtaining an account because they lack the necessary ID documentation.[29] eID schemes are currently being rolled out across African countries. In addition, many countries now require that prepaid subscriber identification module (SIM) cards are only activated when registered with a proof of identity; those who lack this ID could be denied access to mobile communication.[30]

KYC and de-risking

A lack of formal ID, birth certificates, formal addresses and passports, alongside limited digital payment infrastructure, make it difficult both to verify the identity of remittance recipients and to track what the money is used for. One of the key contributors to the UK banks' decisions to de-risk MTOs is the difficulty in both identifying who the recipient of the remittance is and what the intended use of the money is. This, in turn, creates the risk of being unable to identify money laundering and terrorist financing. This is especially the case in FCAS, where there may be sanctions in place and the risk is deemed higher due to terrorist activity. Thus, lack of identity is a threat to sustaining remittance flows to these markets. The digital nature of biometrics can help to create a digital audit trail in the remittance transaction and protect against illegal activity.

Challenges:

Coordination and commitment – Using biometrics in the creation of digital IDs is no small undertaking and involves extensive coordination and commitment (human and financial) at the national level. South Africa is using bank branches to roll out their national ID scheme. To overcome these challenges, private digital ID schemes are being developed for MTOs – see Box 4.

Box 4: Private MTO ID Scheme

A technology provider, Squid Card, is trialling a private identity solution in Africa with a UK-based money transfer business. In the absence of national ID schemes, the MTO has initiated its own private scheme to address concerns with the KYC of the receiver. MTO agents in the receive country are trained and equipped to collect the details of the recipient, take a photograph, and issue an MTO ID card. Recipients must be registered and ID'd by the MTO to receive international remittances. The scheme is currently in its beta phase, so the success and scalability of the scheme is currently unknown.

Whilst private schemes are interesting, in order for there to only be one identity for each person for life, schemes need to be coordinated at a national level. Private schemes will not remove issues with multiple identities with different MTOs. Public-private partnerships are key in the roll-out of national schemes.

Costs & operating environment

Costs for implementing national schemes are high due to the cost of the technology and scale of the operations. However, the benefits from the schemes in eliminating fraudulent activities help offset the initial outlay.[31] Currently, digital ID schemes are often not used for authenticating transactions, due to the costs involved, but are used for the initial account verification. There are also controversies surrounding the ownership of data and challenges with data collection. In Africa, it is critical that digital payment and biometric authentication platforms are able to operate both online and offline and there are facilities to store credentials and biometrics.

[27] See Appendix 7 for further details.
[28] World Bank (2016), 'Payments Aspects of Financial Inclusion', Committee on Payments and Market Infrastructures.
[29] ID4D (2016), Identification for Development; Strategic Framework.
[30] GSMA & World Bank (July 2016), Digital Identity: Towards Shared Principles for Public and Private Sector Cooperation.
[31] In Nigeria, biometrically enrolling civil servants through the country's Integrated Personnel and Payroll Information System saved approximately USD74 million in the first phase and eliminated 43,000 ghost workers and 'double dippers' (World Bank and GSMA, 2016). In India, according to the The Financial Express in April, 30 million bogus liquefied petroleum gas connections were detected and weeded out through the Direct Benefit Transfer scheme being linked to Aadhaar.

Regulation

A barrier to rolling out these systems is the lack of a supportive legislative system (i.e. no legislation enabling a population register) or poor records on which to base identification.

Digital payments infrastructure

Linking eID to digital payment instruments requires a digital payments infrastructure.

Conclusion:

Lack of ID is a significant pain point for consumers, as well as for RSPs as a barrier to reaching scale. A biometric digital ID will provide an ID to those previously unidentifiable, directly addressing challenges and perceived risks involved in transferring money into Africa.

As digital payment infrastructures develop in African countries, a digital, secure and internationally recognised ID scheme linked to digital payment instruments will provide access to the previously financially excluded and provide a secure and digitally auditable trail of flow of funds. As technology evolves it is envisaged it will become more commonplace and commercially viable for mobile phones to be used for transaction authentication.

The benefits of digital identification are broader than those in remittances and payments, as reflected in the SDG Goal 16.9, which calls for "a legal identity for all, including birth registration" by 2030. In 2014, the World Bank launched the Identification for Development (ID4D) programme. ID4D aims to bring global knowledge and expertise to governments and authorities across multiple countries and sectors. Any intervention should be coordinated through existing frameworks.

Box 5: Aadhaar Unique Identification System

The Aadhaar project was created by the Unique Identification Authority of India (UIDAI) with the vision of empowering every resident of India with a unique identity and providing a digital platform to authenticate anytime anywhere; Part of the Reserve Bank of India's vision for a "less-cash" India.

To date, 1.1 billion of the 1.2 billion people in India have been registered, 99.5% of those over 18. The centralized database holds biometric data, including iris scan, digital fingerprints, a digital photo, and text-based data, for every resident. Each resident is given a unique 12-digit Aadhaar number and the system provides multi-factor authentication. If an individual wants to open a bank account or buy a mobile sim card they provide their Aadhaar number and place their finger on a scanner. This action permits the bank or utility to ask the Aadhaar database to verify their credentials. Aadhaar has now been used for over 4 billion authentication and identifications, is involved in over 15 million transactions a day and there are over 377 million Aadhaar number linked bank accounts. MapR is being used to build the world's largest biometric database, using Hadoop technology, which can verify a person's identity within 200 milliseconds.

The Aadhaar system is built as an "Identity Platform" that other applications, government and private, can take advantage of. The architecture is built on the principles of openness, linear scalability, strong security, and vendor neutrality[32], providing open standards, APIs, and interfaces designed to work with any device on any network. The system is built to be able to handle hundreds of millions of transactions across billions of records doing hundreds of trillions of biometric matches every day.

The applications are widespread and Aadhaar is now mandatory for more than 35 government schemes. The National Payments Council of India (NPCI) also extends the Aadhaar based remittance service (ABRS) facilitating money transfer from one Aadhaar number to another or from Aadhaar number to accounts and visa versa. Aadhaar also plays a key role in the 'India Stack', an interconnected set of systems that uses the biometric identity database, virtual payments addressing, and digital payments interoperability, to identify account owners and routes payment.

[32] UIDAI (2014) Aadhaar Technology and Architecture: Principles, Design, Best Practices, & Key Lessons.

Box 5: Aadhaar Unique Identification System (continued)

In March 2017, IDFC Bank announced the nationwide launch of IDFC Aadhaar Pay, the country's first Aadhaar-linked cashless merchant solution that uses a retailer's own Android smartphone to enable cashless payments for customers with just their thumb and Aadhaar number. There are no transaction fees for both merchants and customers to use this service and the biometric reader is available to merchants for Rs 2,000 (USD38).

There are reported challenges in the roll-out of Aadhaar, such as: poor connectivity (given much of the technology requires access to the internet); reports that machines fail to recognise fingerprints; security risks associated with centralised databases; and concerns around the big brother state. However, the scale of the task and the achievement so far is significant with many other governments watching to gauge the potential for replicability in their own country.

5.2.6 Digital Currencies and Cryptocurrencies

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Crypto/digital/synthetic currencies[33] first came about in 2008 with Bitcoin. The Bank of England defines a digital currency as "any electronic form of money, or medium of exchange, that features a distributed ledger and a decentralised payment system".[34] Transactions are peer-to-peer, made online directly between users without the need for banks or any other financial intermediary. Users buy cryptocurrencies from an online exchange and can then send the digital currency to anyone in the world, who in turns uses an exchange to convert into local currency. The key innovation in Bitcoin is its settlement mechanism. With synthetic currencies, no single user, company or central authority is in charge of keeping track of transactions as they are authenticated and stored on a shared public ledger (see Section 5.2.7). Bitcoin is the most valuable cryptocurrency on the market. Other cryptocurrencies include Blockcoin, Dash, LiteCoin, Dodgecoin, Lumens and PeerCoin. Popular exchanges used in the UK are Coinbase, Bitstamp, Coinfloor, CoinCorner, Circle and Safello. In April 2016, the Luxembourg government licensed Bitstamp, making it Europe's first fully regulated payment institution for the cryptocurrency. Cryptocurrencies are a new and evolving area and efforts to determine their legal and regulatory status are ongoing.

Digital Currency Providers in Africa:

The digital currency market in Africa is dominated by small start-ups, and business models are changing frequently to respond to market opportunities. Digital exchanges are often the price-setters for local currency, and include:

- **BitPesa** in Nigeria, Kenya, Uganda and Tanzania (see Appendix 8 for the business model) – currently focused on business-to-business, as person-to-person was not commercially viable. Providing exchange for UK-based MTOs.
- **BitFinance's Bitcoin Fundi** (Zimbabwe) – small volumes. (The company previously also had ATMs but has now ceased operating those.)
- **BitX** (South Africa and Nigeria) – merged prepaid Mastercards with Bitcoin.
- **ICE3X** (South Africa and Nigeria).
- **LocalBitcoins** (South Africa).
- **Kipochi** (previously facilitating pay-out into mPesa in Kenya – ceased operations).
- **iGot** (Australian exchange offering pay-out into Kenya via mPesa).
- **ZapGo** – from South Africa to Zimbabwe.
- **BitMari** (Zimbabwe) set to launch with a focus on assisting farmers to collect payments.

Regulation: At present the regulatory environment in Africa for cryptocurrencies is undefined. In Kenya and Zimbabwe, cryptocurrencies are neither legal tender nor foreign currencies under the Foreign Exchange Act.

[33] A key defining feature of each digital currency scheme is the process by which its users reconcile changes to its ledger (that is, on which transactions to accept as valid). Some digital currencies known as 'cryptocurrencies' seek consensus through a means of techniques from the field of cryptography. Some, however, seek consensus through non-cryptographic means. (HM Treasury).

[34] Barrdear, J. and Kumhof, M. (July 2016), 'The Macroeconomics of Central Bank Digital Currencies', Bank of England Staff Working Paper 605.

Regulators have advised a cautionary approach to the use of Bitcoins, given there is no protection for users in the event that the platform that exchanged or held the virtual currency fails or goes out of business. Local exchanges are working with regulators to educate them about the technology, but are also benefiting from the flexibility a non-regulated environment is providing.
See Appendix 9 for information on international/UK providers Abra, Circle and Moneytis, Santander's pilot with Ripple, and BitFinance and Bitsoko in Africa.

Pain Points Addressed:

Speed

Cryptocurrencies have the potential to increase the speed and reduce the cost of person-to-person transfers and circumvent the challenges associated with the correspondent banking model, Society for Worldwide Interbank Financial Telecommunication (SWIFT) messaging and de-risking by banks. Once a transaction is made, it is provided to the receiver instantly using distributed ledger technology.

Costs

Indicative costs: 0.6% for sending Bitcoin and 0.5% on each currency conversion. Digital exchanges may charge for the cashing in and cashing out of funds, and in illiquid currencies the exchanges are often the price-setter in the market.

KYC

Some exchanges offer complete anonymity, thus reducing the burden of KYC requirements.

Foreign exchange controls

Cryptocurrencies have been most commonly used in Africa in countries with foreign exchange controls in place as a means of circumventing these laws for traders wishing to buy foreign currency for imports. Where there is a parallel market, digital exchanges are able to offer a more competitive price than formal operators.

Challenges:

Cryptocurrencies are still in their relative infancy and as such are still evolving to address the weaknesses and challenges they encounter. These include:

Trust

Trust from the consumers, regulators and financial institutions, especially due to association with black market transactions, the collapse of exchanges and theft.

Scalability

- Miners on the consensus ledger, as used in Bitcoin, have an incentive to keep blocks small in order to earn money for processing blocks. As such, blockchain is overloaded due to small block size and increased transaction rate.
- Processing blocks on the blockchain also requires increasing energy consumption as multiple miners compete for the same block. This model incurs significant wastage and threatens the viability of such a model at scale.

De-risking – as with MTOs, it can be difficult for exchanges to get bank accounts.

In the case of sending money to Africa:

Regulation and consumer protection

The cryptocurrency market is unregulated and unlicensed and, as such, there exists uncertainty with respect to the legal environment. Wallet providers are not liable and consumer protection is therefore a major concern.

Government foreign exchange earnings

Due to the peer-to-peer nature of the transaction, governments will lose capacity to earn foreign exchange from these remittances.

AML/CFT Risk

Poor KYC by unregulated digital exchanges carries AML/CFT implications.

Uncompetitive pricing for person-to-person transfers:

The market for the cryptocurrencies is underdeveloped in Africa; fees for remittances are generally uncompetitive compared with other RSPs. Fees for exchanging Bitcoin into local currencies can be high given low market liquidity.[35]

Price volatility – Volatility in the market is also a concern, though the short timeframe needed to complete a transaction reduces the impact of this. A new block on the blockchain is created every 10 minutes, so remittance businesses using cryptocurrencies are exposed during this period.

Conclusion:

Cryptocurrencies have been heralded by many as having the potential to 'revolutionise' the payments market worldwide. However, Bitcoin providers in Africa are still very small. In the absence of regulation, it is proving difficult for some to raise finance to provide the liquidity needed to operate (exchanges are required to prefund bank accounts and mobile wallets for paying out remittances).

[35] However, in the case of Zimbabwe and Nigeria, liquidity for Bitcoins is low in the market as demand outstrips supply due to exchange controls.

Fees into Africa using Bitcoin services are often not yet competitively priced and services rely on the recipient or a third party having the means to receive funds electronically which, in the case of mWallets in Kenya for example, can be expensive.

However, in the longer term, regulated Bitcoin exchanges in the last mile with effective customer due-diligence (CDD) and KYC, broad pay-out locations (to both bank and non-banked) and sound liquidity management could result in cheaper and faster remittances to Africa. Interesting developments in CBDC have the potential to also transform cross-border payments (see Box 6).

Box 6: Central Bank Digital Currencies (CBDC)

Central banks are currently taking an interest in digital currencies. Unlike cryptocurrencies, this technology is not privately issued, but is a fiat currency issued by a central bank with the equivalent value to physical legal tender. This technology will allow central banks to evolve their national currencies to digital. A CBDC, according to the Bank of England (BoE), would mean a central bank granting wider, electronic, 24x7, national-currency-denominated and potentially interest-bearing access to its balance sheet. The BoE has a multi-year research programme looking to assess the main economic, technological and regulatory impacts of introducing CBDC. The aim would be to widen access to the central bank's balance sheet, beyond commercial banks.

Technology company eCurrency Mint has recently announced that it has partnered with Banque Régionale de Marchés (BRM) to provide a digital currency in the West African Economic and Monetary Union (WAEMU). The eCFA is a high-security digital instrument that can be held in all mobile money and e-money wallets, which will offer secure universal liquidity, interoperability and transparency to the entire digital ecosystem in WAEMU. The eCFA is issued to coexist with other forms of currency, offering a digital form to seamlessly send, receive, store and transact digitally. The electronic money provided by BRM can only be issued by an authorised financial institution. It uses high-security cryptographic protocols to ensure that it cannot be counterfeited or compromised. Because it is interoperable and it provides transparency, it promotes governance and regulation by the central bank.

The impact of CBDC on international remittances is currently unknown. At the moment, central banks are more interested in the macroeconomic impact domestically. However, it is likely that this improved efficiency in the exchange of assets will help to reduce the cost of person-to-person transactions both domestically and across borders.

5.2.7 Distributed Ledger Technology

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Distributed ledger technology is the broader technology derived from Bitcoin's pioneering 'blockchain' distributed ledger technology. Blockchain is a digital public database that is continuously updated and verified in 'blocks' of records and shared among various parties. Ledgers are updated instantly in multiple locations, therefore existing simultaneously, without a single, centralised authority.

Blockchain creates verifiable, auditable consensus around any financial asset across ledgers in near real-time and is therefore considered transparent and immutable. Many believe that blockchain will revolutionise how markets function, fundamentally transforming areas like payments and capital markets. Blockchain can be used for the storage of all types of data and transactions, such as a person's health or insurance history, or cross-border clearing and settlements, in a secure and open way.

Since Bitcoin's blockchain, there have been a number of other platforms that have built upon the founding principles. To address issues with transparency, ledgers can be either private or public networks. Private networks are verified by known and trusted participants such as networks of financial institutions (signed), whereas public is where anyone can write them non-vetted (mined).[36]

Current distributed ledger platforms include:

[36] Bitcoin blockchain uses a 'proof-of-work consensus', or is 'signed' by predetermined signatories to authenticate and verify transactions for those network operators that want to keep identity and patterns of behaviour completely private and inaccessible to third parties.

- **Bitcoin blockchain** – uses the proof-of-work consensus with miners (mainly in China) and is the most commonly used.
- **Ethereum Protocol.**
- **Ripple Protocol** – main product is a permissioned ledger for banks which is being offered by the aggregator Earthport[37] and is being piloted by Santander.
- **Inter-ledger protocol** – a protocol for inter-ledger payments that enables anyone with accounts on two ledgers to create connections between them. It uses ledger provided escrow – conditional locking of funds – to allow secure payments through untrusted connectors.
- **R3 Corda** – nine of the world's largest banks formed R3 to develop distributed ledger technologies for use in market transactions. It is a permissioned network.
- **Stellar** – an NGO with donor backing; an early stage open digital platform hub for any pair of currencies. It is in its early stages in Africa, with a focus on Nigeria.
- **Hyperledger Project** (permissioned ledger).
- **Chain Protocol** – consensus program with improved scalable transaction processing; Visa and Chain have launched a B2B payment solution.
- **Litecoin** – able to handle higher transaction volumes than Bitcoin.
- **Lisk** (new in 2016).

Pain Point Addressed:

Blockchain technology has the potential to address the speed, complexity and costs incurred through correspondent banking, significantly reducing counterparty and operational risk in the financial system and also reducing the risk of fraud. These advancements could, in the long term, result in banks being able to provide competitive and fast person-to-person cross-border payments from one banked customer to another, thus removing the market for MTOs.[38]

Challenges:

Distributed ledger technology, whilst exciting, is still in its nascent stages, and as such there are risks, uncertainties and operational vulnerabilities in using such a system, especially as none has yet been delivered at scale. The relatively small size of the existing networks, such as Ripple and Stellar, and those using them, mean that the solutions are not yet valuable.

Open networks are opposed by many financial institutions due to the public nature of transactions. Private networks effectively create closed-loop networks and therefore could face similar challenges to those in correspondent banking, as networks have to link to be able to process payments across countries and different banks. Furthermore, the power needed to operate these systems is also a concern, especially when considering scalability.

Conclusion:

Distributed ledger technology is currently being explored by, among others, financial institutions, to assess its applications. There are innovative products coming to market. The potential impact on person-to-person, cross-border payments could be significant, enabling banks to compete with MTOs in this space.

5.2.8 Blockchain for ID

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

There is potential for blockchain technology to be used to keep a person's identity, making it easier for individuals to manage, by giving them greater control over who has their personal information and how they access it. By combining the decentralised ledger principle with identity verification, a digital ID can be created to act as a 'digital watermark', which can be assigned to every online transaction. The solution can help organisations check the identity of every transaction in real time, hence lowering fraud rates. The solution will store encrypted identity, allowing individuals to share their data with companies and manage it on their own terms. Service providers include OneName, ShoCard and VoLo in Africa (see Appendix 9.2 for profile), but they are currently small in scale.

[37] Volumes using the Ripple Protocol through Earthport are reportedly small and the service is not competitively priced to incentivise use.
[38] According to the Bank of England, a recent study estimated that, in the G7 countries, the cost of clearing and settling securities was USD54 billion a year. These are the economic resources it requires to transfer the assets, verify who owns what, and reconcile the various records. See link:http://www.bankofengland.co.uk/publications/Pages/speeches/2016/886.aspx#footnotes.

Conclusion:
The infancy of this technology means there are serious issues around security of the ledger and theft of identity. This solution requires different stakeholders in the value chain to be able to access the ID in order for it to be viable – in a number of different countries and at scale. In Africa, a prerequisite for the application of blockchain technology for identification is a digital identity, which is currently not available in most markets.

5.2.9 Aggregators

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Aggregators provide global payment solutions to third-party RSPs at competitive rates. Whilst there are different models available, in general the aggregator establishes and maintains prefunded accounts with various paying-out financial institutions in foreign countries (in both local and fiat currencies). Partners settle domestically using Faster Payments or through a prefunded wallet with the aggregator to enable instant payments. Application Programme Interface (API) technology allows integration between systems in domestic and local markets to offer straight-through processing, offering speed and scalability.

The main aggregators in the UK include Choice International, Secure Trading, Earthport, Inpay and Currency Cloud. Different aggregators focus on providing services to different factions of the market. Choice International focuses on the UK's small MTOs, Earthport[39] and Currency Cloud focus on the digital MTOs, and Inpay targets banks, business-to-business, disbursements and e-commerce, offering real-time online bank-to-bank payment solutions. Earthport is also offering a service using Ripple Protocol to deliver transactions.

Pain Points Addressed:

- Aggregators provide RSPs with access to extensive pay-out networks in receive countries at competitive rates and, by doing so, remove the need to have bilateral banking relationships with multiple prefunded accounts.
- Aggregators conduct their own compliance checks on all customers before accessing their network, adding an additional layer of comfort to regulators and banks. Aggregators can also remove the need for UK MTOs to have bank accounts, by offering a merchant account (eWallet) for those facing challenges. They thus have an important role in maintaining competition in the market.
- Aggregators bulk and batch payments and so can negotiate competitive FX rates, thereby reducing costs.

Challenges:
Aggregators are also at risk of losing their bank accounts due to de-risking, especially those servicing non-digital MTOs that are involved in cash collection.

Conclusion:
Aggregators have an important role in the UK remittances market in offering more competitive services to RSPs, and therefore helping to drive down costs, especially in lower volume corridors and amongst smaller MTOs. Given the costs and timeframes in the correspondent banking model, the benefits that aggregators can deliver through batching and netting payments is key in driving down costs, especially in small corridors.

Inpay's bank-led solution (see Box 7) is interesting and valuable, however, given it is dependent on recipients being banked, the ability for this account-to-account solution to significantly disrupt the African market is constrained.

[39] Companies such as EarthPort can be classified as both an aggregator and a remittance processing hub.

5.2.10 Remittance Payment Processing Hubs

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Remittance payment processing hubs facilitate interoperability between sending and receiving parties across countries, channels and networks, linking MTOs with MNOs, banks, card providers and other RSPs, both domestically and across borders. With the rise of new digital payment solutions, hubs enable real-time, omni-channel payments through a single Application Programme Interface (API) connection and one contract. Typically, the hub offers a real-time messaging platform and interface, which frequently includes such items as AML/CFT checking, consistent messaging standards, foreign exchange management, standardised commercial terms and clear settlement processes.

Hub providers mostly maintain prefunded accounts to cover the pay-out of funds and some request prefunded accounts by MNOs/MTOs depending on the model. Most operate on a revenue-share basis between sender and receive parties. The sending MNO is generally the fee and FX setter. At present, most operate different pricing for each corridor and operator.

The main operators in the African market include:

- **Homesend/Mastercard Send** – responsible for the first cross-border mWallet-to-mWallet (MMA2A) transfer between two different networks – MTN Côte d'Ivoire and Airtel Burkina Faso MMA2A.
- **MFS** – An intra-Africa focus, enabling cross-border, mobile-to-mobile remittances between any of the over 55 million mWallets in their network. Connect through a single API; one contract.
- **TerraPay** – New product from Mahindra Comviva, an Indian global leader in mobility solutions, scheduled to come to market enabling real-time cross-border remittances. They plan to utilise their relationships through Comviva MNOs. No live corridors as yet. Permission for DR Congo to Congo; also Tanzania, Uganda and South Africa.

Other hub providers include Western Union, TransferTo, Earthport and Ericsson.

Box 7: Inpay

Inpay is utilising its extensive global network with banks, for both collections and disbursements of funds, to deliver an innovative new product to foreign banks. Inpay is offering partner foreign banks a 'white-label' solution, merchant account and wholesale pricing that they can package to offer 'non-resident' accounts to their diaspora. Whilst for regulatory purposes the account must be opened in the country of origin, the non-resident-style account will mean a migrant can deposit money overseas and it can be transferred to the receive account at competitive rates. This solution also provides end-to-end KYC with no mismatch between the remitter and recipient. Inpay are currently targeting banks and postal organisations in Africa and Asia.

Pain Point Addressed:
Hubs help RSPs to access large pay-out networks across multiple channels; reducing barriers to entry and promoting competition. Hubs enable multi-to-multi-channel cross-border payments through integrating systems to build a digital payments ecosystem in Africa. In the mobile money space, vendors often operate in a closed-loop manner, which means that one provider cannot communicate with another one.

Challenges:
It is reported that some RSPs use hubs for smaller corridors or when entering a market, before forming bilateral relationships with pay-out partners as they increase volumes, which could impact the hubs' ability to drive scale. Pricing is not always clear between corridors and channel.

Conclusion:
As the uptake of digital payment instruments develops in Africa, hubs will become key in domestic and cross-border payments and in creating a downstream peer to peer (P2P) payments ecosystem. Scale and competition between hubs as the market develops should help to reduce costs both into and within Africa by integrating into the various different channels. Care should be taken before intervening in this market, as one operator specifically requested not wanting donor involvement as it may distort the market.

5.2.11 Regional Automated Clearing Hubs

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Automated clearing houses (ACHs) are electronic funds-transfer systems that connect participants in the payments networks in an individual country. ACHs are designed for high-volume, low-value domestic payments, and charge fees low enough to promote the transfer of low-value payments. The system accepts payment batches, so that large numbers of scheduled payments can be made at once. It is a net settlement system, so settlement can be delayed for up to two days, thereby inroducing some settlement risk.

Regional automated clearing houses (RACHs) develop a shared payment infrastructure to facilitate the automated clearing of funds between countries, often by linking domestic ACHs. A RACH provides a standardised message format which enables improved efficiency and accuracy. The rules of a RACH guarantee that only qualified entities can use it (e.g. banks, qualified MNOs, etc.), which provides additional security to customers' funds. A RACH enables many-to-many payments without the need for multiple bilateral agreements, as everyone complies with the same rules. The system can also be opened so that multiple payment types can access it.

A number of different regions in African have initiatives underway or planned at varying stages of development, including:[40]

- **West Africa's WAEMU** – existing modern regional infrastructure for real time gross settlement (RTGS), ACH and card transactions.
- **Southern Africa's SADC** – Integrated Regional Electronic Settlement System (SIRESS) – currently 11 countries and 95 banks are integrated in to it – now focusing on retail payments and discussing the application of the scheme for mobile payments.
- **East Africa EAC** – early stages of development. Proposed Payment and Settlement Systems Integration Project (EAC-PSSIP).
- **Southern and Eastern Africa** – Common Market for Eastern and South Africa (COMESA), Regional Payment and Settlement System (REPSS) – commercial banks access REPSS through their respective national central banks. Usage has been lower than anticipated.

Pain Points Addressed:

- The platform cuts out the inefficiencies of correspondent banking relationships and as such is more cost effective.
- It harmonises rules and addresses any regulatory mis-matches between countries.
- Poorly functioning or absent ACH systems in Africa for low-cost, low-value inter-bank transactions; the speed and cost of financial transactions.
- If the system is open to multiple payment types this will allow fast, efficient and accurate payments between multiple countries in multiple formats. Interoperability between different payment channels in Africa means centralised interoperability at a vast scale.
- UK RSPs will only need one member of a RACH in each region to be able to pay out into all bank accounts.
- Reduces the complexity for UK RSPs.

Challenges:

- RACHs require political coordination between countries.
- RACHs are easier to develop where there is one settlement currency; such as the Euro in SEPA, Central African Franc in WAEMU and the Rand in SADC. As such, this may affects the applicability to other regions.
- Takes time to build the network.
- There needs to be an existing automated domestic payment system; the absence of one will may hinder development.
- A need to focus on integration of platforms and instruments for retail transactions through retail cross-border clearing houses to increase efficiencies and further reduce the costs of lower value remittances.[41]

Whilst challenges remain in the development of these schemes, especially where local payment systems are not fully automated, it is anticipated that these regional systems will become increasingly important in the years ahead for intra-regional settlement.

[40] See Appendix 17.1.2 for further details.
[41] FinMarkTrust 2016.

Conclusion:
RACHs have an important role in intra-regional trade and cross-border payments within Africa, with the potential to improve efficiency for payments into Africa. Given the poor bancarisation rate in Africa, linking to mobile will be key for these to address remittance challenges. RACHs are especially important for intra-regional remittances, which are the most expensive. Access to RACHs has the potential to benefit the UK-to-Africa remittances market significantly through improving the African financial infrastructure. This will enable RSPs in the UK to link into the RACHs for improved efficiency and broader access.

5.2.12 Agent Distribution Networks

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High (in FCAS)

Agent distribution networks are not a direct technology solution, but a business model to extend the benefits of mobile money technology to the financially excluded. Agent distribution networks can be found across the world in varying forms, according to:

- **Technology** – via simple mobile phones (for Unstructured Supplementary Service Data (USSD)-based transactions), Android smartphones (for application-based transactions) or via a web link for internet transactions using mWallets and eWallets.
- **Model** – operating exclusively to one service provider or not (as a third party), as MNO or bank-centric, as transactional shops (sole source), or as an agnostic provider (high aggregation of services).
- **Services offered** – centered around cashing in/cashing out including P2P transfers, airtime top up, social payments, disbursements, account opening, and banking services. Offering over the counter (OTC) services, as well as services to wallet holders.
- **Service providers** – mainly for MTOs, MNOs and financial institutions.

Examples of service providers include Zoona, Splash and Wari, outlined in Appendix 7.3.

Pain Points Addressed:
Digital end-to-end remittances from the UK to Africa are among the most competitively priced (see Section 3.2) and are considered less risky from a regulatory perspective. In the absence of a digital financial infrastructure and financial exclusion, as is often the case in FCAS, a reliable agent network, with good geographical coverage, underpins branchless banking and mobile wallet solutions in the 'receive countries', enabling customers to cash in/cash out.

Furthermore, often the real cost of remittances, in terms of the fee + FX + travel costs of both sender and receiver (in time and money), is overlooked and can be high. Therefore, agent distribution networks can directly reduce the real cost of sending money home.

Challenges:
Building agent networks in FCAS and other African countries (particularly in rural areas) is not a technological quick fix, but requires boots on the ground to build a network infrastructure where previously absent. Cash reticulation can be poor and liquidity of agents is challenging to manage, with agents often ending up tied to their rebalancing points, which are mainly banks. Poor electricity and therefore connectivity to the network mean agents conduct offline transactions; collecting customers' cash, and processing transactions later when the system is available, adds risk. Where there are monopolistic service providers and exclusivity, agent fees can be prohibitively high. Third-party agent networks that establish accounts with multiple providers can offer 'interoperable' transfers. However, this can promote a culture of 'over the counter' transactions, which is less efficient for both customers and providers.[42] There are challenges in some models around agent commercial viability.

Conclusion:
Whilst there are a number of challenges in building agent networks in rural areas in Africa and in FCAS, agent distribution networks have a key role to play in bringing digital financial solutions, including international remittances, to the previously financially excluded. The agent network is a stepping stone towards creating a digital payments ecosystem that will remove the need for the agent in the receive country. Creating agent distribution networks is therefore a medium-term solution in a longer-term strategy.

[42] CGAP (2013) – Taking a Look at OTC Versus Wallets blog series.

5.2.13 eVouchers

Priority of pain points addressed:	Low  High	Potential impact for technology to reduce costs from UK to Africa and scale formal flows:	Low  High

Prepaid vouchers are used in countries where the banking system is not well developed, or used because of security, market or infrastructure limitations. Vouchers can be in the form of smart cards, magnetic stripe cards, mobile accounts or paper vouchers. EVouchers are used at specific merchants with a specific terminal for accepting them. They are often used for cash transfer programmes into FCAS.

A UK-based technology provider, Squid, provides an eVoucher system that can operate in offline, low-power environments. Squid technology uses a battery-operated point-of-sale (POS) device and SIM cards to transmit transaction data to a centralised, cloud-hosted platform.

Pain Point Addressed:

- Potential to provide further control to the sender on how money is spent.
- Where there is an absence of cash/physical money – especially in FCAS and remote areas – it is possible to terminate onto eVouchers.

Challenges:

Requires a targeted programme with merchant acceptance points. High cost relative to other solutions – see Figure 21 from a study conducted on the cost of eVouchers for cash transfer programmes in DR Congo by MercyCorps.

Figure 21: Cost-Transfer Ratio for Different Payment Methods in DR Congo for MercyCorps Cash Transfer Programme

	eVouchers	Mobile money	Cash
Average transfer value	$91	$73	$50
Total admin cost (b)	$191,088	$226,403	$58,377
Total transfer value (c)	$78,680	$155,440	$38,190
Cast-transfer ratio (b/c)	2.43	1.46	1.53
Admin as % of total b/(b+c)	71%	59%	60%

Source: Mercy Corps, 2014 [43]

Conclusion:

EVoucher technology is pertinent to cash transfer programmes. Costs of implementation are found to be high, relative to other open networks such as mobile money.

5.3 Summary of Technologies

From the analysis, there are a number of areas where FinTech providers are disrupting the market and directly responding to the challenges existing in the UK-to-Africa remittances market. These areas therefore warrant further consideration. Digital MTOs, aggregators and hubs are good examples, where their very business model is aligned with the goals of the project; to generate scale in remittances at competitive costs. The key here is to identify a role for donors and other development agencies that will expedite achieving these goals without artificially distorting the market.

Cryptocurrencies are pushing the boundaries and are also potentially interesting to this project, with burgeoning business models globally, as well as into and within Africa. They are always good for raising debate! Their potential is exciting and they are currently being tested technically and for acceptance, predominantly within the developed world – where other challenges with regards to computer literacy, financial inclusion and exchange controls do not exist – but also in Africa.

[43] Mercy Corps (2014), ' Cheaper, faster, better? A case study of new technologies in cash transfers from the DR Congo'.

Whilst their applicability and ability to achieve scale in UK-to-Africa corridors may be limited due to low levels of financial inclusion, they are an exciting technology with innovative business models worth exploring.

Distributed ledger technology is similarly at the forefront of cross-border payment innovations and is currently being tested by large consortia of banks to assess its potential for improving efficiencies in the global payments market. Whilst the implications on the UK-to-Africa remittances market may in time be significant, the scale at which it is currently being applied and tested goes beyond the scope of remittances from the UK-to-Africa, and as such the role for donors and development agencies is at present less obvious.

Other technologies are clearly critical in addressing not only remittances to Africa, but broader challenges such as financial inclusion and identification across Africa. These technologies, if effectively deployed at scale, would significantly reduce costs in the UK-to-Africa remittances market. For example, a biometric electronic ID linked to digital payments addresses key challenges around KYC and financial inclusion. A digital payments infrastructure, supported in the medium term by agents, is also necessary for achieving financial inclusion. Achieving these goals, however, involves long-term strategies that require resources and commitment, but with dividends well beyond simply lower remittance costs.

Other technologies such as digital ID checkers, prepaid cards, virtual cards and eVouchers have prerequisites that are not currently met in the UK-to-Africa context and therefore do not have the capacity to achieve the scale required to significantly impact the market.

Section 6

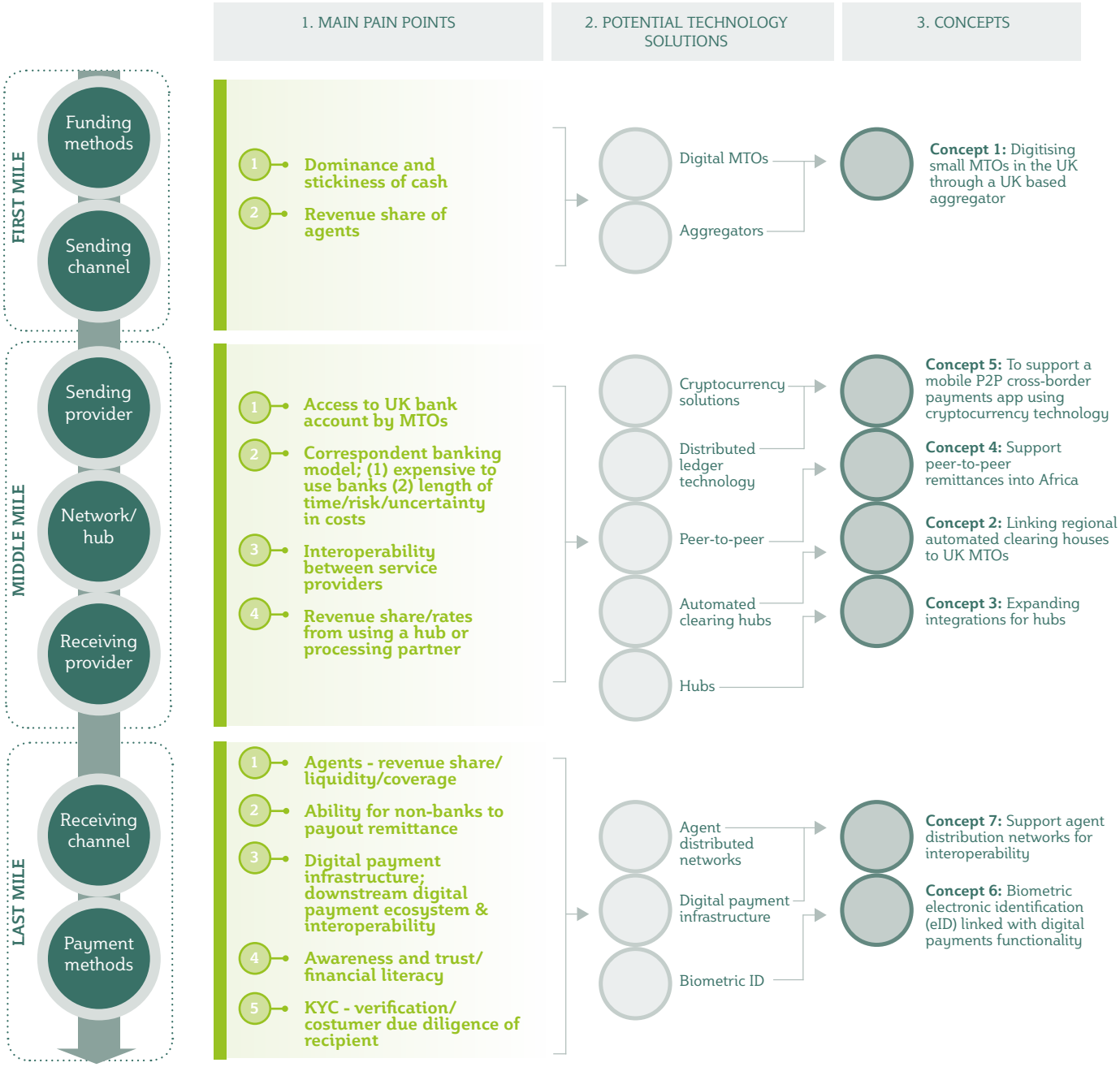
Concepts – Technology Solutions to Improve the UK-to-Africa Remittances Market

Image:
Kristina Just © 2016

6. Concepts – Technology Solutions to Improve the UK-to-Africa Remittances Market

The focus of this research has been to identify technologies/service providers of technologies that could, with scale, improve the UK-to-Africa remittances market, especially in FCAS, and from that derive a series of options for testing with stakeholders. To achieve this, a systematic approach was taken, following the flow of the report; first identifying the most painful challenges in these corridors[44] (Section 4), and then matching them with the technology solutions with the potential to address them (Section 5).

Figure 22: Flow Diagram showing Systematic Process for Concept Design



[44] Section 4 details the 'pain points' that currently exist in the UK-to-Africa remittances market, divided into first, middle and last mile, with an indicator as to the 'level of pain' each inflicts. Those awarded a high score are those that, if solved, should result in a reduction in the cost of sending money to Africa, and/or increase the flow of formal remittances.

Through this approach, seven options (or Concepts) were derived, as depicted in Figure 22. These Concepts were derived based on the following conditions:

1. the pain point addressed is significant enough to have an impact on costs and scale

2. they are ready to be scaled, especially for Africa and FCAS

3. there could be a benefit from donor intervention

The Concepts put forward were not mutually exclusive, but in many cases complemented one another as they apply to different parts of the remittances value chain. They also vary in terms of the timescales and costs involved for implementation. See Figure 23. Appendix 11 provides more detail on each.

Figure 23: Concept Outlines

#	Concept
1	Digitising small MTOs in the UK by supporting a leading UK-based aggregator in rolling out POS machines to agents and providing a white-labelled payment gateway to small MTOs.
2	Provide direct access to link RSPs to Regional Automated Clearing Houses (RACH) in Africa.
3	A fund available to remittance hubs operational in Africa to support network expansion into FCAS.
4	Support peer-to-peer remittance services (person-to-person matched funds*) into Africa through formalising the offsetting of remittance and trade flows.
5	Support Abra, a potentially innovative app-based remittance service using cryptocurrencies to offer services into Africa.
6	Support the roll-out of biometric electronic identification that can be seeded with digital financial payment instruments.
7	Support the roll-out of interoperable agent distribution networks in FCAS.

*Matched funds mean that the company is able to match a customer wishing to sell currency with another customer wishing to buy the same amount of the same currency.

The matching exercise demonstrated that many of the real challenges fundamentally contributing to higher costs in the UK-to-Africa remittances market are not currently fixable by new technologies alone, but rather by focusing on scaling existing technology, creating the environments for access to new technologies, and/or changing consumer behaviour to accept new technologies.

Straight-through digital remittance services have the capacity to both reduce remittance costs and address other challenges in the market, by removing send and receive agents, creating a digital audit trail and providing access to the increasing number of alternative, web-based, cross-border payment solutions available. However, without a digital financial infrastructure and formal identification in the last mile, as is the case across much of Africa (especially in FCAS), many of the new business models and potential benefits offered by new technologies cannot be accessed.

6.1 Testing with Industry Experts

Once formulated, the Concepts were tested with select industry experts, including FinTech and payment commentators, private remittance service providers, technical specialists in payments and remittances from think tanks and multi-lateral organisations such as the World Bank, the African Development Bank and International Organisation for Agricultural Development's (IFAD) Financing Facility for Remittances.

Through a consultative process, the Concepts have been further explored, and refined and formulated into recommendations. Feedback on each Concept is documented in Appendix 11.

6.2 Summary of Concepts

#	Concept	Conclusion
1	Support to a leading UK-based aggregator to digitise small MTOs in the UK	Alternative interventions have been suggested to better understand and address the stickiness of cash in the UK market. Recommendation 1 and 2.
2	Support UK RSPs to link to RACHs in Africa	Pilot linking UK RSPs to SADC is proposed. See Recommendation 3.
3	A fund focused to encourage remittance hubs to support network expansion into FCAS	Remittance hub support broadened from the initial concept to ensure that hubs are incentivised/encouraged to enter markets where their operation could do the most good, and which currently are not a priority for them. See Recommendation 4.
4	Support peer-to-peer remittance services into Africa	Not recommended at this stage. Potential to revisit later when other barriers, such as the use of digital RSPs in the send market and use of digital financial services in the receive market, have been addressed – as well as other barriers being overcome.
5	Support an innovative mobile person-to-person cross border payments app using cryptocurrencies to offer services into Africa.	Not recommended at this stage. Considered premature to invest in a pilot into Africa currently, due to other barriers being more pressing. Support to cryptocurrencies and distributed ledger technology in Africa considered more broadly, but an area to watch rather than act in at the moment.
6	Support the roll-out of biometric eID seeded with digital financial payment instruments	Other multi-lateral institutions' programmes are leading on digital ID schemes across Africa. It is important that the specifics that are needed in this area for remittances are represented in the other global initiatives that are taking place.
7	Support the roll-out of interoperable agent distribution networks in FCAS	Other multi-lateral institutions' programmes are leading on digital financial inclusion and expanding agent networks in Africa. Again, it is proposed to engage with these stakeholders to ensure international remittances, especially from the UK, are factored into programmes.

See Appendix 11 for further details on each.

6.3 Overall Findings

The main finding from the research is that whilst there are a broad range of technologies that are, or can be applied to improve the remittances market, there is not one single solution that will address all the pain points and challenges that exist across the first, middle and last miles.

Furthermore, many of the solutions, especially in the last mile, cannot be driven by technology alone but require other interventions, such as proportionate regulation, financial awareness and appropriate infrastructural development, to affect meaningful change.

Whilst there are innovative, new technologies that are currently being tested in Europe and the US for cross-border payments offering convenience, speed and competitive rates to consumers, they are not yet appropriate for much of Africa in terms of their ability to achieve scale and therefore impact on costs to end users.

The overall conclusion is that the main way to reduce costs of remittances into Africa and build scale is to digitise the value chain. Achieving an end-to-end digital remittance value chain with a digital payments infrastructure and acceptance network, and financial inclusion in the last mile, will not only reduce the need for agents in the send and receive country, but address risks associated with KYC.

Section 7

Recommendations and Areas for Further Considerations

Image:
Kristina Just © 2015

7. Recommendations and Areas for Further Consideration

This section is divided into:

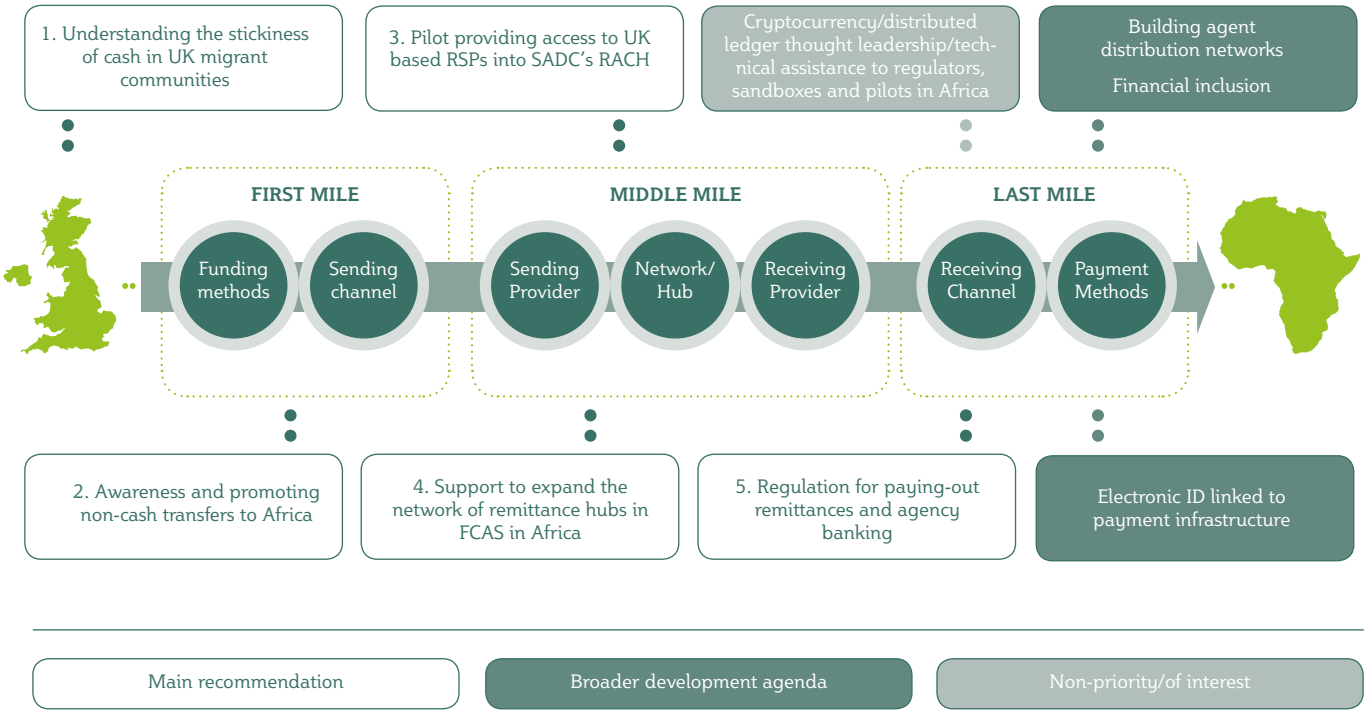
1. The main recommendations
2. Areas that would significantly benefit the UK-to-Africa remittances market, but where donor programmes are already active
3. Areas that, whilst they are not considered a priority in reducing costs of remittances into Africa and scaling formal flows, may want to be considered further.

7.1 Main Recommendations

The recommendations are aimed at improving the efficiency (and therefore reducing the costs), and scaling formal flows of remittances from the UK into Africa and its FCAS through the application of new technologies.

The recommendations are targeted at donors and other development organisations and outline interventions that will help to improve the market through the application of technology. The recommendations focus on different areas of the remittances value chain and as such, complement each other in achieving the overall objective (see Figure 24). Recommendations vary according to the role, resources, timeframes and potential impact on the market and their priority.

Figure 24: Recommendations in the Remittances Value Chain



The recommendations complement one another, and it is therefore recommended that each are implemented in order to reduce costs and increase formal flows into Africa, especially FCAS. Figure 25 provides an overview of the five main recommendations.

Figure 25: Main Recommendations Summary Table

1. Understanding the Stickiness of Cash in UK Migrant Communities					
Costs	£45k-60k	Timeframes	3 months	Impact	Low; information for programme design
2. Awareness and Promoting Non-Cash Transfers to Africa					
Costs	£100k-£300k	Timeframes	1-2 years	Impact	Medium; changing consumer behavior in the UK
3. Pilot Providing Access to UK-based RSPs to SADC					
Costs	£100k-£200k	Timeframes	1-2 years	Impact	Direct impact low; potential to change market high
4. Support to Expand the Network of Remittance Hubs in FCAS in Africa					
Costs	£500k-£5mn	Timeframes	1-5 years	Impact	Medium/high
5. Policy Influencing for Non-Bank Financial Institutions to be able to Pay-Out Remittances and Agency Banking Regulation					
Costs	Limited	Timeframes	0-5 years	Impact	High

7.1.1 Recommendation 1: Understanding the Stickiness of Cash in UK Migrant Communities

Background	As explained in Box 3, the UK market is predominantly cash-based. Cash services are on average more expensive than online products and are also more susceptible to being de-risked by banks. At present, there is little understanding and no research available as to why this behaviour prevails, despite high levels of financial inclusion and literacy, and access to the internet and mobile phones. It is therefore proposed that before any interventions or programmes are designed to help digitise the UK send market, research should be conducted to understand the reasons behind the prevalence of using cash for remittances, to identify any existing barriers and inform future programmes.		
Intervention	• A series of small focus groups with different diaspora groups in the UK. The focus groups will reflect geographical representation, migrant status, age, socio-economic status, occupation and length of time in the UK. • Hold two focus groups per country, with 10-15 people who send money home in each group. • Members to complete a short survey and to participate in the focus group to discuss how they send money home; reasons behind their behaviour and possible barriers and motivators for change. • Survey results and focus group findings to be documented in a report with recommendations for future interventions. • Results to be publicly available information – accessible through the Remittances Steering and Action Group.		
Risks/ Challenges	Low  High		
Countries	Nigeria (largest UK corridor), Kenya (large UK corridor), Tanzania (expensive from the UK), DRC (large informal market, FCAS), Sierra Leone (FCAS) and Zimbabwe (FCAS, options for digital pay-out).		
Owner	UK donor organisation/government.		
Costs	£30,000-£45,000 for 6 countries	**Timescales**	Within 3 months
Impact on the UK-to-Africa Remittances Market	No direct impact on remittance costs or scalability. Results to inform future interventions.		

7.1.2 Recommendation 2: Awareness and Promoting Non-Cash Transfers to Africa

Background	The remittance business is one of volumes; scale service providers able to negotiate better rates and reduce the marginal cost per transaction. Despite significantly lower volumes, transactions initiated online are already more competitively priced than cash/agent services. Encouraging migrants to send money home online will not only directly reduce the cost to migrants, but will also increase formal volumes, which should in turn increase competition and help reduce cost structures further.		
Intervention	Contingent on the research from Recommendation 1, to lead an awareness campaign to promote the use of non-cash transfers among diaspora into Africa. The campaign will involve working collaboratively with UK embassies and diaspora organisations to promote the use of online money transfer services and to move away from the prevailing agent-led model. Whilst the design of campaigns and the intervention will depend on the findings from Recommendation 1, it is anticipated that it will: • encourage senders to research new service providers/shop around, including online providers • encourage senders to initiate their transaction online using their existing service provider (if available) • help to build trust in online remittance companies • help senders to understand the real cost of sending remittances • build awareness around the networks in receive countries of online remittance service providers. Awareness campaigns to include leaflets, radio campaigns and/or web pages, each tailored to the targeted African diaspora community.		
Risks/ Challenges	Low  High		
Countries	Nigeria (largest UK corridor), Tanzania (expensive from the UK), DRC (large informal market, FCAS), Sierra Leone (FCAS) and Zimbabwe (FCAS, options for digital payout).		
Owner	UK donor organisation/government.		
Costs	£100k-£300k	**Timescales**	1 year
Impact on the UK-to-Africa Remittances Market	Accelerate growth in transactions being initiated online from the UK. Directly reduce the average cost paid by migrants for sending money home to Africa. Directly reduce the weighted average of sending remittances from the UK.		

7.1.3 Recommendation 3: Pilot Providing Access to UK-based RSPs to SADC

Background	SADC has one of the most advanced regional Real Time Line (RTL) systems in Africa, which supports regional bank settlements on retail Regional Clearing Houses (RCH) and/or local Automated Clearing Houses (ACH) that are undergoing regional testing and certification. (See Section 5.2.11). Zimbabwe and Zambia are listed as the latest to certify key transactional elements. SADC is now becoming more focused on retail payments and there are currently plans underway for a low-value cross-border scheme for mobile initiated payments and low-value, credit push, mobile-enabled transactions. Linking SIRESS to eMoney and mWallets would provide a real-time, regional interoperable payment system across all digital payment channels. (Note that other regions such as EAC and COMESA could also be considered for this type of intervention but are not quite as advanced as developments with SIRESS).

Intervention

To develop the international channels to connect payments from developed countries to SADC. This will leverage work that is being undertaken in new account-based services, such as mobile wallets.
To design and implement a pilot to connect RSPs in the UK into SIRESS through an African sponsor bank to pay out into any of the methods that SIRESS enables, e.g. a mobile wallet, bank account, etc. To focus on one corridor initially to deliver proof of concept.

Prerequisites:

- A receive country where the domestic mobile money market is developing. Ideally an FCAS market or high-cost corridor.
- Identify one or multiple MTOs in the UK (ideally the larger ones or a strong corridor player) to partner with for the pilot.
- Identify a sponsor bank connected to SIRESS, preferably with a branch in the UK. Whilst it is not imperative to conduct the pilot with a bank with a branch in the UK, it is considered advantageous for the pilot in terms of relationship building and communication between RSPs and the sponsor bank.
- For the partner bank to have an existing relationship with a mobile money provider.

Scope of Work:

- To work with stakeholders to understand the necessary steps to make a UK-to-SADC recipient country payment into both bank account and mobile wallet using SIRESS feasible.
- To work collaboratively with the SADC Bankers Association and Committee of Central Bank Governors in SADC (CCBG) and other stakeholders to develop the framework, standards, criteria, safeguards and protections for RSPs to be eligible to access the SIRESS system through the sponsor bank.
- To work with the UK regulator on AML/CFT on agreed/validated standards.
- To work with one sponsor bank connected to SIRESS to pilot and prioritise the channel.
- To monitor and evaluate the impact on efficiency, remittance prices and volumes using the service, and inform other market players (banks, MNOs and RSPs).
- To develop a product for remitters in conjunction with the main RSPs for the appropriate corridor.
- To design a marketing and dissemination programme for the service.
- To develop a communication strategy to disseminate the results to the development community and other RACH's.

Potential Pilot Corridor:

It is proposed that the UK-to-Zimbabwe corridor is used as a demonstrative case. The Office for National Statistics (ONS) reported in 2015 that there are 133,000 Zimbabweans living in the UK, the fourth largest African diaspora. Zimbabwe is an interesting case as it has a sophisticated mobile payments infrastructure through EcoCash. In Q1 2017, the average cost for sending money to Zimbabwe was 7% of the send amount. Banks such as Steward Bank – based in Zimbabwe – offer the mobile wallet, EcoCash, and have a branch in the UK, as well as being linked into SIRESS. EcoCash has partnered with Western Union, MoneyGram and WorldRemit to offer money transfers to their diaspora.

Alternative Potential Pilot Corridor:

UK to Zimbabwe or UK to Tanzania. Whilst Tanzania is not considered an FCAS, there would be benefits from potentially lowering costs to this market. There are 39,000 Tanzanians living in the UK (2015). Remittances to Tanzania average 14% of the send amount (2017) and are estimated at £44 million per annum from the UK.[45] Tanzania has a booming mobile money market, with four providers competing for market share (Airtel, Tigo, Vodacom and Zantel) and 17,500 mobile money agents compared with 504 bank branches.[46] Banks in Tanzania connected into SIRESS currently include EcoBank, Barclays, Standard Chartered, Stanbic, First National Bank of Tanzania and the National Bank of Commerce.[47]

[45] World Bank T4 Bilateral Remittance Data, 2015.
[46] GSMA, Tanzania Enabling Mobile Money Policy 2014.
[47] http://www.sadcbanking.org/siresslive participants.aspx.

Risks/ Challenges	That the model is not replicable outside of the SADC region – due to the strong Rand in SADC as the settlement currency.		
Countries	UK to Zimbabwe or UK to Tanzania.		
Owner	Donor organisation.		
Costs	Initial £100,000 for grant-funded technical assistance, although the pilot could involve taking on some bank costs or underwriting limited risk.	**Timescales**	2 years if the regulators are not focused on the output, shorter if it is within their objectives.
Impact on the UK-to-Africa Remittances Market	• For the pilot to act as a proof of concept for other banks to start operating as gateways into the system for RSPs in the UK. The model will be service-provider-agnostic, so any operator can use it. • For the pilot to also act as a demonstrative case for other MTOs to connect via sponsor banks into SIRESS for their payments into the SADC region. In the long term, it should open up the network to other UK RSPs and increase competition in the market. It will connect to banks and other mobile money services so it expands the network access at both send and receive ends. • SIRESS improves access, speed and consistency, which should be reflected in lower prices to the consumer. • The pilot should also act as a strong learning point for intra-regional transactions and in testing whether remittances can be leveraged for financial inclusion. • The East African Community (EAC) is also currently developing their RACH, although it is not as advanced as SADC. The EAC has received financing from the African Development Fund (ADF) toward the cost of the establishment of the EAC Payment and Settlement Systems Integration Project (EAC-PSSIP). In the future, there are opportunities for the frameworks developed through this pilot to be built upon in the EAC.		

7.1.4 Recommendation 4: Support to Expand the Reach of Remittance Hubs in FCAS in Africa

Background	Remittance processing hubs have an important role in the cross-border remittances market, interconnecting payment providers (banks, MNOs, MTOs, etc.) across multiple payment channels (cards, banks, eWallets, mWallets and cash) and across borders through a single connection and contract with service providers. As digital acceptance networks develop domestically across Africa and usage becomes more widespread, hubs are in a prime position to open these networks to international remittance flows and perhaps even leverage these flows to benefit financial inclusion among recipients. Some of the objectives of this research are to explore opportunities to scale remittance flows into FCAS and reduce the cost of these transactions. In FCAS, digital payment instruments and pay-out/acceptance networks can be weak compared with other countries (see Box 1). As these develop (and they are currently developing), linking these providers to remittance processing hubs will provide formal, digital remittance solutions to UK senders into FCAS. Due to the weaker institutions and higher levels of perceived risk in FCAS, incentivisation may be required to make it commercially attractive or viable for remittance processing hubs to enter these countries, overcome existing barriers and connect to their (often fledgling and small) digital payment providers.

Intervention

For donor(s) to provide financial, technical and advisory support to remittance processing hubs for entering FCAS in Africa. This support should include:

Financial Assistance – to cover the cost of:

- Technical integration for straight-through processing of remittances with new service providers
- Due-diligence/auditing potential service providers
- Legal facilitators and legal advisors to help achieve regulatory approval and bank accounts in FCAS
- Marketing for service providers in the UK to advertise the opening of new corridors and channels (could be through embassies and diaspora organisations as in Recommendation 2).

Advisory Services

- To assist hubs in engaging with regulators in FCAS and obtaining regulatory approval for their model.

Technical Assistance

- To support payment service providers in FCAS to meet with regulatory and hub compliance requirements for paying out international remittances.

For the donor to take a leading role in supporting remittance processing hubs and communication between stakeholders (donors, hub operators, regulators, MTOs, mobile network operators etc.).

Eligibility Criteria: For donor support to be agnostic; open to all remittance hubs globally/in the UK, such as Mastercard Send, TransferTo, MFS Africa, Earthport, TerraPay etc. Wherever possible, donor support should be leveraged for the benefit of all remittance processing hubs.
Whilst the nature of the support requested will vary, it is proposed that the hub should be able to demonstrate the following to be eligible for support:

1. A shared commitment, in terms of resources, to opening/expanding the corridor (especially to UK RSPs).
2. That donor support is required to make the activity commercially viable or attractive.
3. That the solution will contribute to improving scale and/or reducing the cost of remittances into FCAS from the UK.

Donor Support Administration:

Define Parameters

- Identify and detail all remittance processing hubs internationally (especially from the UK).
- Define scope, resources, eligibility criteria, application process, selection criteria and timeframes.

Communication and Awareness

- Donor support for hubs to be communicated to hubs globally/in the UK detailing the parameters. Channels include webinars and newsletter.
- Quarterly update to stakeholders on support planned/underway and completed.

Application process and selection criteria

- Due to the diverse nature of requests, a non-standardised application format is suggested, defined on a needs-basis through discussions with the donor. One funding round per annum to be able to conduct relative assessments between applications.
- The time and resources required to apply for funding or support should be proportionate to the scale of the application proposed.
- Whether support is awarded will be assessed on an individual basis, based on a cost-benefit analysis assessing the direct and potential impact on remittance scale and costs.

Intervention Continued	**Management** • Managed by a dedicated team who handle administration and communication, and coordinate resourcing. • Support to be executed by resources internally or technical specialists commissioned as per the nature of the support.		
Risks/ Challenges	• Connectivity in the last mile does not guarantee usage by RSPs in the UK or marketing by the RSPs in the UK to senders. • Sunk costs by the donor – invest in activities that intend to lead to improvement in the market. For example, auditing/due diligence of potential payment providers that continue to fail to meet standards. • Potentially there are not enough viable options in the FCAS for connection. • Support too costly and ad hoc to administer and manage.		
Countries	FCAS.		
Owner	Donor-led. For example, FSDA.		
Costs	£500k-£5mn	**Timescales**	1-5 years
Impact on the UK-to-Africa Remittances Market	• Improve connectivity of remittance processing hubs into FCAS. • Provide access to digital pay-out channels in FCAS for increasing formal remittance flows from the UK. • Reduce B2B cost of remittances through aggregation of funds across service providers and through promoting competition between remittance hubs for services into FCAS. • Leverage cross-border remittance flows for improved financial inclusion in FCAS. • Overall, improve access and reduce costs for payments to FCAS.		

7.1.5 Recommendation 5: Influence Policies and Regulations to Allow Non-Bank Financial Institutions to be able to Pay Out Remittances and Agency Banking Regulation

Background	In a number of African countries[48], including large remittance receiving countries such as Nigeria, Ethiopia and Egypt, the institutions that are permitted to pay out international remittances are restricted. The average number of bank branches per 100,000 people in sub-Saharan Africa in 2014 was 3.9, compared with a global average of 13.5[49]. The average number of ATMs per 100,000 people was 5.3 in sub-Saharan Africa, compared with a global average of 44.[50] In several countries, the use of agency banking and mobile money agents is expanding access to payment services,[51] improving financial inclusion and reducing costs, and increasing proximity. Depending solely on a bank's network or a restricted range of institutions' infrastructure for paying out remittances reduces competition in the receive country and increases the real cost of the remittances, particularly when considering travel costs and time. Precluding agency banking in last-mile countries can also hinder access to formal financial instruments, financial inclusion and the development of a downstream digital payments ecosystem. As this research advises that digitising the remittances value chain from the UK into Africa is the main means to reduce cost and improve scalability of remittance flows, agency banking regulation will invariably improve access to digital channels in the domestic environment, aiding scalability of these solutions and ultimately reducing the cost of providing the service.

[48] See Appendix 12 for an overview on how restrictive the environment for paying out international remittances are in African countries.
[49] IMF Financial Access Survey 2014.
[50] IMF Financial Access Survey 2014.
[51] In Kenya, the number of mobile money agents has grown to more than 65,000. (IFAD, 2016).

Intervention	Where required, influencing policy through advocacy, lobbying and legal advice to African regulators to review agency banking regulations (among others) to ensure that non-bank FIs are able to pay out international remittances. Whilst the situation may vary on a country by country basis, non-banks, including post offices and retail networks, should be considered in the provision of basic payment services, with improved access to the local retail payment infrastructure.[52] To share best practice and experiences relevant to the African context, including case studies from Kenya with mPesa; from India, with their correspondent banking model and their introduction of new 'Payment Banks'; and from Brazil, on the role of the national post offices in the development of digital financial services. There are a number of development entities addressing Non-Bank Financial Institution (NBFI) access to remittances markets (for example CGAP and IOM), and care should be taken not to duplicate these efforts. However, it is also important that this area is thoroughly addressed. One way to achieve this is to form an action group of regulators/central banks, MTOs and mobile operators.		
Risks/ Challenges	Many countries do not allow NBFIs to pay out remittances, due to concerns about the capacity and financial efficacy of NBFIs, their ability to handle remittances and pressure from local bankers' keen to protect their markets. The concerns can be overcome by introducing proportional controls and ensuring certain standards are adhered to.		
Countries	Nigeria, Ethiopia, Mozambique, Madagascar and Sierra Leone.		
Owner	UK donor organisation/government.		
Costs	Limited	**Timescales**	0-5 years
Impact on the UK-to-Africa Remittances Market	Allowing NBFIs to offer remittance pay-outs would increase the reach of remittances and increase the level of competition. It could significantly enhance the volume of remittances moving through formal channels, especially to underserved and rural areas. It may potentially lead to a reduction in costs through achieving scale in the digital ecosystem, enhanced competition for paying out remittances, especially digital pay-outs, and because NBFIs would be keen to reduce costs in exchange for having access to hard currency for settlement.		

7.2 Areas Where Other Donors Are Already Active

Improving identification and financial inclusion are both high on the development agenda in Africa, and the developmental benefits are wide-reaching. As demonstrated through this research, both will significantly impact the cost of remittances into Africa and the scaling of formal flows.

Given that there are already dedicated coordinating bodies and donor programmes committed to achieving these goals, it is vital that all donor intervention is complementary to existing work. Existing programmes, networks and platforms should be leveraged to ensure that the international remittances dimension, especially from the UK, is addressed in policy dialogue, infrastructural developments and programmes.

For example, the World Bank's ID4D[53] is taking a coordinating role in digital identity schemes to achieve the SDG by 2020. Engagement with ID4D is required, to ensure that:

1. New/existing eID infrastructures can/are being linked or seeded to existing/future payment instruments for both digital account verification and/or transaction authentication.
2. The eIDs meet with the requirements for international remittances, and therefore will satisfy concerns regarding de-risking by UK financial institutions.

[52] See IFAD 2016.

[53] ID4D is developing a partnership platform and catalysing multi-donor funds to accelerate the engagement with country clients, incubate new approaches, and advance global knowledge.

Similarly, with respect to financial inclusion, FSDA, the World Bank including CGAP, Mastercard Foundation, the Bill and Melinda Gates Foundation, UNCDF and IFAD – amongst others – all have financial inclusion programmes in Africa, and the Alliance for Financial Inclusion (AFI) and FSDA are taking a leading role in regulatory developments. Support is required to improve infrastructure, including financial regulation, access points through network expansion, liquidity challenges, new product development and literacy rates. Linking new digital financial services to international remittances, and ensuring they have the capacity to meet with the required standards for internal controls, for KYC and for AML/CFT management, are essential.

This is part of a long-term strategy, where eID complements financial inclusion and digital payment infrastructure development in the last mile, to enable straight-through digital remittance flows to a fully KYC'd account or payment instrument.

7.3 Non-Priority Areas for Further Consideration

This section details a few areas that may be of interest (especially given the uncertainty and rapid changes in the FinTech market), but at the time of writing are not considered a priority in reducing the cost of remittances into Africa or scaling formal flows.

7.3.1 Cryptocurrencies and Distributed Ledger Technology for Remittances into Africa

There has been a lot of noise in the FinTech world around cryptocurrency and distributed ledger technologies and, as such, there are a number of roles a donor or development agency can take in supporting innovation and the uptake of these solutions in Africa.

Given the challenges that currently exist in the UK-to-Africa remittances market, the authors feel that there are other recommendations in this report which should be prioritised over cryptocurrencies and distributed ledger technology due to the infancy of this technology, the risks and the extent to which it can currently challenge existing operating models. However, there are other potential roles for donor support in the future:

1. Thought Leadership

For a donor to take a leading role in:

- Information and knowledge pooling on advancements in cryptocurrency and distributed ledger technology, including CBDCs (and applications thereof globally), best practice in regulation, lessons learned, and applications for the African market.
- Knowledge-sharing on the above with regulators and stakeholders, through channels such as the Digital Frontiers Institute (DFI),[54] Institute for Remittances (AIR), ITU's[55] Digital Financial Services (DFS) Workshops, AFI, Cambridge Centre for Alternative Finance and the Bank of England.

2. Exporting the UK Regulatory Sandbox to Africa

A regulatory sandbox is a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms without immediately incurring all the normal regulatory consequences of engaging in the activity in question. The UK FCA's Project Innovate houses a sandbox for FinTech providers in the UK. The sandbox provides safeguards for consumers and the financial system, with testing agreed between the businesses and the FCA on a case-by-case basis. This "ensure(s) that protections are sufficient but at the same time not unnecessarily burdensome on the businesses considering their sandbox activities".

The Capital Markets Authority (CMA) of Kenya is already employing a regulatory sandbox structure to encourage innovation in the capital markets. It is proposed that the Kenyan sandbox be extended to include financial innovations in payments, including those applying cryptocurrency and distributed ledger technology. Given the scale of UK-to-Nigeria remittances, this model could also be replicated in Nigeria. There is also the potential to use the sandbox approach in respect to the licensing of NBFIs in certain markets where there is currently resistance to this.

3. Technical Assistance to Regulators for Cryptocurrencies and Distributed Ledger Technology Regulation

Advisory services to establish a best practice regulatory framework for cryptocurrency exchanges and acceptance in African countries.

Legal advice to create a standardised regulatory framework for cryptocurrency exchanges and acceptance in African countries, as well as guidelines for licensing, consumer protection, safeguarding, KYC requirements and AML/CFT adherence, and pay-out into bank accounts and mobile wallets. Potential to work collaboratively with AFI and African Central Banks. In the long term, sound regulatory frameworks and licensed providers would provide confidence to

[54] DFI is a not-for-profit initiative incubated by Rockefeller Philanthropy Advisors. DFI focuses on equipping a new generation of digital finance professionals with the information, vision and skills they need to help institutions and nations on the journey to drive financial inclusion.
[55] United Nations specialised agency for information and communication technologies.

users, banks, MNOs, MTOs and other digital payment providers to use digital currencies and partner/integrate with African service providers, and also enable start-ups to access finance in order to scale.

This intervention is considered premature in the current context, given that many African governments are focused on regulation for mobile and electronic money. Overly cumbersome regulation will likely remove the creative space for innovation.

4. Pilots

Option to fund pilots with operators such as:

1. Abra for remittances from the UK into Africa
2. Circle to link with third party digital exchanges in Africa for straight-through account-to-account transactions using Bitcoin.

Given the infancy of this technology and the unknown risks involved, it is our recommendation that this technology is too young and should be tested within financially developed ecosystems before being applied to the UK-to-Africa remittances market. Furthermore, due to a preference for cash in the first mile and low levels of financial inclusion in the last mile, the impact from such a pilot is considered low.

7.3.2 Coordination with Humanitarian Payment Network

It is recommended to explore with the 'Humanitarian Payments Network' whether there are opportunities to coordinate efforts between humanitarian cash transfer programmes and remittances. The Humanitarian Payments Network is being developed by Squid and Mastercard to build a coordinated network for digital payments for humanitarian response in Africa. These same digital payment networks can be leveraged for cross-border remittances into FCAS through remittance processing hubs.

There is potential to map and identify areas, especially in FCAS, that do not have a payments infrastructure in place through the use of geo-tagging/GPS mapping of agent locations.

7.3.3 Quarterly Review of the FinTech Market to Keep Abreast of Developments

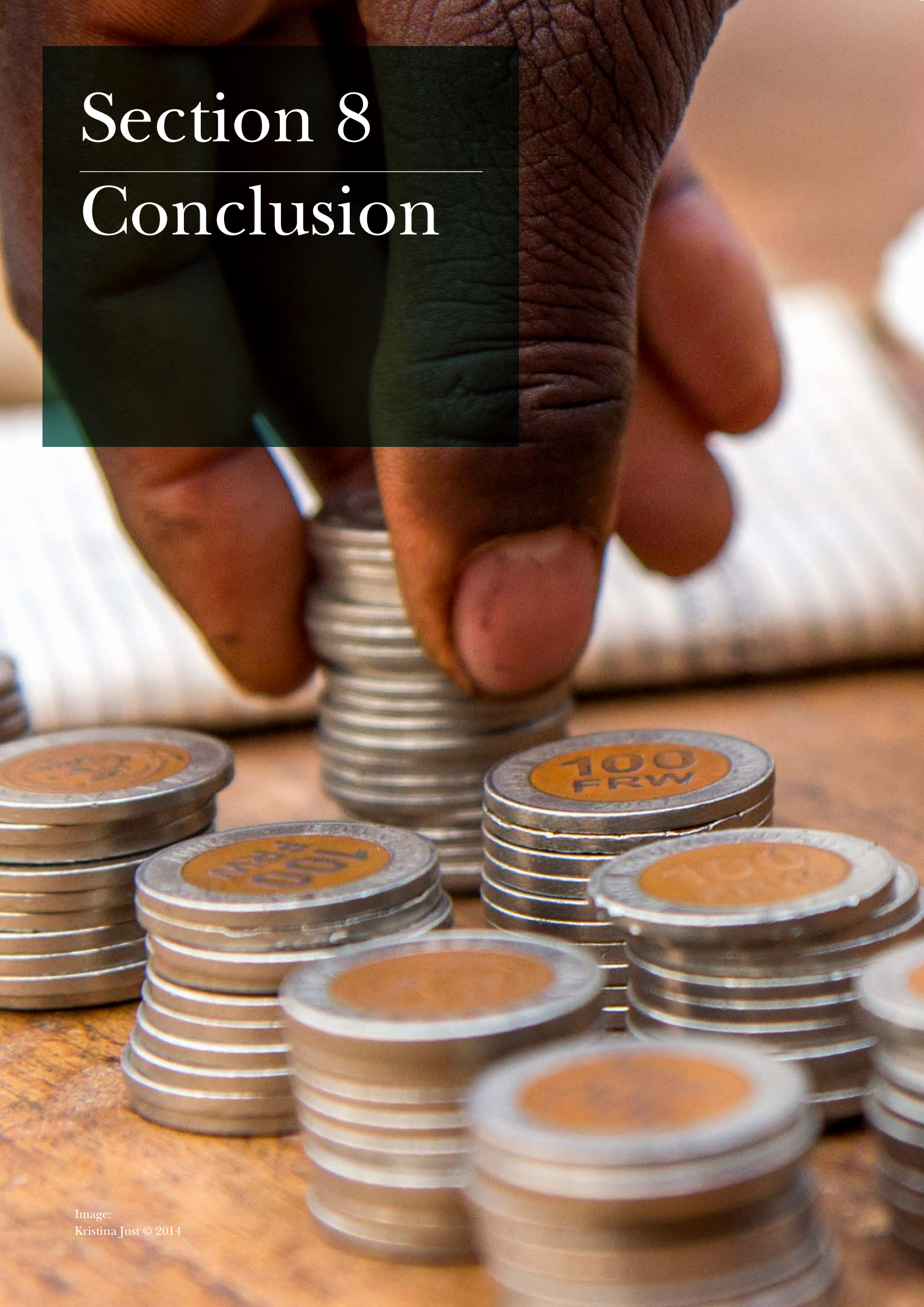
The global FinTech market is evolving at unprecedented speed. As such, new technologies are being created and tested in more developed payments markets that could be applied to, or effect, the UK-to-Africa remittances market. Examples of this include advancements in:

- Distributed ledger technology by financial institutions and remittance processing hubs
- The security, trust and scalability of cryptocurrencies and applications using this technology for convenient, accessible, secure, fast, low-cost cross-border remittances into Africa
- Central Bank Digital Currencies (CBDCs).

Furthermore, as the digital payments landscape develops in the last mile, some of the existing technologies may have renewed interest in terms of their impact on costs and scalability of formal flows.

It is therefore suggested to keep abreast of market developments in terms of new technologies, products and solutions to markets, changes in regulations and trends and consumer behaviour. This would be to assess the potential of these on the UK-to-Africa remittances market, which could be outlined with recommendations in a bi-annual Bulletin update.

Section 8
Conclusion



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Kristina Just © 2014

8. Conclusion

This research has taken a systematic approach to identifying potential 'new' technologies that could be applied to the UK-to-Africa remittances market to address challenges in the market and, in turn, reduce the cost of sending money home. Consultation with industry providers, stakeholders and many technology providers (both financial and non-financial) served as the basis for identifying the areas that, with scale, would help to create a more efficient market.

The main finding from this exercise is that there is no single technology that can be applied to fix the challenges that exist across the remittances value chain. However, there are a number of technologies that are currently being developed and used that are improving the efficiency of the market – such as digital MTOs, hubs and aggregators – that, with scale, will reduce the cost of remittances from the UK to Africa. Creating the environment for adoption of remittances through digital channels in the last mile is key to the increased security, improved access and reduced cost of remittances in these corridors.

Annex 1
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61	Oxfam (2015) 'Hanging by a Thread; The Ongoing Threat to Somalia Remittance Lifeline'
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68	SWIFT Institute. 2014. 'Cross Border Low Value Payments and Regional Integration: Enablers'
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70	Takyi-Appiah, A. (2016) Mobile wallets: the key to seamless payments in Africa, Techcabal.com
71	UIDAI (2014) Aadhaar Technology and Architecture - Principles, Design, Best Practices, & Key Lessons
72	UNCDF (2014), Digital Financial Services in Liberia, Briefing Note 1
73	UK Government Office for Science. 2015. 'Distributed Ledger Technology: Beyond Block Chain'
74	Vargas-Silva (2016), Migrant Remittances to and from the UK, Migration Observatory
75	Western Union. '2015 Annual Report'
76	World Bank. 2011. 'Leveraging migration for Africa: Remittances, skills, and investments'. Washington, DC
77	World Bank. 2013. 'Turn down the heat: Climate extremes, regional impacts, and the case for resilience'. Washington, DC
78	World Bank. 2015a. 'Golden aging: Prospects for healthy, active and prosperous aging in Europe and Central Asia'. Washington, DC
79	World Bank. 2015b. 'A response to global forced displacement'. Staff Working Paper, Washington, DC
80	World Bank. 2015c. 'World development report 2015: Mind, society, and behavior'. Washington, DC
81	World Bank, 2015d, Bilateral Remittance Matrix: https://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data
82	World Bank, 2015e, Harmonised List of Fragile Situations: http://www.worldbank.org/content/dam/Worldbank/document/FY15%20Fragile%20states%20list.pdf
83	World Bank. 2015f, 'Migrants' Remittances from the United Kingdom'. Greenback 2.0
84	World Bank. 2016a. 'Migration and remittances'. Migration and Development Brief 24, 26. Washington, DC
85	World Bank. 2016. 'Payments Aspects of Financial Inclusion'. Committee on Payments and Market Infrastructures
86	World Bank (Q1 2016 and Q2 2016) Remittance Prices Worldwide
87	World Bank. 2016b. 'Shock waves: Managing the impacts of climate change on poverty'. Washington, DC

Annex 2
List of Organisations that were Interviewed

The following is a selection of the organisations and individuals that were interviewed during this project. Individual comments have not been attributed to any individual or organisation. The researchers are very grateful for the help and assistance they provided throughout the project.

Abra	Iris Guard
African Development Bank	Jumio
African Institute for Remittances	Lyca
Alan Turing Institute	Mastercard
AUKPI	MFS Africa
Azimo	Mobey Forum
Beechwood International	MoneyGram
BitFinance	Moneynet International
BitPesa	Mukuru
Bitsoko	Open Data Institute
Cenfri	Ralph C. Maloumby-Baka
Central Bank of Kenya	Ria
Chris Skinner	Roy Vella
Christian Kingombe	Seedcoin
Circle	Splash
Digital Catapault	Squid Card
Earthport	Stellar
Express Union	TerraPay
Facebanx	TransferTo
Faisal Khan	UKNFS
GSMA	Western Union
Homesend	World Bank
IAMTN	WorldRemit
IFAD	XendPay
IMTC	Zebryx Consulting
Inpay	Zoona
Iris Biometrics	Zympay

Annex 3
Calculations for the Size of the Flow of Remittances from the UK – USD6.5 billion

Estimating Remittance Volumes from the UK to Africa

The UK does not collect or publish any remittance data. As such all remittance data for the UK is based on estimates. A recent note from the Migration Observatory highlights the variation in remittance data estimations from the UK depending on which sources are used.

Figure 26: Different estimates of remittances from the UK

Source	eVouchers
World Bank Annual Remittance Data	1.5
Eurostat	5.3
World Bank Migration Remittance Factbook	7.0
World Bank Bilateral Remittance Matrix	16.5

Source: Migration Observatory (2016)[56]

As such, it should be noted that all aggregate data on UK remittances is estimated. The authors have used the most comprehensive databases available for (a) consistency in methodology within indicators, and (b) for comparability between countries. Where a different source has been used the source is provided.

Author's Methodology

The authors have used the World Bank Bilateral Remittance Matrix[57], 2015, as the basis for estimating the volume of remittances being sent from the UK to Africa. The database is compiled from a variety of sources[58].

The World Bank bilateral remittance matrix has missing data. For the UK to Africa, the dataset contains only 18 corridors[59]. According to the UN migration data (2015) these correspond with most of the largest migrant communities in the UK. Of the missing corridors, only Somalia and Zimbabwe have large UK based diaspora. Based on these 18 corridors, remittances sent from the UK to these countries in 2015 are estimated to sum to USD5,379 million (20% of total remittances from the UK).

Where data is missing from the bilateral matrix, the authors have estimated remittance volumes based on a methodology used by the International Fund for Agricultural Development (IFAD)[60]. The authors have used the UN's 2015 migrant stock data as the basis for these calculations.

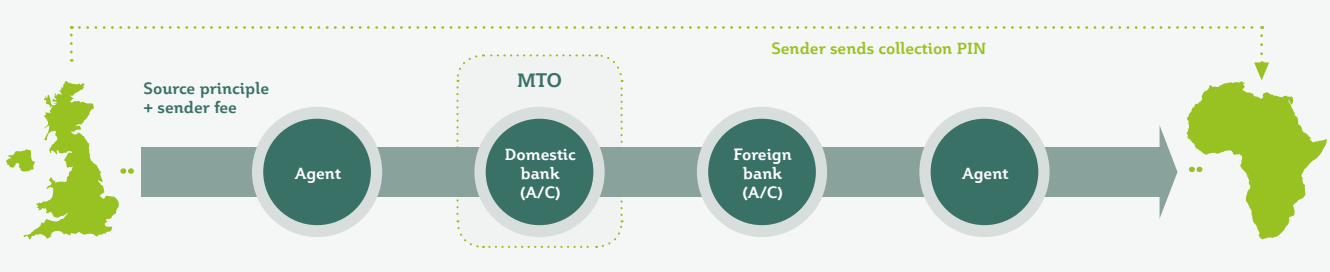
Combining the World Bank bilateral remittance data for 2015 with estimates using migrant stock and IFAD's methodology estimates that USD6.4 billion (£4.1 billion) was sent from the UK to Africa in 2015.

[56] http://www.migrationobservatory.ox.ac.uk/wp-content/uploads/2016/04/Briefing-Migrant_Remittances.pdf.
[57] https://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data.
[58] Where data is unavailable volumes are estimated using a methodology outlined in Ratha and Shaw (2007), "South-South Migration and Remittances," World Bank.
[59] Including: Algeria, Angola, Cameroon, DRC, Egypt, Ethiopia, The Gambia, Ghana, Kenya, Malawi, Morocco, Nigeria, Sierra Leone, South Africa, Sudan, Tanzania, Uganda and Zambia.
[60] This note was prepared by Dr Manuel Orozco of Inter-American Dialogue and describes the methodology for estimating the global remittance flows that was used in a study commissioned by IFAD entitled "Sending Money Home: Worldwide Remittance Flows to Developing and Transition Countries". This methodology assumes that 80% of migrants in the UK send money home and provides an average amount sent per migrant each year by region.

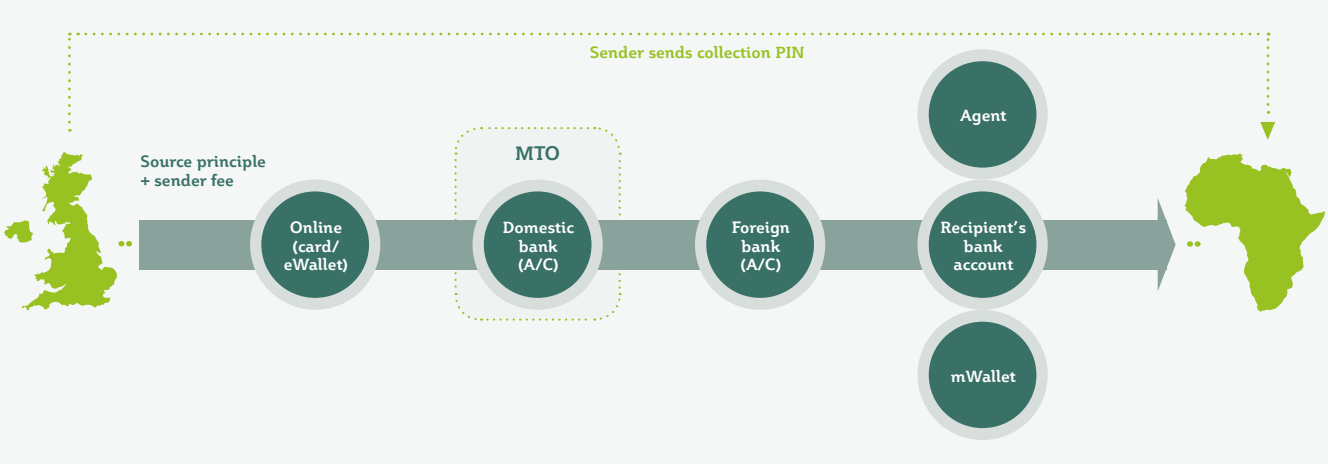
Annex 4
Value Chains for Different Business Models

Section 3 describes the generic value chain and business model for international remittances. There are some variations between different business models, and this appendix illustrates these. The models cover: cash-to-cash via an MTO; online-to-cash/account/mobile via an MTO; account-to-account via a bank; eWallet-to-mobile via an MTO; cash-to-mobile via an MTO; prepaid card via an Mobile Virtual Network Operator (MVNO).

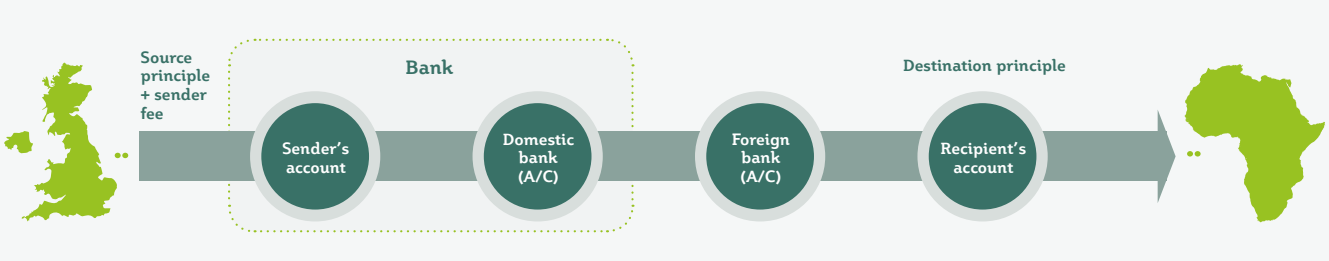
Cash-to-Cash - via MTO



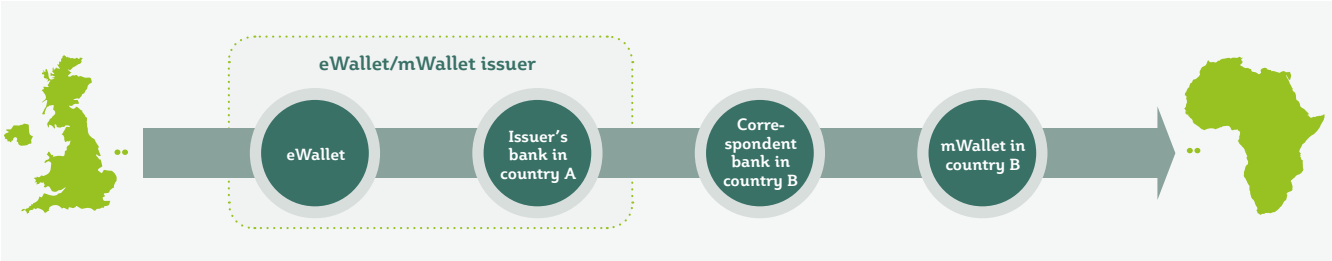
Online-to-Cash/Account/Mobile - via MTO



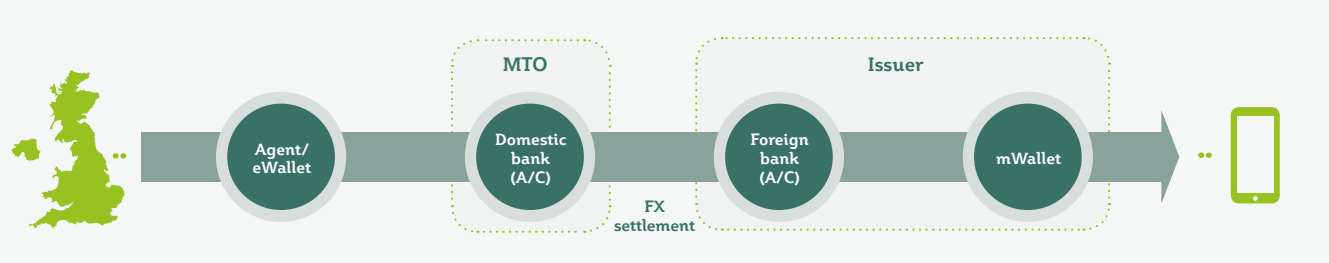
Account-to-Account - via Bank



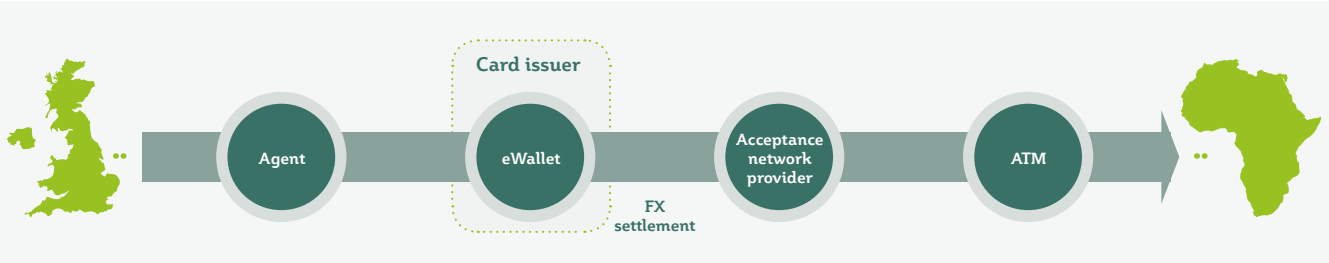
eWallet-to-Mobile - via MTO



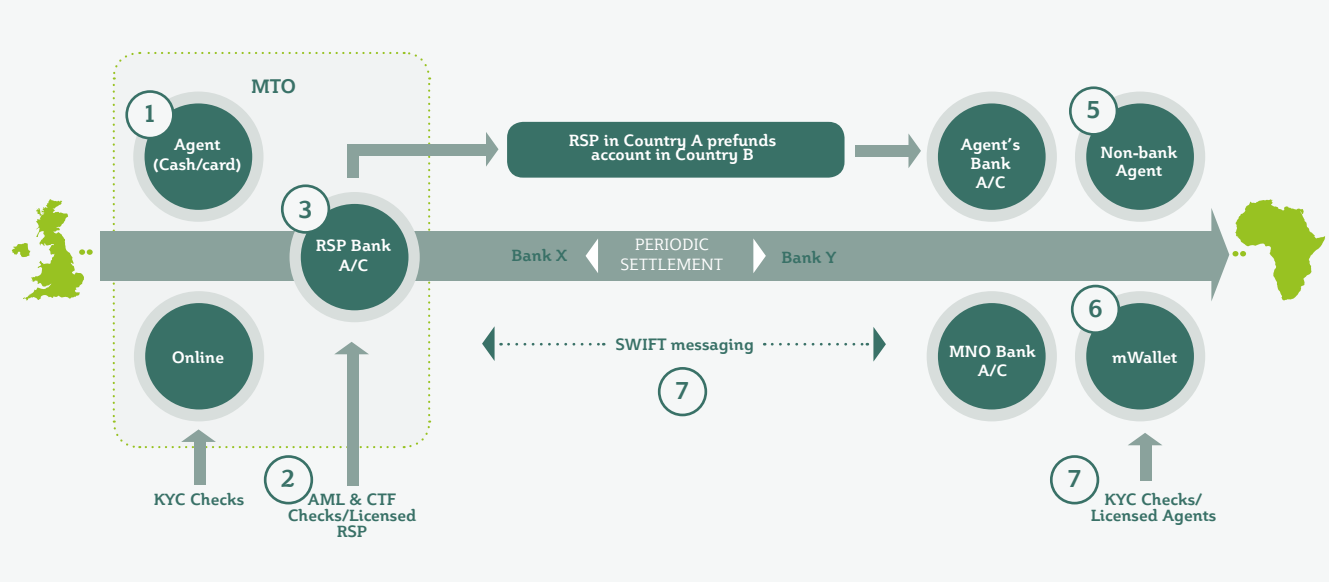
Cash-to-mobile - via MTO



Cash-to-mobile - via MTO



Other stakeholders in the value chain for remittances



Agents - Typically retail outlets. Registered in the with Her Majesty's Revenue and Customs (HMRC)/ Financial Conduct Authority (FCA).

Card Processors (POS, online, mobile apps) - WorldPay (process 42% of txns in the UK), Stripe, Square, Secure Trading.

RSP must be licensed as either Authorised Payments Institute (API) or eMoney Issuer with FCA in the UK (or passported from EU through PSD). AML and CFT chacks are automated through companies such as EastNets, Prime, Bridge, etc.

~25% of MTOs in the UK have bank account with Barclays Bank (incl. the largest 15).

In correspondent banking model **SWIFT** is used for financial messaging for banks.

Many regulators in Africa permit only banks to pay remittances. In most countries, banks constitute over 50% of the business paying money transfers. About 41% of payments and 65% of all pay-out locations are serviced by banks in partnership with Western Union and MoneyGram (excl. Algeria where Post Office is high).

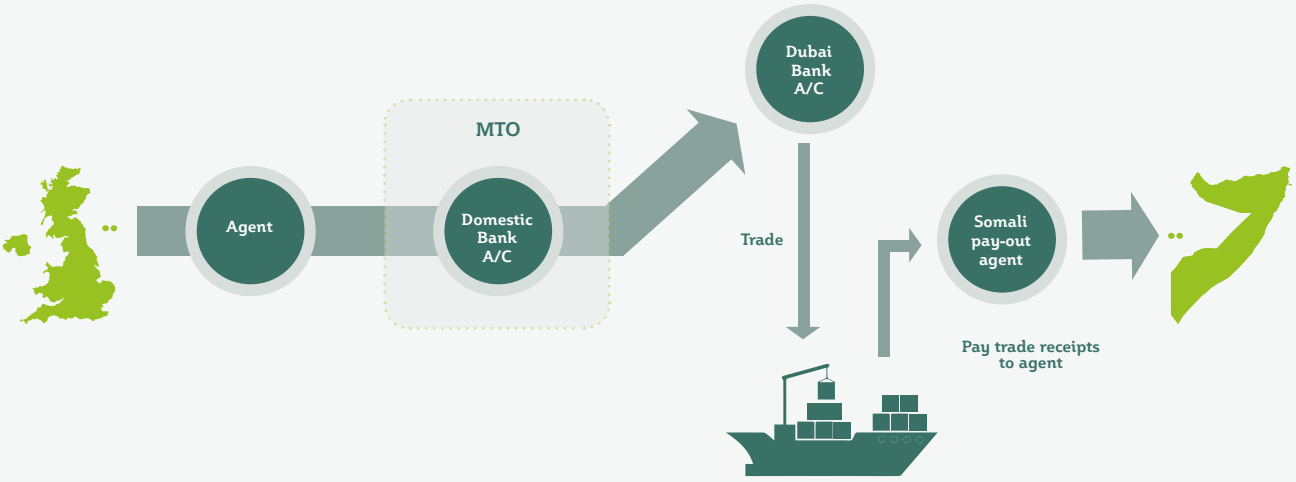
MTOs partner with MNOs in receive country to pay-out into recipient's mWallet. E.g. services to Kenya (mPesa), Uganda (airtel/MTN)/Zimbabwe/Rwanda (Tigo, MTN), Tanzania (Tigo, EzyPesa/mPesa wallets), Ghana (Tigo, Vodafone), Somaliland (Zaad).

Agents are required to be registered and licensed with their respective **Central Bank** to pay out remittances.

Annex 5
Spotlight: Somalia

Somalia

- Somalia is seen as a high-risk country from an AML/KYC viewpoint.
- There is a limited and relatively weak regulatory environment.
- Due to de-risking by banks, UK MTOs to Somalia have had access to bank accounts removed.
- As such, financial institutions in Somalia have no access to international markets.
- In the absence of traditional structures, alternative solutions emerge. Hawala – money without movement – is a model based on trust and is highly developed with settlement based on the third-party payment of trade receipts.
- Despite these challenges, Somalia is estimated to receive USD1.3 billion per year (Oxfam 2015).



Annex 6
Pain Points in the First, Middle and Last Miles

Figure 27: First Mile Pain Points

1 Challenge: Stickiness of cash	Cost: Low – High	Scale: Low – High	Perspective: RSP Despite high financial literacy, high computer literacy and more competitive digital solutions being available, customers have a preference for cash with its higher cost structure. Greenback survey 2015 shows UK remittance senders prefer to use cash-to-cash and have no complaints about the service they receive. Consumer preference rather than alternatives not being available.
2 Challenge: Revenue share with send agents	Cost: Low – High	Scale: Low – High	Perspective: RSP Send agent takes ~25% of the revenue: ~GBP 90 million per annum in the UK. Savings from removing the agent could be passed onto consumer. Over 90% of transactions are sent via agents so changing this would result in a major positive change to operating costs of remittances.
3 Challenge: Cash handling fees and costs and services	Cost: Low – High	Scale: Low – High	Perspective: RSP Cash handling costs are paid by the MTO and are around GBP0.50 per GBP100 deposited (~10% of the revenue). POS fee at agent similar in fees; bank transfer or card initiated payment are free. Costs are likely to increase with the Post Office terminating cash deposits for MTOs. For the most part, cash is consumer preference rather than online solutions not being available or accessible.
4 Challenge: Consumer awareness and trust in online financial services	Cost: Low – High	Scale: Low – High	Perspective: RSP/consumer • Extensive marketing costs for RSPs, especially new online service providers. Most competitive price on the market not paid by the consumer. • 87% of UK consumers have heard of Western Union, while just 15% of respondents had heard of Transferwise. Other challenger companies such as Remitly and WorldRemit fare even worse, with just 12% and 10% of consumers (FXCompared, 2016) Stickiness of cash prevents scaling of online services, but not scalability of formal remittances to Africa.
5 Challenge: Managing and training agents	Cost: Low – High	Scale: Low – High	Perspective: RSP Training costs to ensure agents can handle AML/CFT & product considerations. Each agent needs to be registered with HMCR at a cost of GBP120 annual cost to MTO on due diligence on agents. Given most advantages will come from removing agents, training and managing agents will not really help increase scale.
6 Challenge: Financial literacy and inclusion	Cost: Low – High	Scale: Low – High	Perspective: RSP 95% of adults over 15 in the UK have a bank account (only marginally lower for some diaspora).
7 Challenge: Computer literacy and access to internet	Cost: Low – High	Scale: Low – High	Perspective: RSP/consumer In 2015, 86% of HH in the UK had access to the internet and 78% of adults access the net every day (ONS). The number increases every year.
8 Challenge: Non-transparent, not easily comparable pricing	Cost: Low – High	Scale: Low – High	Perspective: Consumer Non-quantifiable. Assumes customers do not shop around. Making transparent pricing has historically lowered some cost but in the UK this happened 10 years ago and so the impact would be less. Transparency is a legal requirement in the UK. However, there is no price transparency site for the UK.

Figure 28: Middle Mile Pain Points

1 Challenge: Access to UK bank accounts for MTOs

Cost

Scale

Perspective: RSP

Potential to reduce competition in the market which could negatively affect prices e.g. the UK-Somali corridor witnessed an increase in average prices from 5% of the send amount to 6% in 2015 as a result of de-risking. Furthermore, due to the risk associated with cash, there may be additional costs for cash collection - e.g. Post Offlce no longer accept deposits.

RSPS have typically required a bank account to operate. According to data from the Financial Conduct Authority (FCA) which oversees the UK's financial sector, 731 money transfer providers have had their operating licenses cancelled since 2010. Of these closures, 94.5% have been of 'Small Payment Institutions', while just 5.5% were 'Authorised Payment Institutions".

2 Challenge: Correspondent banking model

Cost

Scale

Perspective: RSP

- The correspondent banking model means account-to-account transfers using a bank are expensive and costs and timeframes are unknown when the transaction is initiated. It is part due to these factors that the traditional MTO business model exists.
- Prefunded accounts by MTOs; due to the delays in the corresponding banking model, MTOs are required to keep prefunded bank accounts in receive countries. This has liquidity cost and management implications for RSPs.
- Large banks are purging the number of relationships they have (correspondent banks) as part of their de-risking efforts. UK banks consider systemic risks due to the number of FIs involved in process and lack of confidence/control over KYC procedures leading to de-risking be banks. Consolidation reduces competition in the market and may negatively effect prices. Similarly, banks in receive countries my be increasing KYC/AML requirements beyond what is necessary to retain their relationships which in turn impacts costs.

Reliance on the corresponding banking model means only those with access to bank accounts can operate.

3 Challenge: KYC/AML and regulatory approaches different in each jurisdiction

Cost

Scale

Perspective: RSP

Compliance costs. WU spends 4% of revenue on compliance and the smaller online operators ~7%. It also presents a risk that directly impacts the sustainability of any particular channel. For e.g., we know of a correspondent bank in Cambodia that closed its business due to a USD900 million fine.

The difference in KYC approaches affect market access and transaction routing blockages. Ability for operators to enter some markets is very difflcult, and time for new operators and models to get approval is much longer than before, if required in 3rd mile.

4 Challenge: Interoperability

Cost

Scale

Perspective: RSP

Cost and time required for integration with pay-out channels. Providing the technology to connect different products and operators at both ends of a transaction. Can have an impact on costs in the longer run through competition. Interoperability makes markets more competitive and enables the scaling of distributing products more efflciently than other alternatives.

5 Challenge: Fixed exchange controls

Cost

Scale

Perspective: RSP

Causes black market activities and can lead to a parallel foreign exchange controls. Reduce ability of RSPs to be able to batch and offset funds. Reduces the opportunity for MTOs to compete on a level playing field.

For some markets, such as Nigeria, this can have a major impact, because the difference between the offlcial rate and the parallel market rate is very high. In markets where the difference is less than 5%, the impact on scale is low.

6 Challenge: Systems

Cost

Scale

Perspective: RSP

Develop systems to enable the efflcient handling of transactions. Some systems are still not particularly automated and standards vary between operators. Improving the efflciency for systems would help to reduce costs somewhat and therefore might make a little difference on consumer prices but will not have a massive impact.

Improving systems will spur more effective operations and allow for faster expansion than would otherwise be the case. This will have a reasonable affect on scaling of business but its absence is not preventing business from operating.

Figure 29: Last Mile Pain Points

1 Challenge: Inability to verify KYC and conduct comprehensive customer due diligence	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer High levels of perceived risk due to poor KYC and customer due diligence results in higher compliance costs and fewer RSPs wishing/able to serve the corridor resulting in less competition. Not being able to conduct proper KYC will prevent access to remittances generally. Digital services make it much easier to conduct KYC/AML. Lack of KYC is a major contributor to the perceived remittance-related risks resulting in de-risking by banks. De-risking leads to a dependency on informal channels.
2 Challenge: Access to pay-out locations (esp. rural)	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer The real cost of remittances include travel costs + time in the receive countries. Especially the case in rural areas. In SSA in 2014, there where 3.9 bank branches and 5.3 ATMs per 100,000 people (IFAD, 2014). Terminating onto a mobile wallet only passes the cost downstream to mobile money agents unless there is a digital payment infrastructure and acceptance network. Dependency on agent network of large MTOs where costs are higher. High barriers to entry for new service providers. Poor digital payment ecosystem and infrastructure hinders digital-to-digital remittances. Dependency on informal remittance channels to reach rural areas.
3 Challenge: Liquidity of agents (esp. mobile money)	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer The cost to the pay-out agent of moving money around the country to make sure agents are liquid. Also, the real cost of collecting remittances/travel costs + time (as above). Significant challenge in mobile money model which has the potential to reach rural, unbanked areas and challenge informal remittance channels. Fixing it will lead to greater formal remittances.
4 Challenge: Lack of financial inclusion and literacy	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer No access to more competitive solutions available that require a bank account or mobile wallet. Only 34% of adults in SSA have an account with a financial institution (Findex 2014). Getting more people to use financial services increases the opportunity for demand to require that remittances terminate in an account.
5 Challenge: Limited knowledge and trust in mobile money and other new payment mechanisms	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer No access to more competitive solutions available that require a bank account or mobile wallet. Most people in Africa have a mobile phone but do not have access to mainstream financial services. Being able to access them would enable remittances to be sent more efficiently and through formal channels.
6 Challenge: Non-bank FIs (NBFIs) are often not allowed to handle remittances and foreign transfers	Cost: Low / High Scale: Low / High	Perspective: RSP/consumer Bank branches are often in urban areas in Africa. Bank costs are high and there is no competition. Allowing NBFIs to offer remittances would enable more competition and reduce costs - both in terms of transaction charges and for travel cost + time (opportunity costs). Constraining the network for paying out remittances. More network types would enable greater volumes of remittances through formal channels.
7 Challenge: Revenue share with receive agents	Cost: Low / High Scale: Low / High	Perspective: RSP Typically a receive agent will earn around 25% of the revenue: ~GBP90 million p.a. Removing this is a cost saving that can be passed onto the consumer which would impact pricing. In the receive markets most transactions still are collected as cash at an agent. However, where other options are available, especially mobile money networks, they significantly contribute to increased scale - particularly where there is a digital ecosystem, e.g. Kenya or Zimbabwe.

Annex 7
Biometric and Electronic National Identification Schemes

NIMC - The Nigerian National ID Scheme in Partnership with MasterCard

National Identity Management Commission (NIMC) is the Nigerian national ID scheme. NIMC plans to distribute cards to 120 million of the 167 million Nigerian citizens making the program the largest rollout of a formal electronic payment solution in the country and the broadest financial inclusion initiative of its kind on the African continent. NIMC is partnered with MasterCard for prepaid card functionality and Access bank for card issuance. So far 10 million people have enrolled and 1 million cards have been issued. NIMC has been trialed with MasterCard Send for compatibility which worked well - but has not been rolled out yet. At the time of writing, regulatory approval is still needed. The NIMC project is apparently experiencing delays due to political reasons and does not have the funding it needs to complete.

UNHCR – Biometric Financial Services to Refugees linked with MTOs

UNHCR currently distributes cash to Syrian refugees living outside camps through ATM iris scanning in conjunction with Cairo Amman Bank and Iris Guard. The iris scan database has approximately 95% coverage of all registered refugees living in Jordan. The cash transfer system currently distributes USD$6 - 7 million monthly. Thanks to a partnership with Cairo Amman Bank, Jordan is the first country in the world to use iris scan technology to enable refugees to access their funds without the need for a bank card or PIN code. The system also has very low overheads, meaning that for every dollar donated to the cash assistance programme more that 98 cents ends up in the pockets of refugees.

There are apparently plans to link JOMOPAY (the Jordanian mobile switch) to the biometric checkout, so that money goes straight onto a mobile phone rather than being released from an ATM in cash. This would add a substantial financial inclusion element, allowing refugees to effectively hold a virtual account and make payments and transfers, receive assistance, pay bills and (ultimately) receive remittances. More generally, it would also create a significant vertical for mobile money uptake. Cairo Amman Bank receives the database from UNHCR and distributes cash accordingly. Thus, KYC/AML is the responsibility of UNHCR, not Cairo Amman Bank.

Ghana

The process to establish a Ghanaian electronic ID scheme was initiated very recently, in January 2017. The principal motives behind creating a single National ID system in Ghana stems from the need to track the immunisation of children and health care of citizens, issue drivers licenses and passports linked to digital identity registry, eliminate ghost names from the civil service payroll, and reduce the cost of maintaining multiple Identity databases[61]. This National Identification project is expected to be completed within the first year of the NPP (New Patriotic Party) administration[62]. The major stakeholders involved in this project include the Births and Deaths Registry (BDR), National Identification Authority (NIA), Ghana Immigration Service (GIS), Ghana Statistical Service (GSS), National Health Insurance Authority (NHIA), Ghana Revenue Authority and National Development Planning Commission (NDPC).

Kenya

The Electronic National Identity Card was set up in Kenya at the end of 2015. The e-card contains biodata of each individual, their kin, assets, bank accounts, driving licence, passport number and personal identification number (PIN) and an array of information that can help combat tax evasion, loan default and corruption[63].

[61] http://citifmonline.com/2017/01/26/govts-national-id-project-takes-off.
[62] http://www.myjoyonline.com/news/2017/january-26th/government-kick-starts-national-id-project.php.
[63] http://www.theeastafrican.co.ke/news/2558-2507646-scmvg7z/index.html.

Egypt

It is obligatory that every Egyptian citizen aged 16 or older has a national ID card. The card is required to access medical care in hospitals and for employment, education, banking, and acquiring property. Since 2015, Mastercard has been working with the Egyptian government to roll out a digital ID program that links citizens' national ID to the existing national mobile money platform, allowing Egyptians to participate in the formal electronic economy through a single, easy-to-use cashless program[64]. Digital ID cards can be used to pay for a multitude of services such as government fees, mobile bills, merchant purchases and domestic remittances. It is unclear whether the digital ID scheme has been completed. However, upon completion, the deployment of the digital ID cards is expected to be one of the largest in the world.[65]

Senegal

IRIS Corporation (IRIS), the inventor of the world's first ePassport and multi-application electronic identification (eID), deployed its integrated biometric eID with voter card to the Government of Senegal for the country's electronic ID scheme. Senegal's ECOWAS Biometric ID also acts as a valid document that facilitates intra-regional travel. The card replaces the current resident permit so that citizens can live and reside in any ECOWAS country without having to provide another identification document.[66]

Democratic Republic of Congo

By the end of 2016, the government had envisaged providing an e-passport to every Congolese citizen who wanted one[67]. The e-passport, designed by Semlex, is both biometric and electronic. The new identity documents uses fingerprints to identify citizens and aims to facilitate intra-regional travel. Citizens will not have to worry about identity theft or carrying additional ID documents for travel purposes. To assist with registration in the DRC, 26 provincial centres have been created, and more than 60 embassies have been equipped with biometric registration stations.[68] However, the biometric card is among the most expensive in the world, costing each Congolese applicant $185.[69]

Malawi

Malawi launched its electronic national ID scheme at the end of 2016 with the intention to enact transformative change throughout the country. Malawi had previously been the only southern African country without national identification cards[70], but now all citizens over the age of 16 are required to possess one. President Peter Mutharika said the government will be able to screen individuals before accessing public services and identify all citizens in the quest to reduce crime and improving security thanks to the National Identity Card. The biometric card will also save significant amounts of money that would be spent on voter registration during elections, eradicating 'ghost workers' and saving public funds, bringing better organization in various socio-economic transactions in programmes such as fertilizer subsidy, social cash transfer, banking and loan schemes. The National Registration Bureau (NRB) says it has registered over 1,600 people in the first phase of National Identity System project.[71]

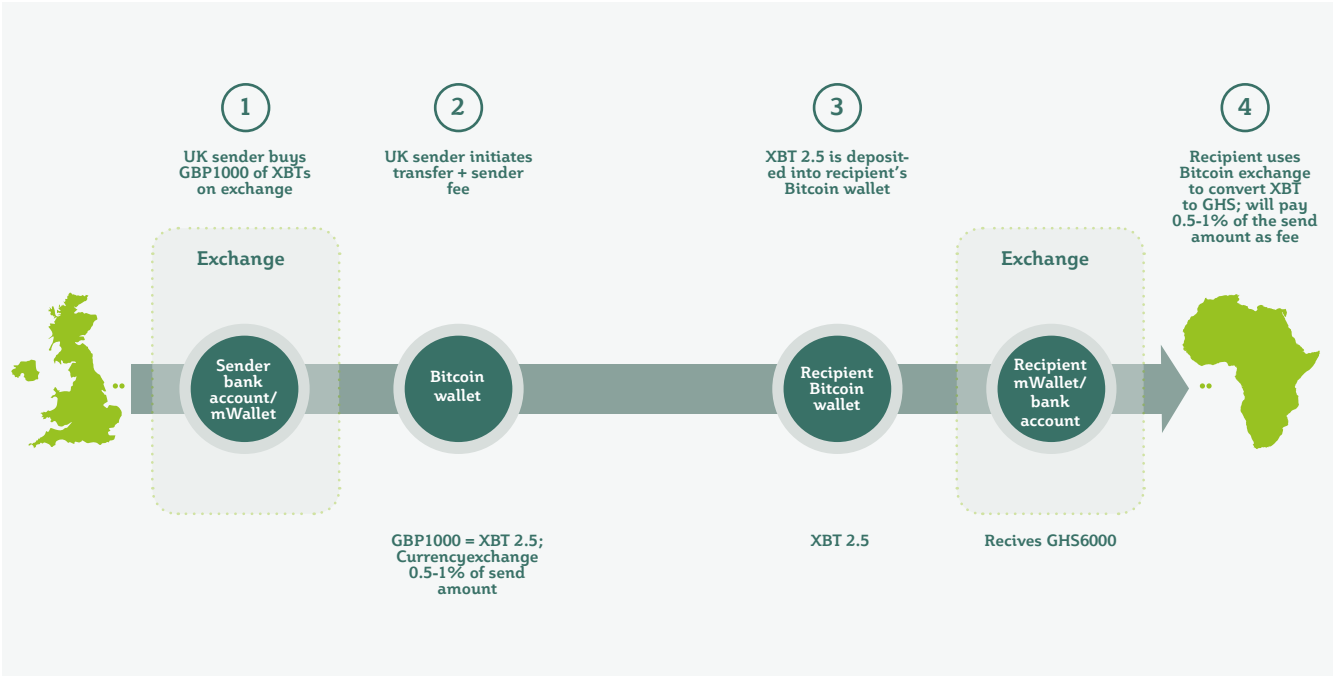
ECOWAS

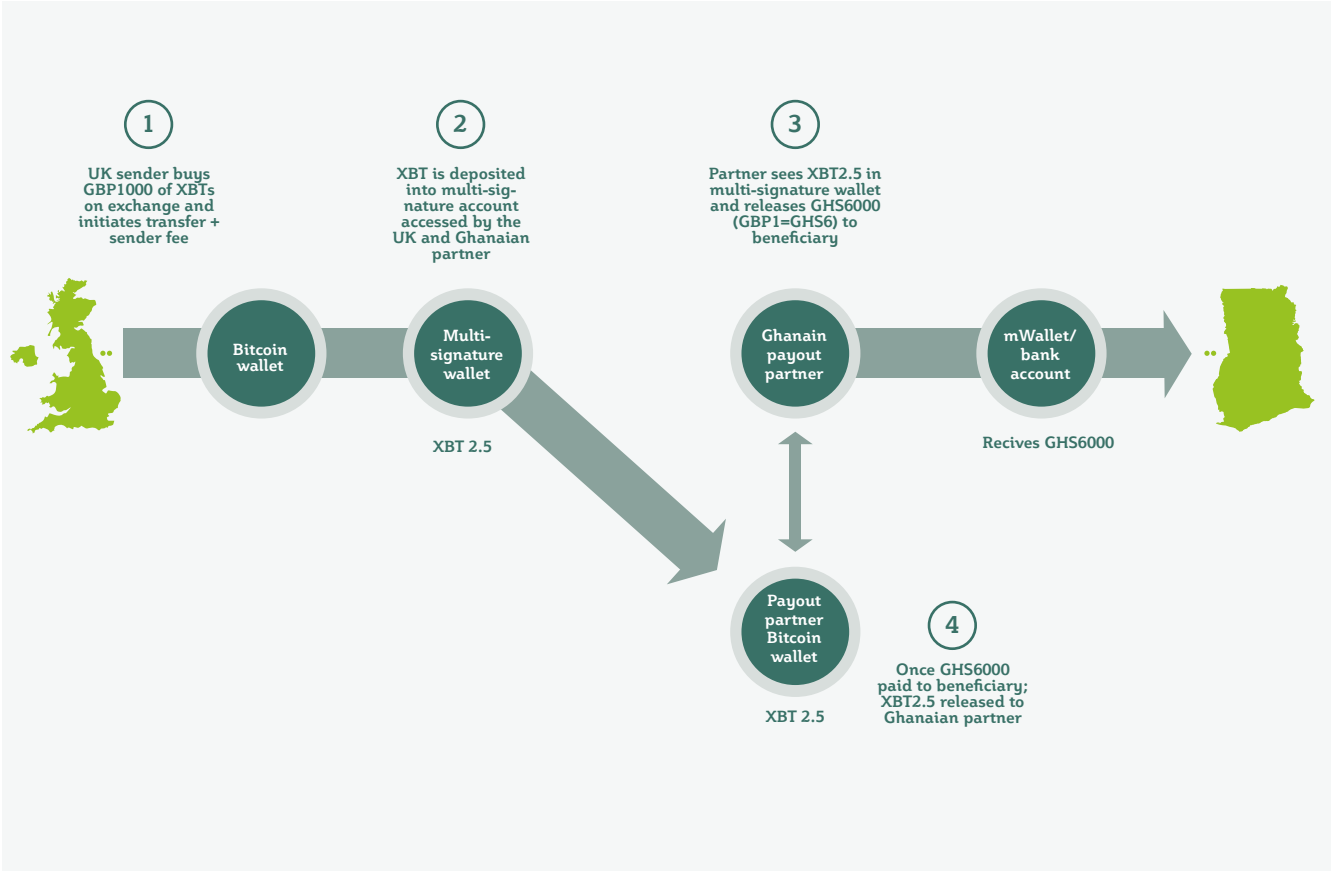
ECOWAS is currently rolling out a common biometric identity card to replace the resident permit for all 15 member-countries. This is to help further integrate the region by enhancing the free movement of people and goods within the sub-region. It is estimated that 80% of all migrants originating from West Africa live in other countries in West Africa[72]. President of Nigeria, Muhammadu Buhari, hinted that the single biometric identity card could also facilitate the establishment of a single currency in the sub-region[73].

[64] http://newsroom.mastercard.com/press-releases/egyptian-government-and-mastercard-collaborate-to-extend-financial-inclusion-to-54-million-citizens-through-digital-national-id-program-2.
[65] https://www.privacyinternational.org/node/976#toc-6.
[66] http://www.iris.com.my/media_20161004_senegallaunch.html.
[67] http://www.biometricupdate.com/201606/semlex-chosen-for-new-congolese-passport.
[68] http://www.biometricupdate.com/201606/semlex-chosen-for-new-congolese-passport.
[69] http://www.reuters.com/investigates/special-report/congo-passports.
[70] http://malawinewsnow.com/2016/10/malawi-launches-national-id-cards-president-mutharika-calls-it-transformation.
[71] http://www.times.mw/over-1600-register-in-national-id-project.
[72] http://www.id4africa.com/prev/img/ECOWAS_COMMISION_PRESENTATION.pdf.
[73] http://punchng.com/ecowas-adopts.

Annex 8
Cryptocurrency Remittance Value Chains

Two Bitcoin-Based Remittance Platforms Value Chains





Annex 9
FinTech Company Profiles

Cryptocurrencies

Abra – A mobile app using cryptocurrencies to make cross-border P2P payments. Innovative back-end Bitcoin hedging solution to overcome challenges in volatility to guarantee the cryptocurrency balance remains denominated in local fiat currency. Payment via bank account for banked customers and building an agent model for non-banked.

Circle – A social payments app that started in 2013 with the aim of reducing the cost of cross-border person-to-person payments. Circle benefits from four technologies: (1) blockchain technology – information is encrypted, secure and distributed; (2) artificial intelligence (AI) to automate KYC and AML, providing scalability; (3) cloud computing; and (4) mobile money. It is an open platform that offers direct services between the USA, the UK and Europe in USD, GBP and EUR, and globally through Bitcoins. In the last 12 months, they have processed over USD1 billion and user growth is at 300%. Given it is an open network, Circle provides the pipes for making payments globally and local Bitcoin exchanges in the last mile are required for cashing out (as they are not licensed there). In the UK, people link their debit card (free) or credit card (<2% fee) to initiate the payment via the app. They can send money directly to EUR or USD or a blockchain address (clunky). Circle are looking to build their ecosystem by onboarding partners in last mile to make the payments using blockchain more seamless through stronger integration using API technology. They are identifying partner exchanges in the last mile that satisfy their CDD, KYC and AML for stronger integration, which will make the customer experience more seamless. For USD/GBP/EUR transfers, Circle charges only the mid-market FX rate + 20 basis points with no fees for cashing in/out. Their Bitcoin rate is a weighted average of various Bitcoin exchanges. They do not charge a bid/offer spread on top of their Bitcoin mid-rate on transactions under USD2,000 per week. At present the exchange in the last mile is responsible for setting the exchange rate between Bitcoin and local currency.

Moneytis – A web-based solution that is a price comparison website that identifies the cheapest method of sending money cross-border using digital currencies. Moneytis scans 640 digital currencies and uses algorithms to identify the cheapest method to send money overseas from fiat to fiat using cryptocurrencies. Sending money to Africa is not currently available as the cost is not competitive compared with traditional MTOs. They suggest that locally licensed and regulated cryptocurrency providers are needed with suitable KYC and AML to operate.

Santander pilot with Ripple – Santander is the first UK bank to use blockchain technology to transfer live international payments through a mobile app. Payments of between £10 and £10,000 can be made, at any time, between GBP and EUR/USD. Funds will appear in the recipient's account the next working day. It is currently being rolled out as a staff pilot, with the intention to expand the technology at a later date. It connects to Apple Pay, where users can confirm payments securely using Touch ID. The blockchain technology underpinning the app is provided by Ripple, which enables the transfer of data and value in a more accurate and faster way. All transactions are recorded uniquely, which also helps to improve fraud protection.

Utility Settlement Coin (USC) concept – USC is an asset-backed digital cash instrument implemented on distributed ledger technology for use within global institutional financial markets. USC is a series of cash assets, with a version for each of the major currencies (USD, EUR, GBP, CHF, etc.) and USC is convertible at parity with a bank deposit in the corresponding currency. USC is fully backed by cash assets held at a central bank. Spending a USC will be spending its paired real-world currency. They are in the pilot phase with BNY Mellon, Deutsche Bank, ICAP and Santander.

BitFinance – A Zimbabwe-based bitcoin exchange that started in September 2016 with plans to move into Kenya and then Nigeria later in the year. Offers pay-out into both Zimbabwe bank account and mobile wallet. Currently unregulated and had to relax their KYC requirements to support traction. Demand for bitcoin currently outstrips supply and as such remittance costs can be negative. Challenges are: (1) liquidity in Zimbabwe for bitcoins; need to increase remittance volumes; (2) liquidity for managing floats with banks and MNOs for instant transfers; (3) float for 'market making' for additional revenue streams; and (4) skilled developers. BitFinance charges 2% for conversion from bitcoin wallets to USD wallets. 45 paying customers last month and now out of money.

Bitsoko – A digital currency wallet that seeks to integrate blockchain technology into the mobile payment market in Africa. The wallet enables sending money from a smartphone for a 0.1% transaction fee and focuses on nano-payments. The start-up sees its mission in bridging fiat in the developed world with digital money in the developing world and to facilitate money transfers to Kenya. Prohibitive cost of cashing out into mWallets in Kenya means that Bitsoko aim to create their own agent network for cashing in/out. Agents will manage their own addresses and will own a digital money wallet to manage their float. Bitsoko is still in its testing phase with four agents in Nairobi and 500 users and has recently been put on hold as their servers have been attacked.

Distributed Ledger

Billon – eWallet provider using blockchain to offer remittances from the UK to Poland. eWallets are linked to bank accounts in each country and blockchain is used for registering transactions for security. Settlement is made immediately.

Stellar – Established by Mt. Gox and Ripple founder in 2014, Stellar is a decentralised protocol for sending and receiving money in any pair of currencies – be they dollar, yen or Bitcoin. Backed financially by Stripe, the outfit comes with its own built-in digital currency, although the focus has moved towards making moving existing currencies simpler and cheaper. It is a common financial platform, designed to be open and accessible to everyone; it's a donor funded peer-to-peer platform/hub that is free to use for partners to link into, including banks, MNOs, MTOs etc. via an API. Has its own currency, Lumens, and Market Makers that are vetted and able to set an exchange rate between two currencies. Market Makers need to have prefunded accounts. The system scans and provides the best exchange rate to partners. Real focus on transparency and compliance – only partnering with licensed partners. Still in the very early stages of development. Partner in the EU, not currently in the UK. Current focus in delivering services in Nigeria and then expanding into Africa. One to watch if they get approval from the Nigerian Central Bank for banks to connect to their network.

Ripple – Ripple offers an alternative to the correspondent banking model – enabling FIs to settle cross-currency payments by connecting banks directly to one another. A distributed financial technology that enables real-time fund settlement between banks across currencies, geographies and payment networks using fiat currencies (such as US dollar, euro, or yen) to settle cross border transactions. Ripple is a neutral, decentralised protocol – it is not owned or controlled by a government or corporate entity. Banks can use Ripple as an open standard – like other internet protocols (e.g. SMTP for email) – to facilitate connectivity and interoperability. Ripple has been piloting and testing proof-of-concept with 50 banks, MNOs in developing countries and Western Union. Ripple charge a licence fee for access to the distributed ledger and interledger (between banks) – gifted the interledger – an open source, global standard.

VoLo – VoLo is a private African company that was set up to address trust information needs in developing markets. VoLo relies on integrating robust biometric technology to overcome identity challenges and multifaceted platforms. To make healthcare and credit easily accessible, VoLo developed unique systems and processes that bind biographical, biometric, and sector relevant data into a multi-platform and scalable database called the VoLo Trust Information Platform (VTIP). VoLo launched its financial activity in May 2012 within a pilot project supported by the African Development Bank (AfDB) to provide quality information on African SMEs and give them access to credit.

Agent Networks

Zoona – Based in South Africa and operational in Zambia and Malawi, with a network of 1,500 independent Zoona Agent Franchisees (transactional shops). Uses an app on a mobile phone. Offers money transfers, savings, credit and insurance. Offers Zoona-to-Zoona money transfers. Provides financial education. Currently has 1.5 million active customers, and has processed over USD1 billion in transactions. It has a partnership with Mukuru from South Africa for receiving remittances. Agents partner with local liquid merchants for replenishing funds. Planned to start operations in DRC, Ghana and Ethiopia.

Splash – An independent MFS provider with 400 agents across Sierra Leone. Currently operating as an interoperable agent network for MNOs and banks and also for bill payment, utilities etc. They have partnered with Airtel and Africell for cash in/out of MFS. They also offer bulk disbursements and international remittances working with MTOs in UK, US and Canada. Planned launch in Liberia, Nigeria and Ghana.

Wari – Wari Gateway is a technology platform developed by Senegalese entrepreneurs CSI (Cellular Systems International), which aims to meet basic financial services demands in a cash-based economy through an over-the-counter model. Wari caters to the needs of the Senegalese unbanked, who make up 94% of the population. Customers are not required to open an eWallet account; CSI has instead opted to offer simple products at agent points, to appeal to a larger population who are reticent to give up cash. In Senegal, Wari sustains 65,000 transactions through a network of about 2,000 agents, but has also expanded into other African countries. Wari is linked with a number of MTOs for paying out international remittances.[74]

EcoBank – Not an agent directly but offers interoperability in payments. Payment gateway. Merchants to accept mobile payments – any – with all mobile wallets in Ghana. Solution to merchants to receive payments.

[74] http://www.cgap.org/blog/wari-local-platform-heads-global-market.

Annex 10
Technology Summary Table

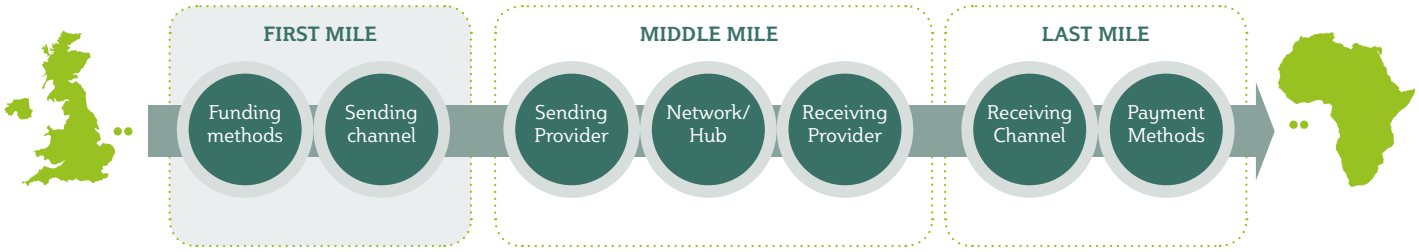
Figure 30: Summary Table of Technology Categories - Pain Points and Potential Impact on UK to Africa Remittances

Technology	Pain Points Addressed	Priority of Pain Points Addressed	Conclusion	Potential impact for technology to reduce costs from the UK to Africa and scale formal flows
Digital MTOs	• Send agent fees • Fees for cash deposits • KYC risk with cash	Low  High	• Digitising the first mile key to reducing cost of remittances to Africa • Use small MTOs in UK migrate their customer bases to digital	Low  High
Price comparison websites	• Transparency and awareness in the market	Low  High	• No site has achieved scale • Only available to an online audience • Requires significant marketing budget	Low  High
Peer-to-peer	• Circumvents corresponding banking model • Offer competitive prices; low fee + mid FX rate	Low  High	• Simple and effective model • Challenges in corridors with non-reciprocal flows • Potential for offsetting with trade receipts into Africa • No hard currency for local governments • Targets banked and online customers	Low  High
ID checkers	• Anti-fraud, security, digital audit trail	Low  High	• In the UK efficiencies already passed onto consumer • not cost effective for agent model • In Afria - will be useful following eID schemes	Low  High
Biometrics - send market	• Improved security of financial payments; not a major pain point in the UK • Confidence to FIs	Low  High	• Will see increased use in the UK, esp. introduction of PSD2 • Do not envisage impact on cost of sending remittances to Africa	Low  High
Biometrics - receive market	• Lack of ID • Lack of access to formal financial services and remittances • KYC and de-risking due to uncertainty in who the recipient of funds is	Low  High	• Key providing a unique identity in Africa • Key to financial inclusion in Africa	Low  High
Digital currencies	• Potential to increase speed and reduce costs significantly • Circumvent correspondent banking model • Anonymity for sender and receiver • Circumvent foreign exchange controls	Low  High	• Pioneering technology in early stages • Uncertainty around regulation and licensing esp. in Africa and consumer protection • Start-ups in Africa	Low  High
Distributed ledger technology	• Speed, complexity and cost of correspondent banking model • Remove operational risks	Low  High	• Early stages; being tested • Risk and large scale application unknown • Applied to FIs to transform traditional banking model in closed loop • Scalability in terms of power consumption and use of miners	Low  High

Technology	Pain Points Addressed	Priority of Pain Points Addressed	Conclusion	Potential impact for technology to reduce costs from the UK to Africa and scale formal flows
Blockchain for ID	• KYC and immutable digital auditing	Low  High	• Early stages; risk around theft of identity from having ID on shared database	Low  High
Aggregators	• RSP access to pay-out network • Remove need bilateral relationships • Additional compliance remove KYC risk • Bulk and batch payments for competitive rates	Low  High	• Important role to play in the market in reducing costs - key business model and viability • Unclear DFID's role as key not to distort the market • Aggregators early adopters and testers of blockchain technology	Low  High
Hubs	• RSP access to payout networks across multiple channels • Interoperability between providers and channels • Help create digital payment ecosystem	Low  High	• Hubs play an increasingly important role • Scale & volumes key for driving low costs • Key not to distort the market • Used to integrate and gain traction to FCAS	Low  High
Regional automated clearing hubs (RACHs)	• Inefflciencies of correspondent banking relationships and as such is more cost effective • If the system is opened to multiple payment types this allows fast, efflcient and accurate payments between multiple countries in multiple formats • Interoperability between different payment channels in Africa means centralised interoperability at a vast scale	Low  High	• Potential to improve efflciency for payments to Africa • Given the poor bancarisation rate in Afrika, linking to mobile will be key for these to address remittance challenges • Access to RACHs has the potential to benefit the UK-to-Africa remittances market significantly, through improving the African financial infrastructure	Low  High
Mobile-to-mobile (MMA2A)	• Remove send agents • Potential to remove costs	Low  High	• Seems not to make commercial sense at the moment • Impact on costs uncertain	Low  High
Distribution networks	• Reliable payout network for digital and cash • Cash reticulation • Liquidity • Interoperability	Low  High	• Key to adoption of digital instruments in Africa • Liquidity management will be key • Application of technology requires boots on the ground • Regulatory support	Low  High
eVouchers	• Used in absence of cash • Provides sender with control in how to use • Used in FCAS during crisis	Low  High	• Requires a targeted programme • Expensive • Closed loop • Cost benefit is low • Potential to leverage those established for cash transfer programmes for remittances through hubs	Low  High

Annex 11
Concepts

Concept 1: Digitising small MTOs in the UK



Costs	Low  High	Timeframe for implementation	Short  Long
Country(ies) of focus	UK.		

Concept

To work with the UK's leading aggregator, which currently provides services to >100 UK money transfer operators (MTOs) and facilitates more than USD1 billion in remittances (10% of the UK outbound market), and support them in:

1. Rolling out POS terminals to MTOs in the UK remittances market at a low cost, thus helping small MTOs to continue operating and supporting competition in the market
2. Providing a white-labelled online payment gateway and technical assistance to the small MTOs, to help them to migrate their customers from using cash and agents to initiating their transactions digitally.

What pain points does this address?

1. The dominance of cash in the UK remittances market

Cash-to-cash remittances still account for ~90% of money transfers from the UK to developing countries, despite digital solutions being available and often more competitively priced, alongside high levels of financial inclusion, computer literacy and broad access to internet.

2. Send agents can take up to 33% of revenue

Removing the send agent from the business model and tackling the 'stickiness' of cash in this industry will help to reduce costs.

3. At least 80% of small-to-medium-sized MTOs in the UK have lost access to their bank accounts due to 'de-risking'

Many of these businesses are corridor specialists that serve specific communities. They also sustain competition in individual corridors (particularly in smaller volume markets).

Background

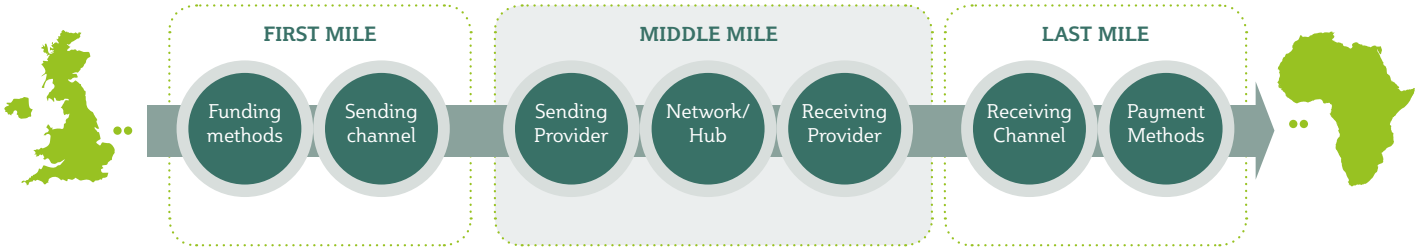
The leading aggregator in the UK currently supports the money transfer business of over 100 MTOs. In the case of specific UK corridors (e.g. the UK-Somali territories) they are the sole reason why services continue to be offered. Management are under increasing pressure to minimise cash within their existing business model. Over the next 12 months, they will roll out POS terminals to all MTO client locations, encouraging remittances transactions to be initiated using a debit or credit card (instead of cash). Alongside the physical POS roll-out, the aggregator will also be rolling out personalised online payment gateways to its customers – with 20 going live this month. This will drastically reduce the dependence and revenue-sharing requirement with agents – eliminating a significant cost of sale for many of the smaller MTOs.

Challenges to scale

- Initially the cost of processing card is higher than depositing cash for the MTO client. However, given the importance of eliminating cash from their systems, this additional cost is being subsidised by the aggregator to encourage active use and uptake. For the model to be sustainable in the long term, digitisation must occur at the last mile also.
- Stickiness of cash and diaspora preferences.

Potential role for donor intervention	• Conduct market sensitisation through consumer education with diaspora communities to explain the benefits of using online channels. • Provide training to the smaller MTOs to help them to create their online platforms including information on the benefits, how to manage their site and how to link to hubs to grow their network. • Provide funding for marketing materials for MTOs in assisting in this process.
Industry/expert consultation	• Well received by industry experts; considered a relatively easy concept to implement with a direct impact on the market and a mechanism toward changing consumer behaviour. Considered a short-run win.
Conclusion	• Further consultation with the aggregator disclosed that only £290 million of their flows currently went to Africa, with the bulk into one country. This information therefore affected the impact of the Concept on the market as a whole. • Unclear that there is a need for external support, as the aggregator plans to roll out the plan irrespective of donor involvement in order for UK business to remain viable. • Concerns that working with one aggregator would distort the market. • Develop strategies to understand the UK preference for cash and, based on this information campaigns to encourage a shift in consumer behaviour. See Recommendations 1 and 2.

Concept 2: Development of Regional Automated Clearing Houses in Africa and to Provide Direct Access to RSPs in the UK



Costs	Low  High	Timeframe for implementation	Short  Long
Country(ies) of focus	SADC for remittances from the UK.		

Concept

To support the development of regional automated clearing houses (RACH) in Africa to provide interoperability, cost efficiency, reliability and security for participating banks and non-banks for in-country and cross-border low-value payments. To support harmonisation and standardisation of systems through a single technological platform to provide end-to-end processing of cross-border transactions. For the RACH to link with multiple payment formats including mWallets.

To leverage RACHs by linking them with MTOs, banks and mobile money operators for low-value payments. This will help RSPs to be able to interface and use the RACH to pay out locally in the appropriate currency by the appropriate method, thus helping to drive efficiency.

What pain points does this address?

- Removes cross-border payments in paper form.
- Addresses poorly functioning or absent ACH systems in Africa for low-cost, low-value inter-bank transactions; the speed and cost of financial transactions.
- Access to RACH could be by RSPs including MTOs, banks and MNOs. Offering RSPs a multi-country access through one point.
- Interoperability between different payment channels in Africa – centralised interoperability at a vast scale.
- Correspondent banking model – liquidity and collateral requirements as RSPs are currently required to maintain a number of different prefunded bank accounts in different jurisdictions and unable to make bulk payments at a national or regional level.
- Scale economies – achievable in centralised single platform systems that process not only cross-border but also domestic transactions.

Background

There are currently a number of RACH underway in Africa, including:[75]

- **SADC SIRESS –** enables electronic cross-border settlement of payments in South African rand in Lesotho, Namibia, South Africa and Swaziland. This is a first step to implementing a common electronic cross-border payment system across all member states of the SADC regional economic community, which includes 14 countries in Southern Africa. SADC features one of the largest discrepancies between member states with very modern payment systems and member states with no ACH infrastructure at all. The solution in Southern Africa has been to build an entirely new centralised infrastructure that is used by all participating SADC states and which is independent of any domestic payment system.
- **COMESA –** 20 countries in the East and Southern African regions are members of COMESA. Commercial banks access REPSS (the Regional Payment and Settlement System) through their respective national central banks, although usage has been lower than expected as banks prefer the correspondent banking model. It is a complete real-time online system with an open, published interface based on SWIFT standards.
- **WAEMU –** Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo – CFA Franc. The eight WAEMU countries are united under the Central Bank of West African States (BCEAO) and share a single currency. WAEMU has modern regional infrastructures for Real-Time Gross Settlement (RTGS), ACH, and card transactions. The robust governance structure under the BCEAO has enabled tight payment system integration among WAEMU member states.
- **WAMZ –** The Gambia, Ghana, Guinea, Nigeria, Sierra Leone and Liberia. It is now possible to interlink the domestic payment systems of all 6 WAMZ member states in order to enable faster and more efficient cross-border payments in the region. However, it is difficult to interlink these domestic systems without a centralised body with wide involvement from all WAMZ member states to develop rules and guidelines for cross-border payments in the region.

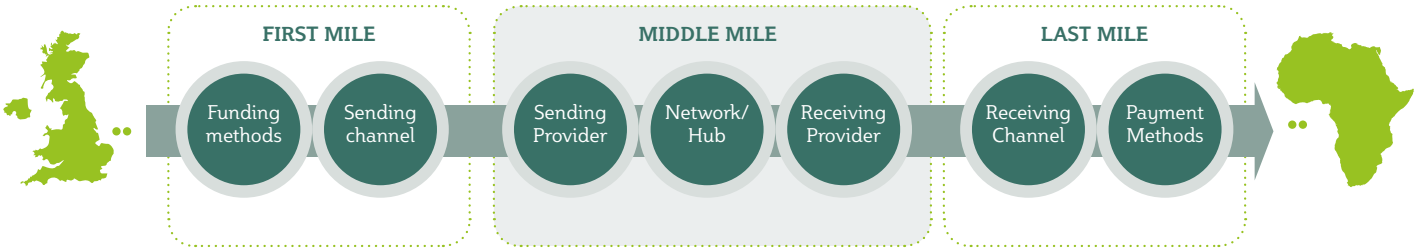
Challenges to scale

- Requires high-level stakeholder buy-in; from regulators, commercial banks and others including MNOs, RSPs etc.
- If one country in the region is sanctioned could this have an impact on the whole system?

[75] Swift Institute Working Paper 2014.

Role for donor:	Support development of RACHs in Africa, especially providing direct access to non-bank FIs.
Industry expert consultation:	Consensus that the proposed: 1. is important to build this infrastructure in Africa 2. is technologically feasible 3. will help to improve efficiencies 4. will have a direct impact on costs. However, concerns raised around political and coordination challenges, especially in regions where there is not a common settlement currency. Advised that RSPs may not be able to access the RACH directly and sponsor banks may be needed.
Conclusion:	Recommend a pilot from the UK to a SADC country as proof of concept. See Recommendation 3.

Concept 3: Expanding the Number of Integrations of Hubs in Africa



Costs	Low – High (management of fund and capital)	Timeframe for implementation	Short – Long
Country(ies) of focus	All Africa – esp. FCAS.		

Concept

A fund to offer financial incentives to remittance hubs to integrate with new operators that will increase the pay-out network in FCAS and in the more expensive UK-to-Africa remittance corridors, such as Rwanda, Tanzania and Sierra Leone, in order to help build scale, improve access and reduce costs in these markets.

What pain points does this address?

- Hubs facilitate the digital receipt, processing and payment of funds to create efficiencies.
- Provides access to a large pay-out network across multiple channels in Africa including cards, eWallets, mWallets, accounts, agents etc.
- Reduces barriers to entry for new RSPs and promotes competition between service providers.
- In small-volume corridors where costs are high, aggregation across service providers and channels will reduce costs through scale.
- Service providers servicing small-volume corridors and offering services to smaller communities may not be commercially viable for integration. Funding will help to address operational risks viewed in FCAS from a commercial perspective.
- Lack of a digital payments ecosystem in Africa and interoperability between payment channels; digitising the remittance value chain and removing the need for an agent in the receive market further down the line.
- Hubs are currently expensive – with scale, hubs should be able to provide a more competitive solution to RSPs than bilateral integration between operators and therefore directly reduce costs, especially in smaller-volume corridors.

Key features

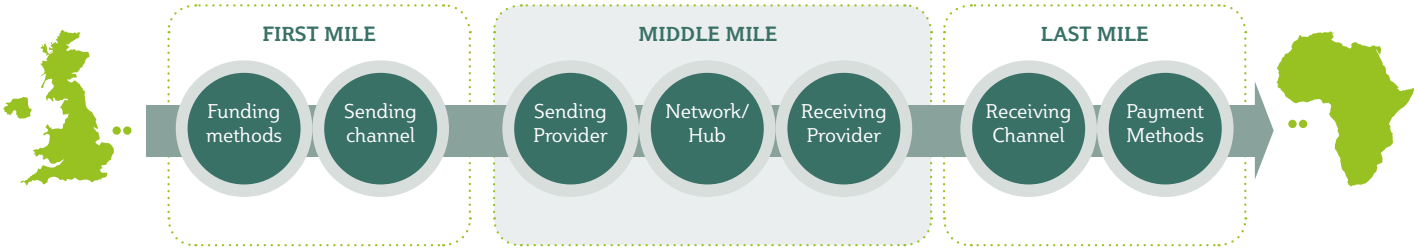
Hubs offer B2B solutions, integrating the payment systems of multiple providers to process the individual end user transactions. Hubs enable multi-channel to multi-channel cross-border payments. Through a single connection, service providers have access to all other service providers in the hub providing a centralised, interoperable payment system.
For the fund to be available to all remittance hubs, such as MFS Africa, TerraPay and Mastercard Send, who can demonstrate that these additional connections (1) are not commercially viable without donor assistance and (2) extend the network to previously marginalised communities. Funding to be used for technological integration between systems for straight-through processing of remittances, due-diligence of service providers and improving the compliance of third party service providers to meet with hub international standards.

Challenges to scale:

- This intervention will cause market distortion, which might not be well received by some participants in the private sector.
- AML/CFT integration should satisfy UK markets standards and therefore be robust for de-risking.

Role for donor:	Funding and operational management of the fund
Industry expert consultation:	• Mixed reviews with some in favour of a clear role for donor intervention as an effective way to open channels. • Main uncertainty with regards to how much hubs are being used by RSPs and the impact this intervention will have on costs.
Conclusion:	Recommend support to remittance processing hubs to address issues around scaling business into FCAS. See Recommendation 4.

Concept 4: Facilitating Peer-to-Peer Remittance Services into Africa



Costs	Low – High	Timeframe for implementation	Short – Long
Country(ies) of focus	High-volume corridors with high UK imports to warrant investment from RSPs – Nigeria, Kenya and Ghana.		

Concept:

To work with peer-to-peer RSPs to start operating in African countries offering cross-border payment services to wholesalers and traders. This solution will formalise the offsetting of remittances against trade receipts, based on the often countercyclical flow of funds, through a low-cost, fast/instant international money transfer peer-to-peer foreign exchange platform both into and out of Africa.

Pain Points:

Peer-to-Peer money transfer is a digital solution that challenges the traditional MTO model and circumvents the traditional correspondent banking model. It facilitates instant cross-border transfers at a cheaper cost as no money crosses borders, and utilises a 'netting-off' approach and no FX margin – the sender obtains the FX interbank spot rate.

In remittance-dependent countries there are far more people sending money in than out, making this model less viable in such countries. Currently, where there are not reciprocal flows, the RSP operates with partners in the respective country to acquire local currency which hampers the ability to scale in certain corridors and often competitive rates.

Key features:

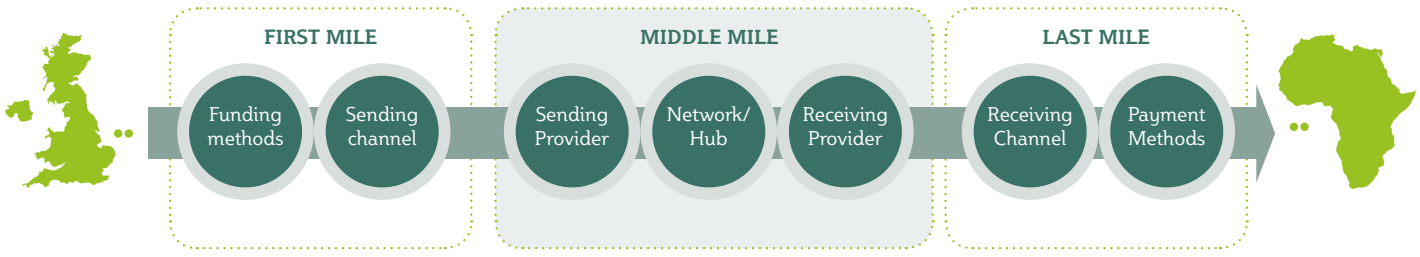
- P2P currency exchanges work by rerouting money domestically that users want to move across borders, through matching or 'netting off' those that want to sell with those that want to buy currency.
- An online solution for banked and mobile wallet holders through a website or mobile app.

Challenges to scale:

- This business model will only work in countries where there are no foreign exchange controls for outbound payments.
- Due to KYC requirements, service is only available to those with bank accounts.
- Online solution – unclear whether physical outlets/agents would be required for cashing in.
- Governments may not be supportive of such a solution as it means the central bank will not gain foreign exchange from remittances.

Role for donor:	• To provide the financial incentive for peer-to-peer remittance service providers to enter into these African markets in this capacity. • Advisory work with regulators. • Establish an incubator to develop solutions, pilot them and work with stakeholders. • Provide a marketing budget.
Industry expert consultation:	• A good idea in principle but difficult to implement. Matching trade flows works theoretically at a macro level through aggregation but challenging to manage at a micro level for real matching and offsetting of funds in real time. • A risk of creating a less transparent system and undermining AML and CFT. • Challenges around access for an online platform. • Furthermore, unclear whether there would be much benefit in terms of reduced costs.
Conclusion:	• A solution to be revisited in the future when other challenges in the market have been addressed. • Given that the remittances value chain is predominantly cash-based at both ends, developing unique solutions that target online users will have minimal impact on the market at present.

Concept 5: Abra for Cross-Border Remittances



Costs	Low – High	Timeframe for implementation	Short – Long
Country(ies) of focus	Kenya – link into mPesa, Zimbabwe or Nigeria.		

There has been a lot of attention on the potential for cryptocurrencies and blockchain technology to be used to bypass the traditional remittances value chain and reduce the cost of remittances globally. One of the most interesting solutions is Abra, which is a new mobile phone app offering person-to-person cross-border payments using bitcoin technology in the back-end, albeit unknown to the user, and an algorithm to ensure that fiat value is held despite volatility in cryptocurrencies.

The Abra model provides access to both banked and non-banked customers through Abra Tellers (agents).

Concept:

To support the launch of an innovative new product called 'Abra' into Africa – a mobile app that (once live everywhere) will allow people to send money to anyone in the world using their mobile phone number.

Pain point:

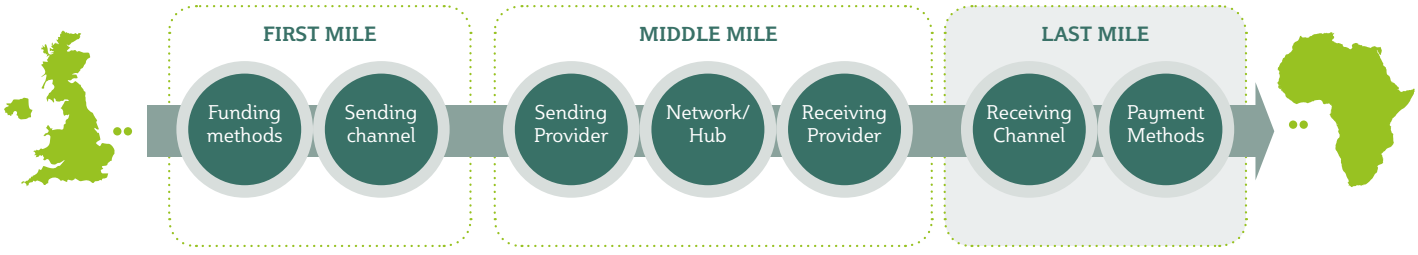
The Abra proposition circumvents the vast majority of the traditional remittances value chain. Whilst it maintains send and receive agents, the principle MTO and the supporting financial system (swift messaging and traditional correspondent banking model) are replaced by a peer-to-peer model that sees no movement of funds.

Key features:

Abra is an innovative cross-border peer-to-peer 'digital cash' start-up that was founded in the US in 2014 and to date has raised USD 20 million. Abra is currently only live in both the US and Philippines, where users can send money in any direction (domestic or cross-border) across both countries. Abra will be live globally later this year.

Role for donor:	• Funding for piloting from the UK into Africa.
Industry expert consultation:	• Mixed views on cryptocurrencies. • More consensus that there is a need for regulatory buy-in and frameworks to be established for digital currencies to gain traction and raise finance in Africa. For regulation to consider licences, consumer protection and effective Customer Due Diligence (CDD). • Propose a fund to be available to multiple operators rather than just one. • Whilst the Abra model addresses challenges with non-banked customers – suggested that bringing agents into the model will increase costs. • Considered the most exciting concept.
Conclusion:	• Premature to support individual pilots although the model looks interesting. Alternative pilot could include Circle to work with third party exchanges in Africa for straight-through processing of remittances. Circle are interested, but are currently focusing on larger remittances corridors and require confidence in the third party digital exchange (ideally with regulatory approval and a relationship with a local bank to credit accounts) • Potentially a role for donor to lead in thought-leadership in cryptocurrencies and blockchain; knowledge pooling and sharing. • Further down the line – building awareness and technical assistance to regulators in regulatory frameworks. However, it is considered premature in the African context, where there are more important P2P payment and agency banking regulations that require attention and will have a more direct effect on the market. See Recommendation 5. • Sandbox for safe testing of innovative solutions.

Concept 6: Biometric Electronic Identification (eID) that can be Seeded with Digital Payment Instruments and Linked to Remittance Hubs



Costs	Low  High	Timeframe for implementation	Short  Long
Country(ies) of focus	Nigeria – financial assistance to the NIMC project in Nigeria which requires additional support/Kenya.		

Concept:

Roll-out of electronic identification (eID) schemes to remittance recipients using biometric technology to create unique identities that are stored on a common, open platform. For eIDs to be linked to digital payment functionalities, such as prepaid cards or mobile wallets, and international remittance hubs for receiving international remittances onto a fully KYC'd card/mWallet for improved security, reduced fraud and a digital audit trail.

Pain point:

Lack of access to identity cuts off the possibility of receiving remittances. A lack of formal ID, birth certificates, formal addresses and passports make it difficult to verify that remittance recipients are who they say they are. This is especially the case in FCAS, where there may be sanctions in place and where a lack of identity is a threat to sustaining remittances flows to these markets. Uncertainty in both who the recipient of the remittance is and what the intended use of the money is poses risks of money laundering and terrorist financing and is a key contributor to 'de-risking' by banks.

Key features:

The solution requires biometric data collection points and coordinated management of a central database. Open biometrics – a common, interoperable, standardised accessible system – will ensure a swift roll-out with low probability of duplication of identities. Rather than taking a national approach, pilot biometric eID with international remittance recipients in partnership with receive country agents (banks, credit bureaus, MTOs etc.) responsible for upfront registration of identity. A piecemeal approach by private providers who enrol their customers on the platform should achieve quicker traction and acceptance. Biometric ID will also add value in a cash-to-cash system as well as for digital transactions.

Background:

Nigeria is currently rolling out a national biometric ID card (NIMC). India has already enrolled over 1 billion people (93% of the adult population) through their Aadhaar scheme, which is an open platform that gives each individual a unique 12-digit ID number. Kenya is also introducing biometric ID cards to its citizens and Uganda is looking at an ePassport that captures head, iris and fingerprints. Targeting a specific non-national population, the UNHCR in Jordan has used iris scanning to create digital IDs for refugees.

A number of different biometrics can be captured – including iris, fingerprint, palm vein, voice, eye movement, facial etc. Data is verified against one central database to check for duplication, ensuring only one eID per person. Various technologies can be used including match on card technology, PKI and (eMoney Institution) EMV chip technology. Importantly a number of offline solutions are available. International standards are developing to support biometrics being used as the identifier at both ends of the system.

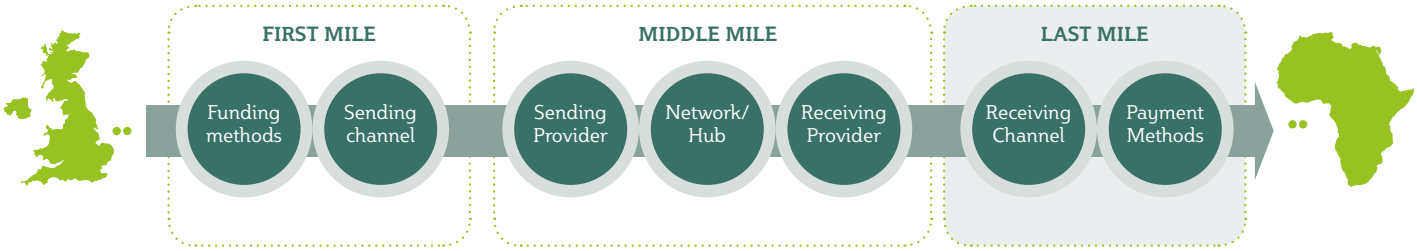
Linking eIDs to digital payment instruments helps improve KYC, improve security and reduce fraud. For example, the Nigerian NIMC ID card has a Mastercard prepaid card functionality and in India, banks, MNOs and government databases will be seeded to Aadhaar numbers. Egypt is linking their eID to a MasterCard-enabled mobile payment gateway so that every single Egyptian is authenticated to a mobile payment account.

Challenges to scale:

- Using biometrics to authenticate individual transactions is generally expensive – currently they are only used for the creation of the unique identity rather than transaction authentication.
- Lack of supportive legislation or poor records to on which to base identification. Enabling regulatory system required to be ubiquitously accepted.
- Linking to digital payment solutions relies on a digital payments infrastructure and downstream digital payments ecosystem.

Role for donor:	Funding and operational management of the fund
Industry expert consultation:	• Mixed reviews with some in favour of a clear role for donor intervention as an effective way to open channels. • Main uncertainty with regards to how much hubs are being used by RSPs and the impact this intervention will have on costs.
Conclusion:	Recommend support to remittance processing hubs to address issues around scaling business into FCAS. See Recommendation 4.

Concept 7: Interoperable Agent Distribution Network



Costs	Low  High	Timeframe for implementation	Short  Long
Country(ies) of focus	Liberia, DRC, Ethiopia – FCAS that Zoona and Splash are looking to expand into.		

Concept:

Merging two individual business models to build trusted third party, cash distribution networks in FCAS and other African states that offer domestic cash-to-cash money transfers, and for these agents to also provide 'interoperability' in terms of cashing in/out from different mobile wallet providers and banks, airtime top-up, pay-out of international remittances and payment of bills and utilities. Thus, enabling customers to benefit from the range of digital financial services that could be available to them. For agents to be customer focused and trained in formalised financial services to build trust and assist in migrating customers towards financial inclusion and digital solutions in the last mile.

Pain point:

- FCAS are challenged by weak or damaged environments and infrastructures including banking, low levels of financial inclusion, poor literacy (including financial), weak networks, informal financial sectors and dependency on cash.
- Without distribution networks and downstream digital payment acceptance networks, receiving remittances directly into a mobile phone wallet does little more than move the responsibility of cashing out remittances further down the line.
- For digital solutions to really add value there needs to be a strong distribution network and trust in storing money digitally, coupled with a digital payments ecosystem and strong merchant acceptance network. At this point the receive agent fees can be removed from the international remittance value chain – as consumers do not have the need to cash out.

Background:

Third party (non-MNO) agent networks, such as Zoona in Zambia and Malawi and Splash in Sierra Leone, have had success in building networks, gaining customer trust and understanding from local communities, operating in FCAS and, in the case of Splash, offering interoperability between mobile money providers. Technology is used, among other items, to establish the network and manage the product portfolio.

Zoona is a third party agent network provider operational in Zambia and Malawi. The Zoona model is focused on positioning itself as a domestic cash distribution network. Individuals are set up as independent, self-sustaining 'entrepreneurs' that provide services from branded kiosks. Agents use mobile-based accounts to process money transfers and manage their business. The agent builds trust through their role as a domestic money transfer provider. Agents are trained in liquidity management (often forming relationships with local institutions for cash wholesaling) and how to provide financial education to customers. Zoona agents are customer orientated. Once established, Zoona agents can play an active role in migrating customers to digital transfers and payments. Zoona currently has 1,500 agents with 1.5 million active customers and has processed >USD1 billion in transactions. Zoona is currently linked with a South African MTO for the pay-out of remittances. Zoona has plans to expand operations into DR Congo, Ghana and Ethiopia.

A third party mobile wallet provider with a network of 400 agents across Sierra Leone. Splash Agents are networked retailers, rural banks and gas stations etc. Splash is a text-based mobile money service (USSD-based) that has the capability to sit on any network offering mobile P2P transfers, the receipt of international remittances and disbursements, and bill payment. Since the Ebola crisis, Splash has evolved to become a payments aggregator, managing an agent network for Airtel, Africell and banking clients as well as Splash customers. Currently, around 240,000 registered users of the service are making mobile transactions totalling USD4 million per month. Splash is now focused on becoming a 'payment aggregator', facilitating electronic payments across Sierra Leone on behalf of various institutions and their customers. Splash aims to create the first interoperable platform in the country through which users will be able to access mobile money wallets and bank accounts, as well as pay bills and send money either from their own mobile phones or through Splash's network of agents. Splash intends to develop a single universal wallet that makes it possible for an agent to become a one-stop-shop for multiple mobile money operators and financial institutions. Digital Afrique Telecom (DAT), a Côte d'Ivoire-based mobile technology company, will be responsible for integrating the Splash platform with all of the different third parties and managing these connections. Splash has plans to expand its operations into Liberia.

Challenges to scale:

- Regulation not permitting non-bank agents to pay-out remittances.
- Boots on the ground – creating networks where none exist, especially in areas of conflict.

Role for donor:	• Work with African regulators to allow for non-banks to pay out remittances via an agency banking model. • Provide funding and work with companies such as Zoona, Splash or Wari to incentivise them to enter into FCAS and increase the number of access points where weak payments infrastructure exists. For a key focus to be on agents providing interoperability between different service providers, incentives for cashless transactions and for agents to be able to pay out international remittances. To work towards networks being integrated into international remittance hubs for the pay-out of remittances. FCAS of interest may be DR Congo, Liberia (Splash) and others.
Industry expert consultation:	• Consensus on the critical importance of building these networks in FCAS and increasing access points in Africa. A sensible solution with a clear role for DFID – but not without its challenges in implementation. • Recommended to have a longer-term strategy for agents when the use of cash is reduced to avoid conflict of interest in encouraging consumers to migrate towards digital solutions.
Conclusion:	• Whilst this document was being finalised Zoona raised USD 15 million, which indicates that other donor agencies also see the value in expanding their network across Africa. • Concerns with respect to: (1) the capacity of these companies to achieve scale – given liquidity issues and the level of involvement with agents and (2) the sustainability of them – or whether donors are subsidising these networks. • On consultation Zoona expressed interest in deploying an interoperable service through their agents. • Overlap with other financial inclusion programmes being implemented by donors, including the Harnessing Innovation of Financial Inclusion programme (HiFi) by Department for Internatinal Development (DFID) and work done by FSDA and UNCDF.

Annex 12
Environment for Paying Out International Remittances

The table below provides a high level overview on how restrictive the environment is for paying out international remittances. More detailed research needs to be conducted at a country-level to understand the extent of each network and adequacy in meeting consumer needs.

Figure 31: Overview on How Restrictive the Market for Paying-Out International Remittances is

Highly restrictive	Moderately restrictive	Open	
Angola	Algeria	Botswana	Guinea Bissau
Central African Republic	Burundi	Burkina Faso	Senegal
Cape Verde	Djbouti	Cameroon	Togo
Ethiopia	Gambia	Guinea	Niger
Eritrea	Comoros	Cote d'Ivoire	Benin
Equatorial Guinea	Ghana	DR Congo	Malawi
Madagascar	Somalia	Congo Brazzaville	Rwanda
Mozambique	Chad	Kenya	Sudan
Nigeria	Morocco	Mali	Tanzania
Sierra Leone	Egypt	Liberia	Uganda
Mauritius	Namibia	Mauritania	South Africa
South Sudan		Lesotho	Zambia
Tunisia		Zimbabwe	
Swaziland		Gabon	

1. **Highly restrictive** includes markets where only banks are able to pay-out remittances. In some cases, countries have been included where further financial institutions may be permitted to pay out remittances (often as agents of banks, (e.g. mincro-finance institutions (MFIs), post offices) but this is very limited in practice
2. **Moderately restrictive** includes markets where financial institutions and some non-bank financial institutions are permitted to pay-out remittances
3. **Open** environment is where a broad range of institutions (financial and otherwise) are permitted to pay-out international remittances

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FSD Africa

FSD Africa is a non-profit company funded by the UK Government which aims to increase prosperity, create jobs and reduce poverty by bringing about a transformation in financial markets in SSA and in the economies they serve. It provides know-how and capital to champions of change whose ideas, influence and actions will make finance more useful to African businesses and households.

Through access to finance initiatives, it seeks to build financial inclusion. Through capital market development, it looks to promote economic growth and increase investment. As a regional programme, it seeks to encourage collaboration, knowledge transfer and market-building activities – especially in fragile states.

Where there are opportunities to drive financial market transformation more quickly and intensively through capital investment, FSD Africa will deploy equity, loans or guarantees as the situation requires.

FSD Africa, Nairobi, Kenya
info@fsdafrica.org
@fsdafrica

www.fsdafrica.org

DMA Global, London, UK
info@developingmarkets.com
@DMA_tweet

www.developingmarkets.com

Department for International Development
enquiry@dfid.gov.uk
@DFID_UK

www.gov.uk