DIGITAL FINANCE
IN AFRICA'S FUTURE

Edited proceedings of an international Colloquium held in Johannesburg, South Africa, on 22—26 October 2018

Organised by the Human Economy Research Programme at the University of Pretoria and the Johannesburg Institute for Advanced Study, in association with Disrupting Africa

JIAS

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JIAS is a joint initiative of the University of Johannesburg and Nanyang Technological University Singapore.

The Human Economy Research Programme is based in the Centre for the Advancement of Scholarship at the University of Pretoria.

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Innovations and implications

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Edited by John Sharp, Lena Gronbach and Riaan de Villiers

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About this publication

A ground-breaking international Colloquium entitled 'Digital Finance in Africa's Future: Innovations and Implications' was held in Johannesburg, South Africa, on 22-26 October 2018.

Organised by the Johannesburg Institute for Advanced Study (JIAS), the Human Economy Research Programme at the University of Pretoria, and Disrupting Africa, the Colloquium brought together African innovators in the field of digital finance as well as academics to discuss the latest developments in this increasingly important field.

There are many exciting developments across Africa in the field of digital finance. African and Africa-based innovators are at the cutting edge of developments in this field, opening up a range of financial services aimed at helping the continent's inhabitants to overcome the infrastructural backlogs inherited from the past.

In this context, the conference on 'Digital Finance in Africa's future' had two complementary aims. The first was to bring together some of the foremost African and Africa-based innovators in this field in order to highlight the obstacles they have faced, their successes to date, and their plans for the future. This would also serve to showcase the extent and sophistication of innovation in Africa in the field of digital finance.

The second aim was to bring these innovators into conversation with academics with a special interest in the social, political and economic implications of these rapidly developing innovations. Innovators may know that not all new technology is socially beneficial, but may not have the expertise to consider their impacts. Providing them with an opportunity to interact with academics who have undertaken research on these issues in various world regions would benefit both the academics, who need to gain a better understanding of the new technologies and their possibilities, as well as the innovators, who need a better understanding of their social implications.

The Colloquium was opened on Monday 22 October 2018 by Mr Trevor Manuel, former South African Minister of Finance, at the UJ Centre Theatre on the Auckland Park Kingsway (APK) campus. His address was followed by a panel discussion on 'The Impact of Digital Finance on Africa's Growth', and a reception. The working sessions took place at JIAS in Westdene, Johannesburg, from Tuesday 23 October to Friday 26 October.

The opening address and all the sessions were live-streamed, and members of the public were able to watch the presentations in real time and submit questions and comments. The videos can be accessed on the University of Johannesburg YouTube channel.

This publication contains a summary of the proceedings. Given the Colloquium's innovation and significance, the organisers decided to produce an extensive report that could serve as a permanent resource for both the participants and a broader audience.

About the organising institutions

Johannesburg Institute for Advanced Study (JIAS)

JIAS is a joint initiative of the University of Johannesburg, South Africa, and Nanyang Technological University, Singapore. Its purpose is to promote advanced research in the humanities and natural sciences, beyond the regular teaching and research activities at institutions of higher learning.

Launched in May 2015, JIAS aims to create the conditions in which scholars can deliver cutting-edge interdisciplinary thought and research at the highest academic level. This is done by reaching beyond the regular teaching and research routines of contemporary higher education, and by encouraging collaborative scholarly co-operation in both the Humanities and Physical Sciences.

JIAS is the first fully fledged institute of advanced learning in Gauteng, South Africa's political and economic heartland, Although rooted within UJ, and committed to achieving UJ's institutional goals, JIAS collaborates with other institutions of higher learning in the region and elsewhere in the country. See the JIAS website at https://jias.joburg.

Prof Peter Vale, then executive director of JIAS, played a major role in organising the Colloquium, and chaired some of the sessions. His contract with the University of Johannesburg has since expired and he is now a Senior Research Fellow of the Centre for the Advancement of Scholarship at the University of Pretoria.

Human Economy Research Programme

The Human Economy Research Programme at the University of Pretoria started in 2011 with the goal of bringing human concerns back into economic studies. To date, the programme has recruited a large number of doctoral students and postdoctoral fellows from around the world. The programme is interdisciplinary and its past and current participants have backgrounds in Sociology, History, Anthropology, Political Science, Development Studies, Religion and Economics. Since July 2013, the programme has been housed in the Centre for the Advancement of Scholarship at the University of Pretoria.

Through a number of case studies, the Human Economy Research Programme has examined how people insert themselves into economic life. What people practically do has often been obscured, marginalised or repressed by dominant economic ideologies that privilege the market. The programme is interested in the many ways in which people engage with the economy and respond to institutional forms that perpetuate structures of inequality – creating, challenging, or even trying to ignore them. The human economy is conceived of as being made and remade by people themselves, being based on a holistic conception of human needs and with the interests of humanity as a whole in mind.

The aims of the programme are both academic and practical. We are building a body of research that pertains to the issue of nurturing and expanding economic democracy, particularly in Africa and the global South, and wish to communicate these findings to a wider public in order to support popular movements aimed at achieving economic democracy.

The programme's postdoctoral fellows have published numerous articles based on their individual research. They have also contributed to special issues in national and international journals, the latest in the Review of African Political Economy (2017), as well as to several volumes in the Human Economy book series by Berghahn Books. The series now runs to six volumes in total. The Human

Economy programme has hosted four international conferences at the University of Pretoria, on the topics 'Economy and Democracy', 'Money in the Making of World Society', 'Land, Money and Human Relations in southern and central Africa', and 'The Struggle for Economic Democracy in Africa'. See the Human Economy Programme section on the University of Pretoria website at https://www.up.ac.za/human-economy-programme.

Disrupting Africa

Disrupting Africa is a global movement aimed at supporting and promoting African innovation, and preparing the next generation of Africans, both on the continent and in the diaspora, for disruptive technological trends.

The flagship project for Disrupting Africa is the Encyclopedia of African Innovation, a free online platform to facilitate content and the sharing of information on African Innovation. The Encyclopedia organizes content on African innovators and innovations, both on the continent and the African diaspora, and is dedicated to supporting and promoting African innovations that will create fresh opportunities for the continent. See the Disrupting Africa portal at https://disruptingafrica.com.

Participants in the Colloquium at JIAS in Westdene, Johannesburg.

About the presenters

ACADEMICS

Olufunmilayo (Funmi) Arewa is Murray H Shusterman Professor of Transactional and Business Law at Temple University in Philadelphia. She holds an MA and PhD (Anthropology) from the University of California, Berkeley, an AM in Applied Economics from the University of Michigan, a JD from Harvard Law School, and an AB from Harvard College. Prior to becoming a law professor, she practiced law for nearly a decade, working in legal and business positions primarily in the entrepreneurial and technology start-up arena. She has also worked as a consultant on various projects, including engagements relating to education and scientific and technological capacity in Africa.

Lena Sophia Gronbach is a PhD student in Development Studies at the University of Cape Town, previously at the Human Economy Research Programme. Her research focuses on the role of financial inclusion and financial technology in the payment of social cash transfers and the impact of financialisation on development policies. She holds a Master's Degree from the University of Pretoria, a BA (Honours) from the University of South Africa (both in Development Studies), and a BA in International Business from ESB Business School in Reutlingen, Germany.

Sibel Kusimba has conducted field work in Kenya for two decades on topics ranging from interethnic cooperation, to leadership, to environmental change, to the origins of trade. Her recent work examines the impact of digital money and digital finance in Kenya. She holds a PhD and MA in Anthropology from the University of Illinois, and a BA in Anthropology from Bryn Mawr College. She has taught at Lawrence University, Northern Illinois University, and the American University in Washington, DC. Her book *African Foragers: Environment, Technology, Interactions* was named as a CHOICE outstanding academic book for 2003 by the American Library Association.

Sean Maliehe is a Postdoctoral Research Fellow in the Human Economy Programme at the University of Pretoria. He is an economic historian, and an ethnographer of 'mobile money' in southern Africa. His research focuses on the history of entrepreneurship, small business and development of mobile-based financial innovations in Lesotho and South Africa. He teaches and supervises in the following areas: African Economic History, Entrepreneurship and Business History, and Political Economy of Development in Africa. His consultancy activities revolve around Economic Development, Financial Inclusion and Entrepreneurship in poor, low-income and rural communities.

Solène Morvant-Roux is Assistant Professor in the Graduate School in Social Sciences (G3S) of the University of Geneva. She holds a PhD in economics from the University of Lyon, and an MA in development and international economics from the Sorbonne. She previously worked as Maître-Assistant in the Department of Political Economy of the University of Fribourg; associate researcher for the European Research Centre on Microfinance (CERMI) in Belgium; and scientific collaborator and lecturer in the Department of Political Economy at the University of Fribourg. She has participated in numerous research projects on micro finance and financial inclusion, and consulted to research projects on digital finance in Africa.

John Sharp is Director of the Human Economy Research Programme, a Senior Research Fellow of the Centre for the Advancement of Scholarship, and Emeritus Professor of Social Anthropology at the University of Pretoria. He holds a BA (Hons) from the University of Cape Town, and a PhD in Social Anthropology from Cambridge University. He taught at the Universities of Cape Town and

Stellenbosch before moving to Pretoria in 2001. He started the Human Economy Research Programme in 2011 with the internationally renowned economic anthropologist Keith Hart. Together they supervised the research of the more than 30 postdoctoral fellows and doctoral students who have been associated with the programme, and edited and contributed to the six volumes published in the Human Economy Book Series. Professor Hart retired as co-director of the programme in 2018.

Mesfin Fikre Woldmariam has taught IT management courses at Addis Ababa University for more than 13 years. He holds a BA in Management, an MSc in Information Science, and a PhD in Information Systems. He has won major research grants, among others from the University of Addis Ababa, the Ethiopian government, and the Institute for Money, Technology & Financial Inclusion at the University of California. His main areas of interest are socio-technical systems, digital financial services, and open innovation. He has been widely published in reputable journals and conference proceedings.

INNOVATORS

Mario Fernandez is a computer engineer and in 2001 founded Signature South Consulting, a leading company providing electronic invoicing solutions in several countries in Chile, Brazil, Mexico, Argentina, Costa Rica, Colombia, Uruguay, Ecuador and Peru. In 2011, Mario also founded Gosocket, a business network based on the exchange of electronic invoices among thousands of businesses throughout Latin America. As CEO of Gosocket, he has led the development process of this network and has been in charge of designing its monetization strategy, through factoring and electronic payments. He has also published two books on the topic of electronic invoicing.

Jeremy Leach is managing director of Inclusivity Solutions, a digital insurance start-up focused on emerging markets, with launches in Kenya, Rwanda, Uganda and Cote d'Ivoire. He has extensive management experience in the public and private sectors focused on financial services in emerging markets, with a particular strength in insurance. He holds an MSc in international development from the University of Bath in the UK, and is a Fellow Member of the Association of Chartered Certified Accountants (FCCA). Previous positions include director of BFA Global, head of micro insurance and divisional director of the Hollard Insurance Group, and executive director of the FinMark Trust.

Ross McEwan is Chief Technology Officer at Wala, a zero-fee financial services app for emerging markets. He previously served as a software engineer and developer at various companies, including RedBlade Software, PortfolioMetrix, Business Connexion, Dezion Software, Cyest Corporation, EnterpriseWorx, and UCS Software. He has been involved in FinTech for nearly 20 years and has experience in retail, payments, logistics, asset management, lending, cryptocurrencies and the blockchain. He is a firm believer in a decentralized financial future and sees this as our best chance at solving the global financial inclusion problem.

Stephen Mwaura Nduati is the immediate former Head of the National Payments Systems at the Central Bank of Kenya, with broad experience covering payments, product development, policy formulation, regulation, supervision and governance. The highlight of his career was in overseeing the introduction of mobile money platforms into the national payments system in March 2007. Currently, Stephen is the Executive Director of the Fintech Institute, a private policy, research and training consulting firm based in Nairobi. He holds a BSc Mechanical Engineering Degree and LLB Degree (University of Nairobi), and an MBA (International Business & Finance) from Syracuse University, New York.

Sechaba Ngwenya is the lead developer and coder at Creditable, a South African FinTech start-up aimed at making banking services available at the workplace. He started his career as a bank teller at ABSA, then became research assistant at Loita Capital Partners where he researched African banking markets and banking systems. He then joined RMB Private Bank (SA) as an assistant and admin clerk in their graduate programme. Following this, he joined ABN AMRO as a Capital Markets specialist and Money Market dealer, later taking on a role as credit analyst. His role at Creditable includes engaging with clients.

Dare Okoudjou is the founder and CEO of MFS Africa, a leading Pan-African Fintech company, operating the largest digital payments hub on the continent with over 170 million mobile wallets in Sub-Saharan Africa. Prior to founding MFS Africa, Dare worked at MTN Group, where he developed its mobile payment strategy and led its implementation across 21 countries throughout Africa and the Middle East. He began his career as a management consultant with PricewaterhouseCoopers in Paris. He has an MSc in Telecom Engineering from ENST-Paris and an MBA from INSEAD.

Valentine Obi is the founder and Group Chief Executive Officer of eTranzact Global, a leading provider of financial switching platforms and mobile banking and payment services, with operations in Ghana, Nigeria, South Africa and the United Kingdom. He has extensive experience in the Information Technology sector and has served as a project director of various IT projects, including World Bank-assisted projects in Nigeria and Ghana. Valentine holds an MBA from Instituto de Empressa in Madrid, Spain. He is an alumnus of the Harvard Business School, Boston, USA, and a doctoral student with the International School of Management, Paris, France.

Nnamdi Oranye is the founder of the Disrupting Africa network, and a noted FinTech author. He is passionate about the power of technology and innovation to change the lives of Africans. He is the author of two books on African innovation: *Disrupting Africa: The Rise and Rise of African Innovation*, and *Taking on Silicon Valley: How Africa's Innovators will Change its Future*. Both books show how African technology and digital payments can propel Africa as a technology powerhouse on the global stage. He has been named as one of the '100 most influential names in Africa's telecoms, media and ICT industry' by the AfricaCom100 Research Board.

Gerhard van Deventer is a former programmer and Information Technology (IT) Auditor. He joined the South African Reserve Bank in 2013 as an IT Risk Analyst, and then joined the Bank Supervision Department. He holds degrees in financial and IT management and strategic foresight and, most recently, completed an MBA. Gerhard is part of the SARB's Fintech Unit where his responsibility is to think about innovation facilitation and how the SARB collaborates with others in financial services innovation.

Trevor Manuel, former South African minister of finance, delivers the keynote address at the University of Johannesburg, 22 October 2018.

Keynote address

Trevor Manuel, former South African Minister of Finance

Financial innovation across Africa has significantly improved access to financial services. However, there is a big difference between traditional financial service providers and Fintech start-ups. Future developments will largely depend on the extent to which existing financial institutions respond to rapid structural and cultural shifts.

The race to digitalisation involves a range of interests, and analysts and planners need to take account of all role players, including digital innovators, established financial institutions, regulators, and customers. Digital innovators should not be given carte blanche, and technological solutions should be embedded in well-considered eco-systems.

Ownership of data

In the 21st century, data will become a more important asset than land and industrial equipment. This means that control over data could concentrate wealth and power in the hands of a small elite. To prevent this, the ownership of data needs to be regulated. This does not mean that digitisation should be avoided, but rather that it should be properly managed. The monopolisation of data would negate the most important opportunity offered by digitalisation, namely to achieve more inclusive economic growth.

The financial sector in Africa is grossly underdeveloped. Populations remain underserved, and are therefore unable to borrow against future income streams or save for future events, which has hampered the development of capital markets in turn. Digital finance has created important new opportunities for expanding financial services. This should build on one of the most notable successes on the continent, namely mobile money, in which Africa is recognised as a world leader.

Right: The opening session in progress. Opposite: Stephen Mwaura Nduati of the Fintech Institute and Nnamdi Oranye of Disrupting Africa during the panel discussion.

Technology-driven changes are providing Africa with an opportunity to leapfrog to industrial development. However, this would require the alignment and cooperation of governments, the private sector, and consumers. According to the World Bank, a number of African countries, led by Senegal, Kenya and Rwanda, have set ambitious targets for 4G and fibre roll-out as well as e-government. The same report notes that:

- Available and affordable internet is a prerequisite for participation in the digital economy;
- Identification and verification are essential for the extension of digital networks. According to recent estimates, about 30% of Africans have no way of identifying themselves; and
- Bringing people online helps to increase access to formal financial services, including mobile money.

It adds that sub-Saharan Africa has one of the most entrepreneurial and youngest populations in the world, which bodes well for the roll-out of digital applications.

Implications for traditional service providers

Traditional providers of financial services retain a strong market presence. They will not curl up and die because of the advent of Fintech.

Consumers have become more tech savvy, and more aware of the cost of services. They are no longer prepared to pay for financial services without a better understanding of what they are paying for. Yet established financial services firms remain large and lumbering. Many have established digital units to work on mobile apps. But management is generally too flat-footed and protective to shift to different modes. Their technology is often antiquated and expensive.

Corporations in particular find it very difficult to change, especially since the shift to a digital future demands a reappraisal of the nature and purpose of the firm, as previously understood. This is not easy, but essential if these organisations are to change in a meaningful way. While corporations seek to deal with these internal stresses, highly specialised Fintech operations are moving in to feed off the tables of established, regulated, and ultimately conservative firms.

Part of the solution is for firms to act decisively. They need to indulge in a few heresies such as hiring “misfits”; disrupting their own business models by integrating innovation; and redefining what

they should and should not do. If a business is not culturally ready for "misfits" and for change, its digitalisation efforts will not be sustainable.

According to the Korn Ferry Institute, to achieve digital sustainability, traditional service providers will need to become more agile; improve their collaboration with both internal and external stakeholder ecosystems; become more disciplined and more focused in respect of digitalisation; realign and empower their employees; encourage creativity; and become more open and transparent.

Implications for customers

The availability of more information will empower customers. They will increasingly voice their opinions about service quality, and use their feet to vote for alternatives. As more financial services are provided digitally, customer churn is bound to increase. While this will impact on risk pooling arrangements by providers on the one hand, empowered consumers will continue to press for lower fees on the other. For this reason, the older models of service delivery will change rapidly, and are already doing so. Service providers will have to commit more resources to communicating with customers.

Implications for regulators

The division between regulated financial services and unregulated Fintech must be eliminated. Each country will have to establish a level floor, with rising rights and access. Regulators are bound by global norms aimed at preventing the recurrence of past crises. However, the modernisation of regulatory systems will play an important role in building the future.

According to Christine Lagarde, managing director of the IMF, the advent of digital finance has presented regulators with a difficult challenge. 'On the one hand, they must protect consumers and investors against fraud, and combat tax evasion, money laundering and the financing of terrorism. They must also protect the integrity and stability of the financial system. On the other, they must beware of stifling innovation that could benefit the public. Developing a forward-looking regulatory framework calls for flexibility and new expertise.'

This will require an effective and ongoing partnership between regulators and the regulated, creating a mutually beneficial learning relationship among regulators, intermediaries and clients.

Implications for Africa

The object of the debate about digital finance is to explore ways of transcending past limitations. This requires innovation in respect of access and products, with an emphasis on inclusion as well as on indigenous products. Success should be measured in terms of whether hitherto underserved people will gain greater access to financial services. This can be evaluated in terms of the participation of vulnerable people, especially women.

There also needs to be a campaign to ensure the growth of African institutions, facilitated by the roll-out of ancillary services such as the internet, adult literacy, and identification. Moreover, governments and the private sector will need to support the establishment and maintenance of innovation hubs.

It would be a disaster if the ground that has been prepared for a significant roll-out of digital finance is cultivated and harvested by non-African firms, simply because they are more agile, more adaptable, and access proprietary technology solutions more easily.

Lastly, African role players need to ensure that they are not unwitting parties to a new concentration of wealth and power.

From left to right: Stephen Mwaura Nduati, Nnamdi Oranye, Trevor Manuel, Prof Peter Vale, executive director of JIAS, and Prof Saurabh Sinha, Deputy Vice-Chancellor for Research and Internationalisation at UJ.

SESSION 1: MOBILE MONEY AND DIGITAL PAYMENTS

Current trends, developments and challenges in the field of mobile phone-based payment technologies and other forms of digital payments, and their impacts on the lives of users in African countries and elsewhere.

The mobile money landscape in Africa

Dare Oukoudjou, founder and CEO, MFS Africa

This presentation will reflect on the development of mobile money over the past ten years -- what we have achieved; where we are going; what we need to be worried about; and what we should be excited about. Mobile money is the second wave of the mobile revolution in Africa. It is possible only because mobile itself has transformed the business landscape. By the same token, care should be taken not to focus on mobile money only. While the current enthusiasm is welcome, and should be encouraged, mobile could generate other, equally powerful transformative businesses.

Mobile money was preceded by Me2U, a system for sharing airtime with others. This was, and remains, one of the most successful value-added services ever created. The reason it became so successful was that people began to use it as a substitute for money transfers. People used their mobile phones just to receive calls, and made calls from callboxes. The operators would have different phones, each for a different network. They would charge the same rate, but use the cheapest network. Airtime could be bought on the spot. This service grew particularly rapidly north of the Limpopo. At one point, callbox operators represented about 35% of the mobile market in Africa.

Using transferable airtime to pay for goods and services obviated often difficult journeys over long distances to pay people in person. It was far quicker and far cheaper, and spread very rapidly. The next step was to develop this into a proper money transfer system for unbanked mobile phone users, drawing on MTN's pioneering MobileMoney system, developed in collaboration with Standard Bank.

This is how mobile money started. The rest is history. These services are now found all over Africa. One of the most underreported mobile money services is EcoCash in Zimbabwe, which is transforming Zimbabwe into something close to a cashless society. They also continue to innovate. They deserve more credit than they are getting at the moment.

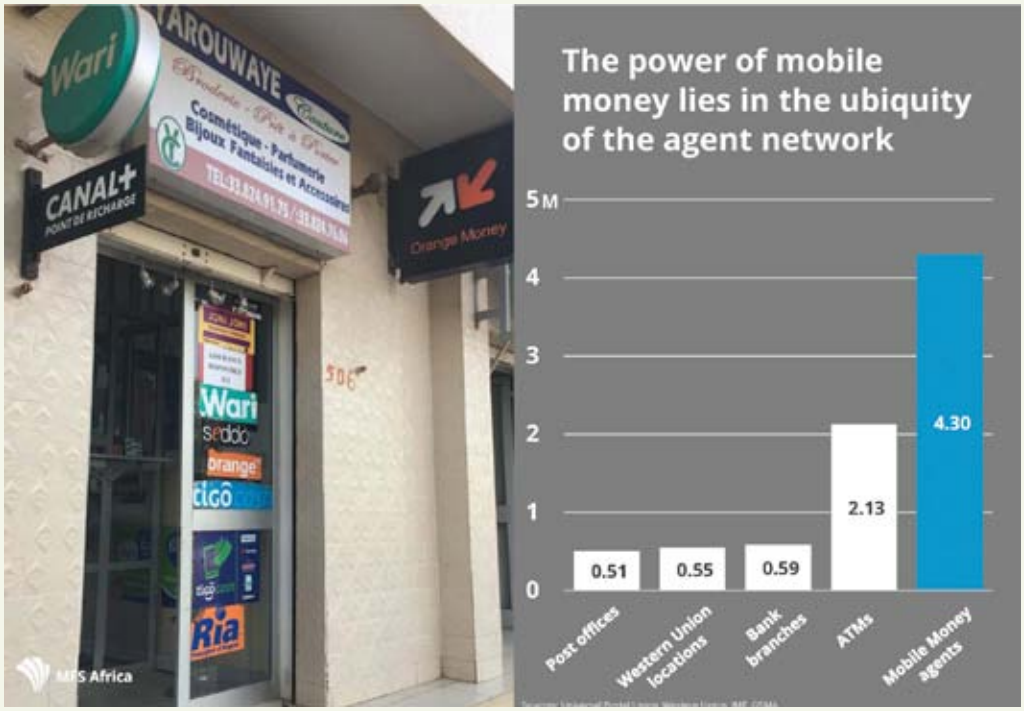
The new normal

M-PESA has moved out of Kenya into Mozambique, where it is also playing a big and growing role in the economy and society. On the Francophone side, Orange Money has made huge progress, moving to Cote d'Ivoire, and even to places like Madagascar. Again, in these societies, these services have become the new normal, and are making major contributions to GDP, empowerment, and financial inclusion.

There are more than 320 million mobile money users in sub-Saharan Africa. By contrast, it has taken banks more than 100 years to achieve 20% penetration.

A lot of the focus on mobile money centres on technology. However the success of mobile money has more to do with agent networks than with technology. Mobile money requires money to be digitised, and in Sub-Saharan Africa this is largely cash. One of the things that banks have endemically failed to do is to create cash digitisation points that are both accessible and convenient.

The figure on the facing page reflects the number of institutions and systems involved in digitising money. It shows that mobile money agents far outstrip the others, numbering 4,3 million around the world. More than half of them are in Sub-Saharan Africa, so there are more than 2 million points in SSA where cash can be digitised.



What is unique about mobile is its ability to provide large-scale informal distribution, and this still fuels its growth in Africa today. The key factor is the ubiquity of agents across the continent.

Cross-border remittances

One area in which mobile money is making a significant difference is that of cross-border remittances. When people think about this, they tend to think about people sending money from London to Accra and from New York to Kampala. But many more people, or as many people, send money from Nairobi to Kampala, and from Abidjan to Yaoundé. It might be difficult to convince someone in New York to send money by phone. In Kenya, however, people are very comfortable with using their phones to transmit money, and so are people in Kampala.

Conventional cross-border remittances are a very fragmented market. Contrary to popular belief, Western Union represents only about 25% of the market. In the UK alone, there are several thousand licensed money transfer companies. Some of them service only one corridor, such as Leeds to Abuja, and they are expensive to operate. The competition from mobile money has been very healthy, and has driven costs from a height of 17% within Sub-Saharan Africa (versus a 7% global average) down to single digits in a period of about three years.

In this context, the goal of MFS Africa is to facilitate mobile money transfers between mobile networks. There are about 350 networks around the world, and it is not possible for them all to conduct bilateral agreements with each other. Our aim is to act as a middleman, enabling real-time transactions across them all. Today, this works everywhere except where regulators don't allow it. This problem will probably be resolved as well, further reducing the costs of remittances in Africa. MFS Africa also helps to connect Africa to the digital economy, both externally and internally. We have the potential to reach more than 170 million mobile wallets, more than two million agents, and more than 30 African countries.

A better society

Where is mobile money going? It cannot be technology for the sake of technology, but must be technology for a better society. Academics need to remind mobile money operators of this, because they tend to lose themselves in the day-to-day business struggle. The ecosystem and industry have evolved to enable a wide variety of verticals. Digital financial service providers need to reach the consumer with a mobile store of value, and digital merchants need to reach mobile payment users with more holistic experiences.

What should we be excited about? The passion, investment and brain power surrounding the sector continues to grow. Real progress has been made by providing some very basic services.

What should we be worried about? A major concern is regulatory overreach. Governments across Africa are eyeing mobile money as a new source of revenue. This trend must be combated. Another is overprotectionism, or a reluctance to share ideas with others. A third is the corruption of data integrity, and the last is the agenda of incoming capital, which needs to be questioned and scrutinised.

The impact of e-invoicing in Latin American economies

Mario Fernandez.
CEO, Gosocket

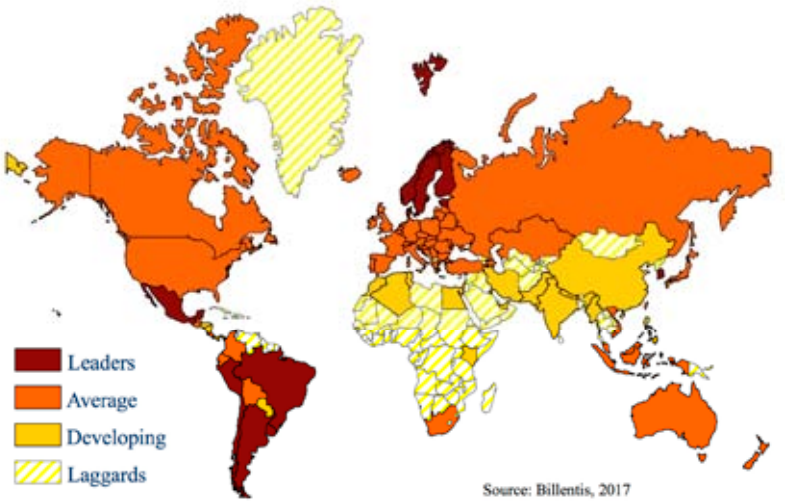
Latin America is the world's most developed region in respect of electronic invoicing. The region's leading company providing solutions for the exchange of electronic documents is Gosocket Corporation. These documents include e-invoices exchanged in accordance with the tax regulations applying in different countries.

Gosocket's experience with e-invoicing began in 2003, when Chile (the company's base) embarked on a project to make electronic invoicing mandatory for B2b transactions. The company has since expanded into Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru and Uruguay.

How does a mandatory system of e-invoicing such as Chile's work?

- Buyers send electronic purchase orders to suppliers
- Suppliers issue e-invoices on the Tax Authority's platform and ship products to buyers
- Suppliers' invoices are validated on the Tax Authority platform
- Validated e-invoices are sent to buyers or buyers get information about e-invoices directly from the Tax Authority platform
- Buyers accept or reject e-invoices in standardised messages
- Buyers pay through integration with electronic payment gateways
- Suppliers can cancel e-invoices by issuing electronic credit notes which make reference to the original invoice

The system ensures seamless interoperability between all service providers and correct delivery of all e-invoices. E-invoices and e-payments can be registered on a blockchain in order to provide a public record of transactions, thereby facilitating financial processes between buyers, suppliers and the state.



Latin America is considered the most developed region of the planet in electronic invoicing, with regulations implemented by Tax Authorities of 10 countries.

This is a significant advance on earlier forms of non-mandatory e-invoicing. Earlier e-invoicing tended to be cumbersome without adding much value. In the past buyers established their own digital formats for e-invoices and obliged suppliers to use them, or they were obliged to digitalise invoices issued by suppliers using optical character recognition (OCR) technology, or they struggled to match non-electronic invoices issued by suppliers with digital purchasing orders they had issued. For their part, suppliers issued invoices in formats specified by clients either by integrating a solution into their Enterprise Resource Planning (ERP) system or by filling in a web form on a specific portal, and sent issued e-invoices to clients via an electronic data interchange (EDI) platform, e-mails, web services, or portals. The earlier system was scarcely seamless, leaving plenty of scope for miscommunication to arise between the parties involved.

State structures and systems

Governments invariably introduce mandatory B2b e-invoicing in an effort to modernise state structures and systems. The system leads to improved tax collection, better control over tax evasion and money laundering, enhanced availability of reliable, real-time information about the economy, and greater alignment with international standards and best practices. From the perspective of the companies involved, mandatory e-invoicing makes the payment of taxes simpler, speeds up tax refunds, reduces the costs of printing, sending and archiving documents, and simplifies the processes of invoice issuing and receiving.

Gosocket has played a major part in setting up and managing the e-invoicing system in various countries. In the course of this involvement, the company came across, and helped to develop, another unanticipated benefit of the mandatory system – one of particular relevance to small and medium enterprises (SMEs).

SMEs worldwide are often severely hampered if they have to wait a long time – 30, 60, even 90 days – for invoices to be settled by the buyers of goods they supply. Large suppliers are often able to wait for payment or, if they need payment in a hurry, to engage the services of a factor – often a private

company – which will buy outstanding invoices at a discount, make payment in place of the buyer, and wait for the buyer to pay them. SMEs frequently struggle, particularly if they are relatively new start-ups, to find factors willing to take the risk of accepting their outstanding invoices as reliable assets.

Introduction of e-factoring

Gosocket found, however, that the introduction of mandatory e-invoicing enables e-factoring, making it possible for factoring agencies to offer cash payments for outstanding invoices on the basis of analytical tools, and for SMEs to choose which offer to accept. Since the system becomes transparent – with buyers publishing their terms of payment of e-invoices and able to see the status of their accounts payable on the Tax Authority's platform – even the banks in selected countries have become willing to service the factoring needs of SMEs.

E-invoicing brings real digital transformation for companies, with the important spin-off of facilitating financial 'democratisation' through e-factoring for SMEs. Achieving this benefit requires strong regulation of e-factoring.

Mobile financial services: unnoticed vulnerability issues

Mesfin Fikre Woldmariam, Addis Ababa University

This presentation reports on a study of some hitherto unnoticed risks involved in using mobile financial services in Ethiopia. Ethiopia has a population of over 100 million; in 2014 the country had nearly 20 million mobile phone subscribers; the number of mobile phone subscribers was growing by 20% per annum. Yet users of mobile phones in Ethiopia were and remain reluctant to adopt mobile banking and payment services.

Some of the reasons for this reluctance in Ethiopia (and elsewhere in Africa) have been highlighted in previous studies. The studies drew attention to issues such as the existence of poor telecommunications infrastructure; the lack of comprehensive and appropriate regulatory frameworks (for instance, in Ethiopia, a digital signature is not recognised as legally valid); the high rate of illiteracy; the undersupply of agents for pay-out purposes; general lack of understanding of the benefits of digital payments and transfers; and widespread concerns about the security of these technologies.

Security concerns identified in earlier studies are well known, ranging from theft of mobile devices to perceived vulnerability to cloning, phishing and spoofing. There is official concern about the scope the technology provides for money laundering and the financing of terrorism. For their part, by contrast, potential users are concerned about the possibility of political manipulation from above. Governments in Africa (and elsewhere) have been known to turn the internet off during periods of civil unrest or before elections and, by doing so, to paralyse business for companies or individuals dependent on mobile money.

The study reported on here looked at some of the risks of using mobile money not emphasised by earlier studies. The study was based on structured and unstructured interviews with branch managers and customer service managers in banks in Ethiopia. Managers were selected who had considerable experience of the challenges of mobile financial services. They were asked about particular cases of risk they had encountered while working with bank clients.

The most common problem they cited was multiple payments, when mobile money users enter a payment several times owing to delayed confirmation of payment from the system they are using. Users commonly discover later that payment has been transferred more than once, but neither the users nor the banks are empowered to reverse the unintended transfers, and must rely on the goodwill of recipients to return the excess.

Other cases involve the lack of a legal source document for phone-based transactions. For instance, if a retailer in Ethiopia pays for goods supplied by a wholesaler by going directly through a bank, both parties will know what the payment was for and who made it. But if retailers use mobile money to make payment, they will simply be informed by SMS from the bank that a specific amount has been deducted from their accounts, and the wholesalers will be told that the same amount (less charges) has been credited to theirs. In Ethiopia these SMSs include no information about the source and purpose of the transaction, which sometimes results in wholesalers refusing to dispatch goods because they cannot match payments to purchase orders.

Managers explained that unsophisticated users often struggle to adjust mobile money app settings. They therefore leave details of their bank accounts and mobile money PIN codes on their phones, with potentially disastrous consequences if the phones are lost or stolen. People may also be coerced by gangsters to transfer money from their phones, but there is no way to distinguish legitimate from illegitimate transactions as yet, and the victims of coercion have no recourse.

A review of the terms and conditions of mobile money services shows that virtually all the risks are transferred to users. But those with limited literacy rarely understand the contracts they sign, and the documents involved are invariably stored in the banks and not given to the customers. Moreover, illiterate people in Ethiopia (and elsewhere) rely on the colours of bank notes, and the icons on them, to distinguish notes of different value. If they receive payments or remittances in mobile money, however, they are faced by numbers on a small screen and are obliged to ask someone else to interpret them (with the risks to security this may involve).

Finally, as the managers acknowledged, it is often difficult for people to fit mobile money into their lived practices. People in rural Ethiopia commonly earmark remittances for different purposes: money from one sender is earmarked for school fees, for instance, while money from another is

set aside for ceremonial purposes. But when all remittances end up in one e-wallet, it becomes difficult for recipients to do this. Mobile money's design also takes little account of the fact that mobile phones are often shared by several users.

Mobile banking's motto is that it gives users access to its services '24/7'. All too often, however, it also gives users the sense that they are vulnerable '24/7'. We need to ask what can be done to relieve ordinary people's fears. Does the solution lie simply in tighter regulation, or are there instances in which better, more empathetic innovation can also play a role?

Discussion

Mobile money and digital financial services have tremendous reach, and therefore major transformative potential. They could be a means either to extract wealth or to distribute wealth more equitably. Mobile service providers are accumulating data as well as capital. Where is all this data going, and who is controlling it? Safaricom – which operates M-PESA – is 40% owned by Vodacom UK and 60% by Telkom Kenya, ostensibly amounting to significant local ownership. But 60% of Telkom Kenya is owned by an investment firm in London. So ownership of Safaricom resides largely in London, continuing to reflect the traditional unequal relationship between Kenyan business and the country's former colonial master. This does not undermine what Safaricom has achieved, but one needs to ask where the wealth and data are being accumulated and who is in control -- how can we Africanise this, and keep it Africanised? Otherwise, we might just continue to service foreign masters who will exercise growing control over whatever FinTech services we deliver.

Businesses ultimately exist to serve the needs of customers. The profile of mobile consumers on the continent has changed drastically. Ten years ago, the average customer was probably female, older than 40, and engaged in subsistence agriculture. Today, most customers are younger, urban, and connected to global cultural and other trends. Given this, the future growth of mobile money and digital financial services is assured.

Before Fintech, banks provided a comprehensive suite of financial services. Many digital finance service providers started out with the same orientation. However, mobile money has enabled people to unbundle financial services, with users selecting single services from different service providers. Today, educated customers are able to create their own suites of financial services. But banks will continue to exist, and some are catching up with mobile services of their own.

If our intention is to improve people's lives, how do we know we are succeeding? The first indicator is reduction of hardship. For example, when crises occur in particular African countries, mobile money can still be transferred to people there. The second is a reduction of transaction costs, including the cost of remittances. The biggest benefit is choice. Not everyone will go for digital solutions – some people may still choose to save under the mattress. But at least this will not be their only choice. If you pick up your phone, you should be able to connect to the world. Putting this choice in the hands of Africans will have far-reaching consequences, and play a major role in improving their lives.

Ownership of data will be the next big battlefield – among others due to misunderstandings, conflicting interests, and erroneous assumptions. We get letters from government officials telling us that our data must stay in the country. But they are emailing us from Gmail accounts!

If we facilitate a transaction between a Kenyan company and a customer in another African country, which laws are we meant to apply? But we can't stop in order to think about laws -- we have to con-

tinue going forward. And the way to go forward is to follow how people do it -- formally or informally. If I'm in Goma, and want to buy mattresses from Mombasa, I will find a way to do it. Customers then ask us 'Are you going to help me or not?'.

Corporations are driven by profits, but we can't make money in isolation. We need information on a range of deeper issues, including the dynamics surrounding the ownership of data. This is where academics can play a meaningful role. In the meantime, the consumer one is meant to protect is busy giving everything away by clicking on WhatsApp, Facebook, and so on. So some operators are asking 'What's your problem?'.

Companies will always err on the side of practicality. We will look at what is simple and practical, and keep on doing it until we are prevented by regulatory or other means. We also need to consider this issue in a regional context. What good are the laws for consumer protection and data privacy in South Africa if there is nothing else in the southern African region?

Venture investing is highly contextual. Someone in Kampala has a far better understanding of local dynamics than a potential investor in London. Potential investors come with various agendas. We shouldn't be naïve about this – we need to know what these agendas are. It is up to us to drive this process as first-generation Fintech innovators in Africa.

There is also a lot of hypocrisy involved when capital pretends that it will do good things for the poor. We should not be naïve about this, and should know what we are doing. When we shake hands with an investor or business partner, we should understand why we are doing it, live with it, and make the best out of it.

China's role in Africa is being questioned. But because of their own history, Chinese investors have a better understanding of conditions in Africa than their counterparts in London or New York. Western money hasn't simply been 'good' for Africa, and it is up to us to learn from past mistakes.

Three key issues present themselves. The first is the design of the systems themselves – what to include and not to include. The second is how to craft laws for mobile money. Currently, digital finance start-ups are operating in a regulatory vacuum. How they operate will eventually serve as a guide to lawmakers in Africa seeking to develop functional regulatory frameworks. The third is how research could aid practitioners – notably to work out how mobile technology could influence

people's spending behaviour. Thus far, mobile financial systems are just used to transfer money, and there is no interest in expenditure. Research is needed on how Fintech could help people to change their spending behaviour – how to use digital money to save more, thereby lifting themselves out of poverty.

Competition is vital, for costs as well as efficiency. Single service providers protected by government have no incentive to improve efficiency, reduce costs, or continue to innovate.

In some countries, mobile service providers are legally restricted from providing a full spectrum of financial services; only traditional financial institutions are allowed to do so. This speaks to the problem of developing effective regulatory frameworks. Experience shows, however, that as long as the internet and cellular networks exist, people will demand the use of these services, and overly restrictive regulatory frameworks will not be sustainable.

There was an attempt to introduce a system of factoring for small and medium enterprises in South Africa some time ago. The aim was to help SMEs to get their hands on money owed them by buyers quickly, since it is widely understood that such businesses experience cash flow problems when buyers of their products or services delay payment. It would be interesting to know how far this attempt has gone. If it has made little headway in South Africa, does this mean that it is difficult to develop such a system in the absence of the mandatory e-invoicing that has come into force in several South American countries?

The issues raised regarding the perceived insecurity associated with the use mobile money in Ethiopia are well taken, although it is probably worth pointing out that people carrying cash in their pockets are as much at risk from gangsters in the streets as people carrying mobile money on their phones. Some of the problems identified are likely to diminish over time – improvements to infrastructure in African countries like Ethiopia will lessen, if not eliminate, the problem of multiple payments as a result of slow confirmation of mobile money payment. The problem posed in Ethiopia by inadequate information about the source and purpose of transactions on SMSs confirming payment has already been solved in some other countries in Africa. The challenge of designing mobile money apps that are easy for illiterate people to understand and use is certainly worth thinking about further.

INSIGHTS FROM THIS SESSION

The session has raised a range of issues, on two levels. The first is the practical level of how to best match digital financial services to regional conditions and rapidly growing demands. The second is the normative level of talking about the ultimate purpose of these kinds of interventions, and whose interests are being served: those of the people or of big capital.

It has also raised the complex issue of the interface between sovereign states with their own regulatory frameworks and broader, borderless economies. This leads on to the issue of African unity and the creation of aggregated regional and subregional markets with integrated regulatory frameworks.

SESSION 2: REGULATION

Issues of regulation, oversight, and legislative challenges relating to the recent emergence of mobile money, the digitisation of payments, and financial inclusion. Implications of regulation for fin-tech companies and the challenge of reconciling financial inclusion and consumer protection.

Digital finance and regulation

Stephen Mwaura Nduati, Fintech consultant

Financial inclusion is essential as an enabler for the Sustainable Development Goals, and a key tool to reduce extreme poverty. The World Bank, the G20, and other global players champion the concept and put the provision of formal financial services to the poor at the heart of their development efforts. Yet the levels of financial exclusion remain high on most of the African continent. In 2006, only 9% of adults in Tanzania had a formal bank account, and 78% of adults in Mozambique did not have access to any formal financial services.

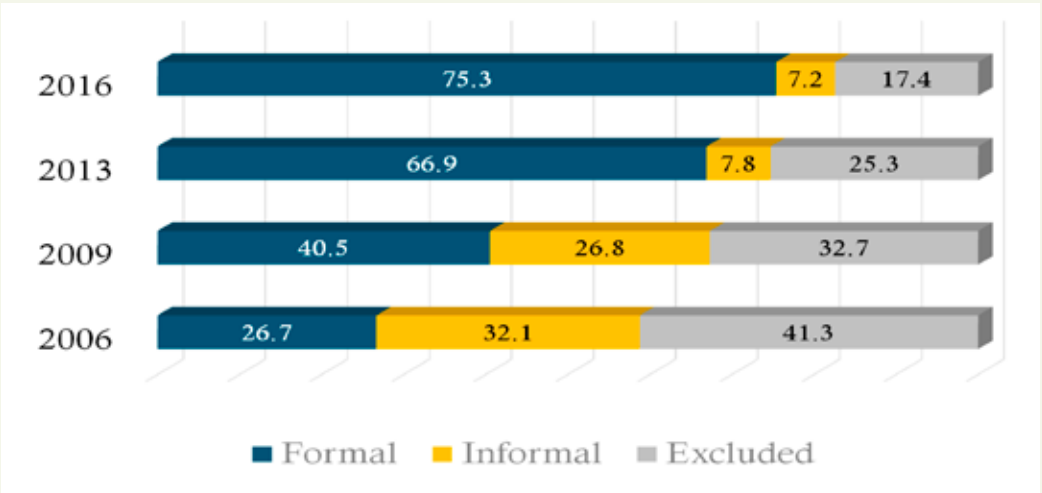
Enabling and supportive regulation is crucial in making financial inclusion efforts a success, and regulators should take a more favourable and supportive position. However, the challenges faced by African countries are unique and context-specific, which makes it challenging – and even dangerous – to simply copy regulatory frameworks from other parts of the world.

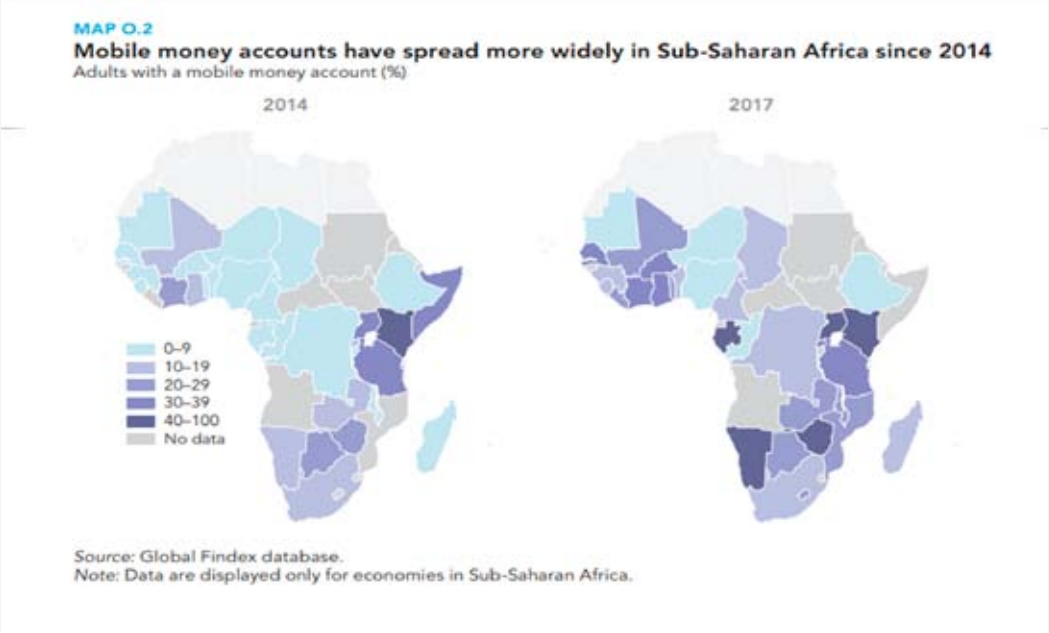
The lack – or poor state – of general infrastructure, such as roads and electricity, hampers the expansion of financial infrastructure, especially in rural areas. High levels of illiteracy and low levels of education among the poor, as well as the fact that most poor households simply do not have enough money to make even an initial deposit, pose additional challenges for financial service providers.

The rapid growth of mobile phone ownership in recent years, however, has the potential to address these issues and to act as a catalyst for financial inclusion in Africa. Over the past ten years, mobile subscription rates across the continent have doubled, and close on half of all Africans now own a mobile phone. A growing number of companies providing mobile-based financial services such as insurance, banking, payment and, more recently, credit have seized this opportunity. One can categorise these new financial services as follows:

- Banks use mobile platforms to add services (such as mobile banking) for their existing customer base.

Impact of M-Pesa on financial inclusion in Kenya





- New financial players, such as mobile network operators and agents, use mobile platforms to target the unbanked, thereby transforming the customer base.

It is the second approach that has revolutionized the provision of financial services in Africa. Starting with the launch of M-Pesa in Kenya in 2007, mobile money platforms are now available in 90 countries worldwide and process an average of 1 billion USD per day. In Kenya, Uganda, Rwanda and Tanzania, 66% of the adult population uses mobile-money services on a regular basis.

In terms of regulation, the definition of and the distinction between banks and payment systems or payment instruments are of crucial importance. Regulators in many countries tend to see mobile money as being in competition with the traditional banks and have often tried to protect these powerful financial institutions. Banks are the dominant financial institutions in most countries, but payment systems encompass more than banks, comprising a range of instruments, procedures and rules for the transfer of funds among system participants.

Instead of seeing mobile money as a threat to the traditional banking sector, one should regard it as a payment system, just like coins, banknotes and cards. Payment systems have evolved over the years, moving from dowry payments made in cows to payments in hard currency, and further to electronic transactions. Mobile money is merely the latest phase in this transition and regulators and lawmakers should regard it as such.

According to the 2017 GSMA State of the Industry Report on Mobile Money, the average customer moves 188 USD per month through a variety of mobile channels. Person-to-person transfers comprise the largest share (57 USD), followed by cash-in transactions or deposits (56.40 USD). The fact that the cash-out value (45.90 USD) is lower than the amount of money deposited suggests that mobile platforms function increasingly as a savings tool. Bulk disbursements, bill payments, merchant payments and airtime top-ups represent only a small fraction of the total transaction value, but hold significant potential for growth.

The geographic spread of mobile money is worth a closer look. While mobile money has prospered in much of East Africa, its adoption in Southern and West Africa has been much slower. In North

Africa, mobile money only plays a negligible role in the overall financial system, which is something that should be explored in future studies and policy interventions.

Mobile money regulators must address numerous questions. Should they allow non-banks to issue and transact in mobile money? What risks does the emergence of non-bank financial actors entail? How can we protect consumers from risky or exploitative practices? How do we adapt our regulatory framework as the nature of services and service-providers changes over time? Kenya and its enabling regulatory approach to mobile money can serve as a model for other African countries, but policy-makers will have to find their own solutions adapted to their unique contexts, goals and challenges.

Issues and challenges for financial and digital regulation in Africa

Prof Olufunmilayo Arewa, Temple University

In his book *Code 2.0*, Lessig argues that "cyberspace demands a new understanding of how regulation works. It compels us to look beyond the traditional lawyer's scope – beyond laws or even norms. It requires a broader account of 'regulation', and most importantly, the recognition of a newly salient regulator". Hence, when it comes to regulation, we need to recognize that the field of technology is not neutral. It is part of a broader architecture influenced by embedded values. If we borrow technologies or legal frameworks without understanding the values they build on, the outcome may be inconsistent with our own values and country-specific context.

A useful approach to the development of smart regulation is the 'innovation eco-system' approach. It takes account of numerous factors, including (but not limited to) laws and regulations targeting SMMEs and new firms, financing, intellectual property laws, competition laws, privacy policies, data law, education, and infrastructure polices. There are three core aspects - legal reform, inequality, and information and data.

Legal reform

Regulation often takes little account of future technological change, leading to a technology/regulation mismatch. Further, colonial legal legacies that create inflexible, and sometimes arbitrary, legal frameworks complicate regulation in most parts of the developing world. Anglophone colonial powers, for instance, frequently implemented laws developed in the global North without due consideration for the local context. In some cases, they even developed two separate legal frameworks applied to British citizens and 'natives' respectively. Similarly, commercial laws were never adapted to the local context and many countries simply adopted their existing colonial legal frameworks after they gained independence.

These regulatory legacies persist today, with patent examination law being a particularly salient example. Certain countries have no substantive patent examination at all, which may enable international companies to acquire much more comprehensive patents than they would be able to obtain in countries such as the United States. Notably, South Africa's 2018 Intellectual Property Policy has proposed implementation of substantive patent search and examination as a key reform.

There is a strong need for hybrid laws and new, localized legal frameworks in Africa, especially with regard to new technologies. However, this has started to happen only in very few countries, such as Rwanda and South Africa.

Inequality

There are marked legal inequalities in the developing world, both between and within countries and regions. Some governments have turned to big companies and technology conglomerates for guidance with regard to technology-related legislation. Many of these corporations are larger and considerably better resourced than the countries they operate in, making them powerful players in the pursuit of private sector interests. Apple's market capitalization, for example, is larger than the GDP of 183 of the 199 countries for which the World Bank has collected GDP data.

Other challenges include the rising poverty rates, which coincide with rapid population growth in many African nations. Moreover, the rural/urban divide, as well as the gender gap with regard to access to and use of digital technologies, are expanding. While mobile technology is not a panacea for solving the myriad of problems related to poverty and inequality, it can certainly be part of the solution, provided the right economic systems and legal frameworks are in place.

Information and data

In order to draft meaningful and appropriate regulation, as well as to monitor implementation, progress and impact, accurate and up-to-date statistics are of crucial importance. However, systems for data collection, analysis and dissemination are often either insufficient or absent in African countries.

In addition, the use of English as the dominant language in the world of technology in general, and programming in particular, can be challenging for countries where English is not widely spoken. Language, and its use and impact in technology, should thus be added to the research agenda, and the numerous forms of social, economic, and digital inclusion that can result from the increasingly widespread use of English should be explored in future research.

Discussion

As much as borrowing laws and regulation from the global North is not always appropriate or useful, it is necessary and advisable in certain areas. Cybercrime is an important example, as it ignores jurisdictions and borders and should be adopted and implemented at a global level. The global legal dispensation on cybercrime includes the Budapest Convention on Cybercrime and the African Union Convention on Cyber Security and Personal Data Protection.

Most African innovators do not pay particular attention to regulation when they develop disruptive technologies or new financial platforms. They focus mainly on the technological feasibility, as well as user demand, and often neglect the legal dimension. This carries the danger of innovators failing to register/patent – and thus own – their innovations after commercialization. A pan-African patent framework might be useful in this regard.

Many African innovators feel that it is not viable to register their intellectual property in Africa. They believe that if they want to tap into international markets, they must register their IP in, for instance, the USA. This results in knowledge, skills, tax revenue and jobs leaving the African continent.

In some African countries, mobile network operators and other industry players influence, or even 'capture', the regulators. Owing to their lack of experience and technological knowledge, regulators tend to consult law firms that service MNOs, or even the MNOs themselves when developing laws and regulations.

The task of regulating SIM card acquisition and use is at the heart of regulating mobile money. Many African governments have realized this and are implementing strict measures to register SIM cards. In Nigeria, for example, MTN incurred a 5.2bn USD fine for failing to disconnect unregistered SIM cards in 2015.

In Kenya, Safaricom was allowed to go ahead with its M-Pesa project based on a 'letter of no objection' issued by the regulatory authorities. It subsequently took the regulator seven years to develop its regulatory framework for mobile money, but Safaricom could continue to operate and expand while this process was taking place. This allowed the regulators to adapt their legal framework based on actual market developments, making the laws dynamic and suited to actual market requirements.

INSIGHTS FROM THIS SESSION

- There is tremendous potential for mobile money and other mobile financial services in Africa. We are witnessing an unprecedented expansion of the mobile sector, which has changed the Fintech landscape fundamentally.
- Regulation needs to enable, not stifle, this potential. This includes regulating different services – e.g. insurance, payments, lending – individually, instead of grouping them under one umbrella term, such as 'banking'.
- There is a strong need for an integrated eco-system that aligns a wide range of laws and regulations, taking into account the local, historical and technological context.
- Regulation must be flexible, allowing the market to test innovations, followed by a process of evaluation, learning, and adaptation where necessary.

SESSION 3: AGENT NETWORKS

The role of merchants and individual agents in the extension of mobile money networks in Africa, especially with regard to the disbursement of digital/mobile payments such as remittances and the establishment of a branchless banking infrastructure.

Evaluating the efficacy of agent networks in Africa

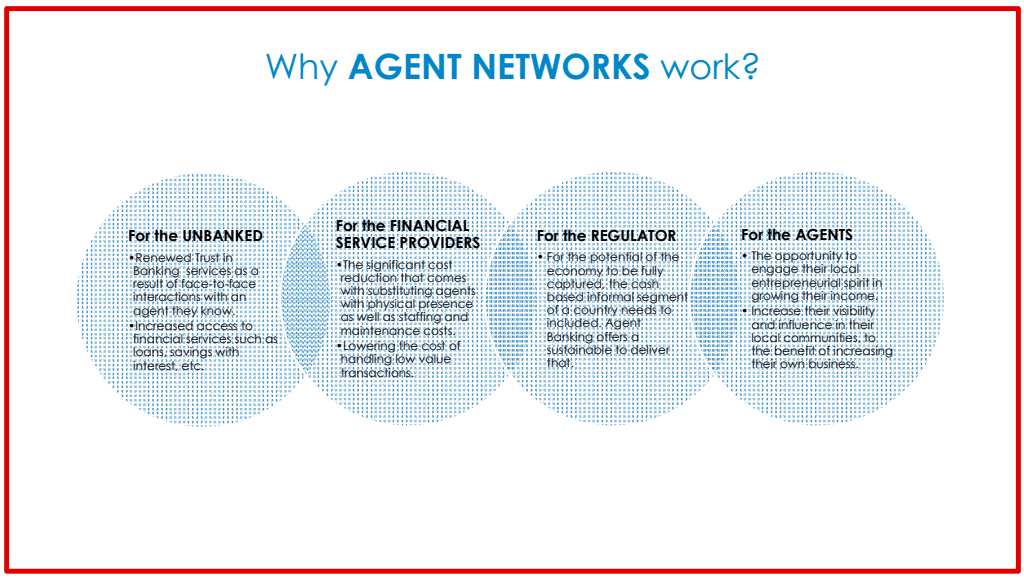
Valentine Obi,CEO, eTranzact

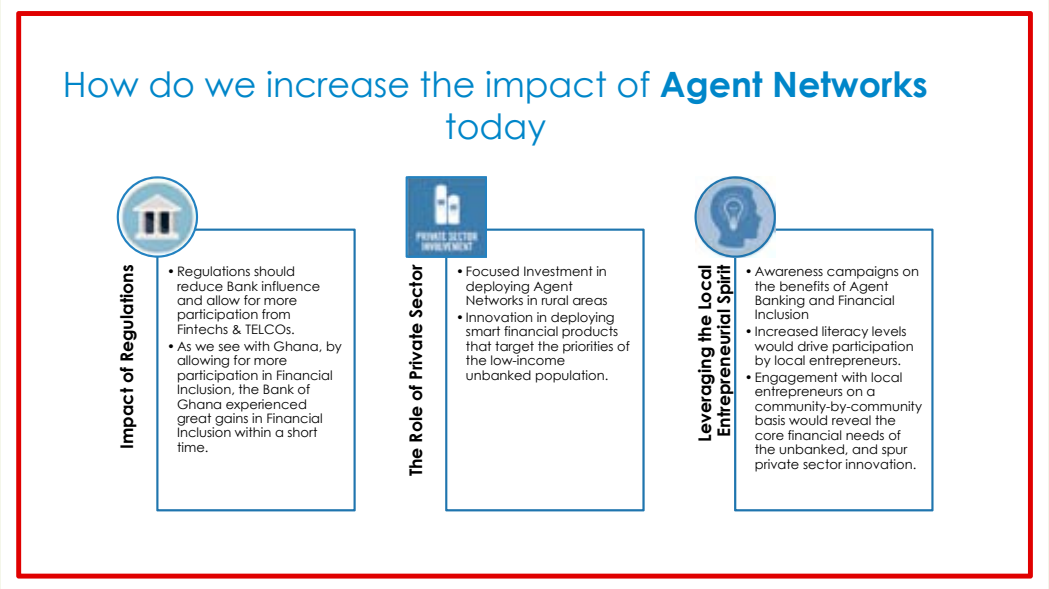
An agent network is a collection of retail or postal outlets contracted by a bank or a mobile network operator to process clients' transactions. The owner or an employee of an outlet conducts the transaction and lets clients deposit, withdraw, transfer funds, pay their bills, inquire about an account balance, or receive government benefits or a direct deposit from their employer.

Banks in Africa have been reluctant to promote 'branchless' banking through agent networks because they have long considered low-income people and small-scale entrepreneurs, particularly in rural areas, too costly and risky to serve. The majority of the adult population in the sub-Saharan region have therefore remained unbanked. The proportion of adults in this region with bank accounts remained at 23% between 2011 and 2017. Over the same period, however, the proportion of adults with mobile money accounts grew to 21%, nearly doubling the percentage able to access financial services and products.

Mobile money is an electronic wallet service that allows users to store, send, and receive money using their mobile phone. Mobile money addresses many of the obstacles to having an account faced by the unbanked. Mobile money accounts are cheap to open, and require little or no documentation and no visits to a financial institution. This means that they are well suited to the needs of the population the banks are reluctant to serve. Yet it is apparent that the success of mobile money accounts turns on how extensive the agent networks are in different countries. Here one can make an instructive comparison between Ghana and Nigeria.

Ghana's mobile money agent network has been the backbone of the country's drive to extend financial inclusion. The number of active mobile money accounts in Ghana surged to 11 million in 2017, a thirty-fold increase since 2012. This resulted from a twenty-five fold increase in the number of mobile money agents, to 151,000, over the same period. The main enabler was the easing of regulations pertaining to the issuing of electronic money. The Bank of Ghana's 'Electronic Money Issuers Guidelines', introduced in 2015, made it possible for mobile money operators to issue e-money (in





addition to banks). Ghana is now one of the fastest growing mobile money markets in sub-Saharan Africa, with service providers continually adding new financial services to basic mobile money accounts.

In contrast, although Nigeria set out to reduce adult financial exclusion from 46.3% in 2010 to 20% by 2020, it has underperformed in the field of mobile money. The total number of mobile money users stood at 2.3 million in 2017, far less than the 37.3 million in Kenya, and the 11.1 million in Ghana. Nigeria has 155 million active mobile phone owners, the highest number in Africa and seventh in the world, but only 20 000 mobile money agents. The Central Bank of Nigeria has recognized, belatedly, that it needs to roll out more mobile money agents quickly, particularly in areas banks are reluctant to serve. It aims to add 500,000 new agents by 2020.

There is a strong positive correlation across sub-Saharan African countries between the number of agents per 100,000 of the adult population and the proportion of adults with active mobile money accounts. This implies that people are encouraged to make use of such accounts, and the associated financial services, when there are agents close to hand to assist. Face-to-face interaction with agents people know strengthens trust in the financial institutions involved, and gives increased access to financial services such as savings with interest, loans, and insurance.

Agents lower the cost of handling low-value transactions for service providers by reducing the need for expensive physical presence (in the form of bank branches, for instance) as well as staffing and maintenance costs. For their part, agents increase their visibility and influence in their local communities, to the benefit of their own businesses.

Finally, extensive agent networks are beneficial to government authorities and regulators because they assist in drawing people active in the informal economy into the formal one, thereby increasing the level of recorded economic activity in a given country.

Mobile money agent networks in Diepsloot: structure, hierarchies and the law

Dr Saun Maliehe, University of Pretoria

VODACOM introduced M-Pesa into South Africa in 2011, but abandoned this initiative in 2016. MTN Mobile started its mobile money service in 2012, but terminated it late in 2017. Several reports identified the causes of these failures as strict and inflexible regulation, and competition from the banking sector as well as domestic money transfer operators (MTOs) such as Shoprite and other retail corporations.

This presentation reports on field research, starting in 2017, into the uses of mobile money in South Africa. Initial inquiry showed that few South Africans in the greater Pretoria region used mobile money or knew much about it, a finding in keeping with the failure of the initiatives mentioned above. Eventually one of two people drew attention to Diepsloot, a large informal settlement south-west of Pretoria, where, they said, foreign migrants used the services of money transfer operators such as Mukuru, Hello Paisa, and Mama Money in order to remit money to their countries of origin.

The research focus therefore shifted to Diepsloot. Settlement began there in the mid-1980s, on land belonging to the Rhema Church. The church's first response was to challenge the settlement's legality in court, but it backed down during the transition away from apartheid in the 1990s. By 2016 the population had grown to an estimated 250 000, many of them migrants from Zimbabwe and other SADC countries who had come to South Africa in search of income-generating opportunities unavailable at home. Diepsloot had become a hub for foreigners who were either undocumented or in possession of no more than asylum-seekers' permits. Most housing and income generating opportunities there remained informal.

The MTOs mentioned above were active in the remittance market in Diepsloot. Mukuru had started its money transfer service in 2010, but was able to expand its activities countrywide in the wake of a new exemption to the 'know your customer' (KYC) requirements laid down in the Financial Intelligence Centre (FIC) Act of 2001. Announced in mid-2015, this exemption allowed foreigners in South Africa to transfer small amounts of money out of the country without having to meet the full KYC requirements designed to combat international money laundering and the financing of terrorism. Even foreigners illegally in South Africa were able to meet the pared-down KYC requirements that called for no more than a valid identity document issued by the country of origin and details of a local address. Hello Paisa and Mama Money were new cross-border money transfer start-ups that had taken advantage of the 2015 dispensation.

These companies employed agents in Diepsloot, frequently street traders seeking to supplement their income. The agents were invariably foreigners themselves, employed on the assumption that migrants from the same countries would entrust the business of remitting more readily to them than to South Africans. Yet these agents played only a limited part in the whole remittance process.

They earned a small commission for recording the KYC details of new customers and giving the latter a reference number they needed to 'pay in' the cash for a remittance at the nearest outlet of a retail chain store (for instance, Shoprite, Boxer, Pep) that was in partnership with the cross-border MTOs. The individual agents did not handle cash at all, and customers who already had their KYC details recorded had no need to return to them for subsequent transactions, because they could generate their own pay-in reference numbers by sending a USSD message direct to Mukuru, Hello Paisa or Mama Money.

Individual agents sometimes made a bit more money on the side by assisting customers unfamiliar with the intricacies of USSD messaging to send their remittance orders to these companies, but the important, and more lucrative, steps in the process remained in the hands of the companies and their retail partners.

The remittance system in South Africa is very different from elsewhere in Africa. One can see it as a further manifestation of the historical South African principle that power should be concentrated in as few hands as possible. South Africa's banks showed no interest in the 2015 exemption to the FIC Act, claiming that it would cost too much to run the pared-down KYC regime alongside the full one. Yet since banks have a monopoly on dealing in foreign exchange, the new MTOs are obliged to pay them to send remittances across the border.

Have the banks simply outsourced the burdensome part of cross-border transfers to these MTOs; and have the MTOs, in turn, passed the legal risk of failing to record adequate KYC information to acutely vulnerable agents in places such as Diepsloot?

Discussion

The organisation of agent networks varies widely across Africa. Some are organised hierarchically, others not. Each form of organisation has advantages and disadvantages. A system such as the South African one, with retail chain stores acting as 'super agents', means that individual 'small agents' are marginalised, but also that customers do not encounter agents without sufficient liquidity to make pay-outs. Moreover, if super agents invest in training individual agents they may attempt to limit the latter to working for only one mobile operator (or bank). This happens in various parts of West Africa, to the detriment of small agents who could process many more customers if they worked for several service providers simultaneously.

A closely related point concerned the terms on which 'small agents' are employed by super agents or service providers. Most work for commission, earning a small fee for each customer they process, and are therefore acutely vulnerable to restrictions placed on 'agent sharing' by service providers. Moreover, the notion that agents are invariably entrepreneurs for whom agent commission is simply a supplement to business profit is a neo-liberal myth. What measures are available to ensure that agents have fair conditions of employment?

How does one measure the effectiveness of agent networks? Is the simple correlation between the number of agents in a network and the number of mobile money accounts among adults served by the network the best measure? To address these questions we need much more detailed research on what agents on the ground actually do. For instance, research has shown that Safaricom agents in Kenya sometimes pay off the debts of customers who have taken M-Shwari loans from the company. The customer then becomes indebted to the agent instead of Safaricom. We need more information on what happens thereafter, since simple correlations drawn from 'big data' cannot address this kind of question.

It may not be useful to describe the remittance system currently operating from South Africa as a mobile money system, given that it does not involve the attachment of e-wallets to mobile phones.

INSIGHTS FROM THIS SESSION

- Mobile money has the potential to serve the interests of poor people in Africa, but it would be unfortunate if the continent developed a two-tier system of financial inclusion – mobile money for the poor, bank accounts for the more affluent.
- Agent networks bring mobile money (and potentially also banking) within reach of large numbers of people in Africa. The more extensive networks are, the more chance there is of meaningful financial inclusion. Yet it is important to look beyond the 'business case' for expanding agents networks, and to examine how agents on the ground actually relate to clients and how clients actually use their services.

SESSION 4: REMITTANCES

Implications, opportunities, and challenges of the recent spread of mobile money and other payment technologies in the field of remittances and other cross-border payments.

Market research about African remittance flows

Nnamdi Oranye, Founder, Disrupting Africa and FinTech author

How viable is the remittance market in Africa from the perspective of large commercial financial institutions? To answer this it is useful to draw on World Bank data regarding remittances sent into and out of African countries by documented migrants via formal channels in 2017, and on other sources regarding trends in global and African remittance costs and the potential of the digital remittance channel.

Total remittance flows

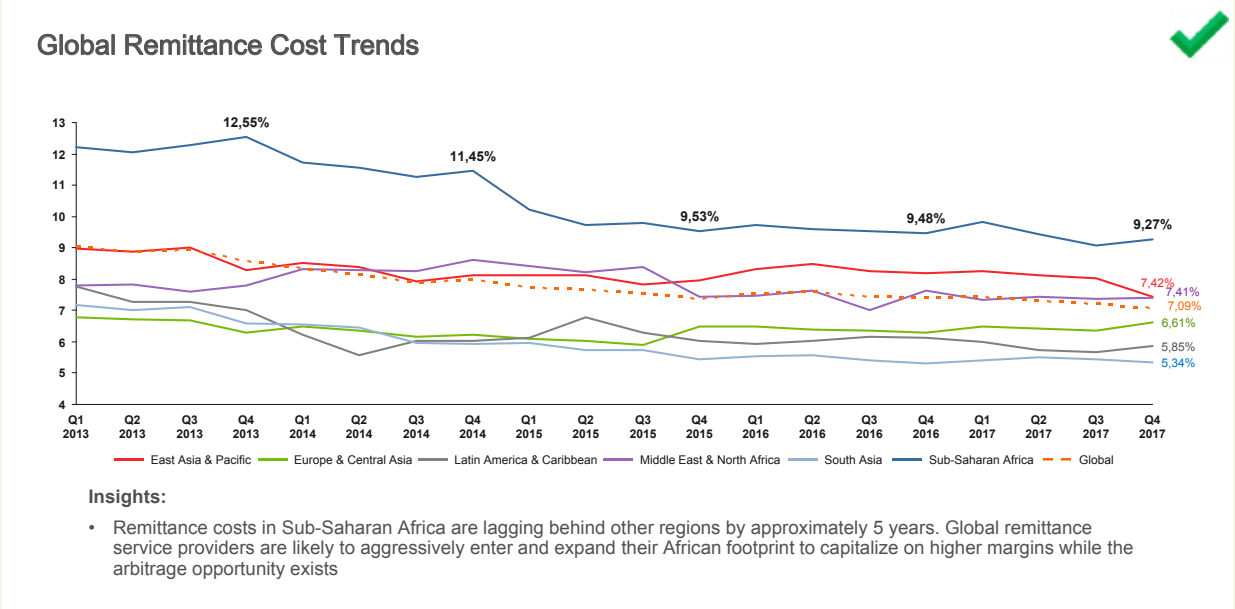
According to World Bank data for 2017, the value of inbound remittances to the top 15 remittance-receiving countries in Africa was similar to the value of inbound remittances to India and to China (all between USD61 billion and USD65 billion).

The value of outbound remittances from African countries was smaller, with the top fifteen remittance-sending countries sending a total of USD 13 billion to other countries (including countries outside Africa) in 2017.

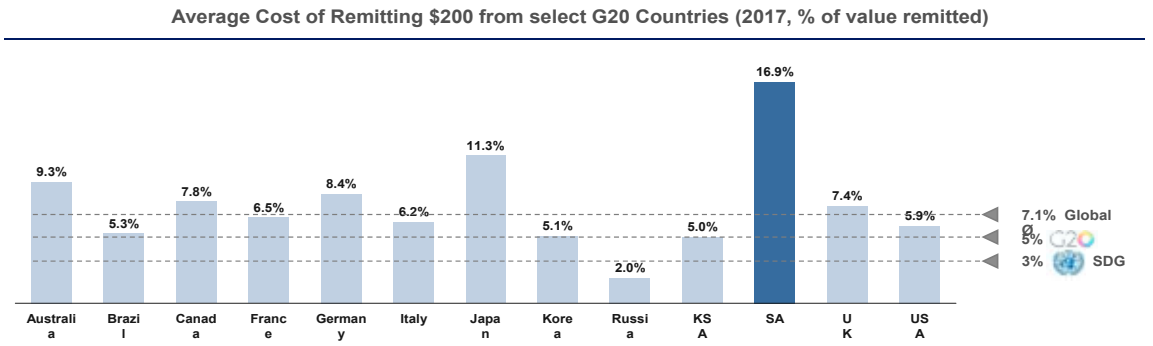
The biggest players

Nigeria received a third (USD 20 billion) of the value of inbound remittances to the top fifteen remittance-receiving African countries in 2017.

South Africa was the second largest remittance-sending African country (after Cameroon), with an outflow of USD 2.6 billion in 2017. The World Bank's calculation did not include the value of remittances from South Africa to Zimbabwe.



G20 Remittance Costs



Insights:

- South Africa stands out among G20 countries when it comes to the cost of sending a remittance, coming in at more than double the global average of ~7.1% of value remitted
- This represents a significant opportunity to grow low cost remittance channels from South Africa.

Source: Mastercard Advisors analysis, World Bank, Business Insider 17

Trends in remittance costs

Worldwide, the average cost of sending remittances declined from 8.75% (of the value remitted) in 2013 to 7% in 2017. In Sub-Saharan Africa the decline over the same period was from 12.6% to 9.27%. Sub-Saharan Africa would appear to be about five years behind the rest of the world with regard to reducing remittance costs. The average cost of remitting from South Africa in 2017 was 16.9%, more than twice the global average.

Potential of digital remittance channels

In 2017 92% of global remittance flows (by volume) was still sent via traditional physical channels, with only 8% being sent via digital channels. Digital's share of the global remittance flow is increasing fast, however, under the impetus of legacy companies shifting volumes to digital channels as well as digital-first start-ups. The latter are undercutting traditional remittance fees in some corridors, with legacy companies fighting back in others by lowering traditional fees. There is a limit to how far legacy companies can go in this regard without undermining their margins completely.

A shift from physical to digital origination and disbursement channels is expected to be the main catalyst to achieving the goal of remittance fees in the 3-5% range envisaged by the G20 and the UN SDGs.

Implications for commercial financial institutions

With inbound remittances valued at USD 20 billion in 2017, Nigeria is an obvious target for large financial institutions wanting to break into the African market. Africa-based financial institutions should note that global remittance providers are likely to enter or expand their African – especially Nigerian - footprint in order to capitalise on the higher remittance fees in sub-Saharan Africa while the arbitrage opportunity still exists.

There is a significant opportunity to grow low-cost remittance channels from South Africa and to pay particular attention to the South Africa-Nigeria remittance corridor. In 2017, for instance, documented migrants from Nigeria (27 000) made up the 20th largest contingent of foreign nationals in

South Africa, yet the value of their remittances to Nigeria was exceeded only by the value of remittances to Zimbabwe and Lesotho.

Remittance providers relying on physical channels of remittance origination and disbursement in Africa should realise that they have a five-year window to switch to digital channels or go out of business.

The impact of this market research

The information given above is drawn from detailed research combining World Bank, United Nations and South African Home Affairs statistics to paint a picture of the remittances opportunity for large commercial financial institutions.

Large financial institutions can capitalize on this opportunity by moving from looking at a pure remittances play to a Diaspora Banking one. This should include the ability for foreign nationals to open bank accounts digitally in their country of origin, as well as providing banking services such as savings and credit type solutions to this market. This would require these institutions to think creatively and leverage off digital products to service this new target market.

South African banks have thus far been reluctant to exploit the prospect of growing low-cost remittance channels from South Africa, leaving this to digital-first start-ups. South Africa's regulatory environment will have to be adapted before the start-ups can make full use of the potential of digital channels.

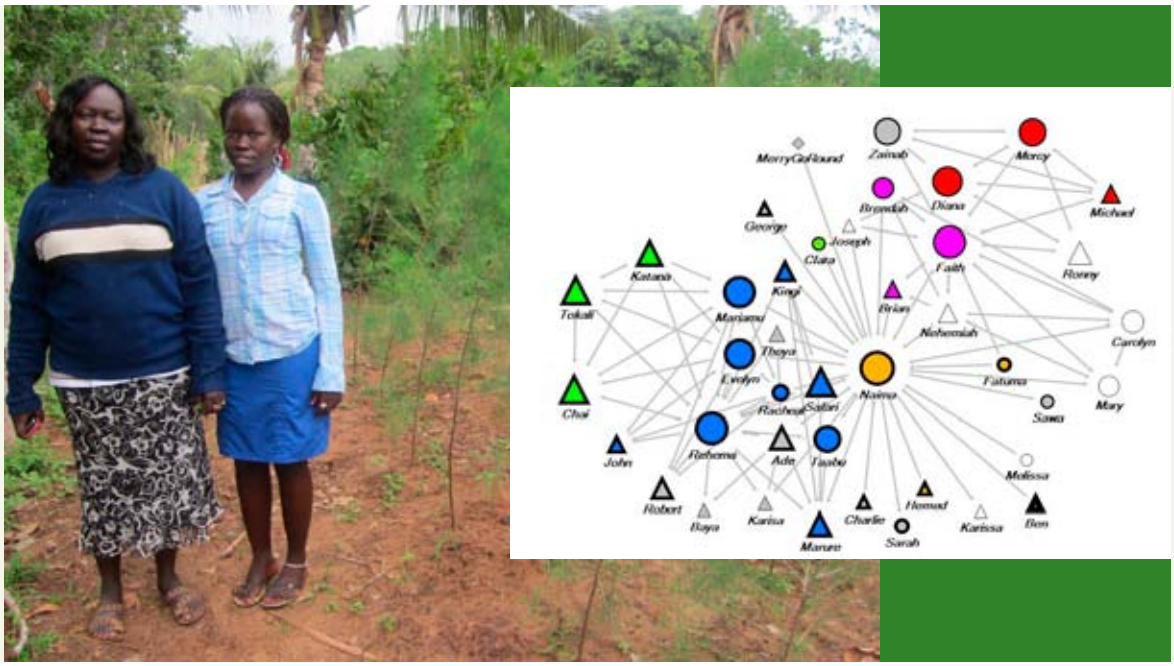
Remittances in Kenya

Dr Sibel Kusimba,
American University,
Washington DC

Kenya is the epicentre of mobile money. 90% of adult Kenyans make use of Safaricom's M-Pesa service, mainly to send remittances from urban areas in Kenya, or from abroad, and to receive them in rural areas. Much of the literature celebrating M-Pesa's success takes the line that it has revolutionised Kenyans' financial lives by making remitting faster, more reliable, and cheaper than it was before.

This presentation takes another line. The argument is not that the literature's claim is necessarily incorrect, but that it focuses too narrowly on 'finance' as a supposedly discrete sphere of the lives of ordinary Kenyans. The suggestion here is that M-Pesa succeeded as a remittance vehicle not simply because it was faster and cheaper, but also because it managed to address the ways in which financial concerns are intertwined with other aspects of the lives of remittance senders and recipients. This becomes apparent if one examines what happens to mobile-money remittances after they have been sent and received - something the literature usually fails to do.

The ethnographic research for this presentation was undertaken in a rural part of Western Kenya, where small-scale farming is the main local income-generating activity. Local people have long received remittances from migrants to towns and cities in Kenya, enabling them to acquire everyday necessities and perform important life-cycle rituals. Mobile money is an addition to this, giving migrants who have gone further afield – to the USA or Europe – a ready opportunity to 'be there when they're not there' and to demonstrate their love and concern for people at home. It compresses space and time more effectively than earlier modes of remittance, and its meaning therefore goes beyond the things people can buy with it.



The research also examined how mobile money entered longstanding networks of mutual assistance and exchange among local people. One notable finding was that it gave women greater prominence in these networks. When large sums of money are involved, remittances are usually addressed to senior men (given that the social system in the villages is strongly patrilineal). But mobile money remittances are seen as being personal, and absent migrants often send small sums directly to their mothers, grandmothers and wives. The fact that these remittances appear as numbers on a mobile phone screen means that senior men may not even be aware that they have been received, and their female recipients have more say in deciding how they will be distributed in the local networks of mutual assistance.

This is not necessarily a 'revolutionary' empowerment of women, since relationships through women have long been a significant counterweight to the dominant patrilineal principle. But it does give women more discretion regarding the use of remittances, sometimes placing a considerable burden of responsibility on the shoulders of the grandmothers who serve as key nodes in often far-flung social networks and must decide how the mobile money they receive should be distributed further.

It should be noted that mobile money is an addition to the forms of assistance and exchange already prevalent in these networks, whose members also make gifts and repay debts in labour time, food, firewood, and cash. Mobile money does not simply replace other means of exchange, being deemed appropriate only in limited contexts. The same is true in contexts such as the 'coming out' ritual for young men, where mobile money cannot – or at least should not – be substituted for gifts in cattle and other locally valuable items. The male elders responsible for such rituals have a clear notion of the hierarchy of value involved, with land and cattle at the top and mobile money at the bottom.

Yet mobile money also give senders the opportunity to become selective about who and under which circumstances to assist. As senders say, if one goes home in person with cash for an important ritual, one is likely to be besieged by additional demands from kin and friends. Negotiating one's contribution via mobile calls or SMSs, on the other hand, creates a buffer that cuts the additional demands out and allows one to decide how to contribute in ways that maintain propriety and satisfy the recipients without breaking the bank. This highlights another significance of the notion of 'being present without actually being there'.

The point to underline in all these examples is that local institutions do not simply wither away in the face of mobile money. The latter is an addition to, rather than a replacement for, other forms of transferring value, and it is successful to the extent that it can be woven into an existing field of meaning for the people using it. Once widely adopted, mobile money will, of course, change aspects of the relationships between those using it, and it will call for careful analysis to assess these changes and to decide for whom they are good or bad.

This suggests that a narrow focus on the effects of mobile money on people's 'financial' lives could profitably be broadened along the lines sketched out above.

Discussion

An innovative step by a major African bank was to open bank accounts in Nigeria for remittance senders outside the country. This was a radical departure from the traditional approach which would have targeted remittance receivers in Nigeria. The innovation addressed a perceived concern on the part of senders to have greater control over the ways in which their remittances are disbursed. With a bank account in Nigeria, they are able to allocate some to personal savings, and to allocate the rest to particular ends themselves instead of handing decisions to recipients. The system would work best if it went entirely digital (as it must in due course), enabling Nigerian service providers to receive payments directly and quickly from Nigerians abroad. This is a long-term goal, however, involving development of an extensive network of merchants and service providers prepared to accept digital payment.

Any system giving senders greater control over disbursement of remittances might invite pushback from recipients. For instance, the grandmothers in the Kenyan case could well resent interference in their capacity to make decisions about the distribution of money in their networks, especially in the light of rapidly changing circumstances that distant remitters may not be in a position to follow.

While one must pay attention to the existence of the social networks in which remittance receivers are involved, it is important not to romanticise them. In rural Kenya (as elsewhere) these networks are often sites of contest over the divergent objectives of those involved in them, and the conflict

imposes considerable stress on those – such as the grandmothers - involved in mediation. So they may welcome some of the responsibility being taken out of their hands.

The issue of who controls remittances is unlikely to come down to an 'either-or' option. There is nothing stopping Nigerians abroad from paying for certain things directly from their bank accounts and, at the same time, sending relatives at home a sum of money over which they have discretion. The technology involved in this case does not predispose senders to one option rather than the other.

There is a strong case here for innovators to look beyond the one-size-fits-all discourse about technological innovation revolutionising 'financial' lives by freeing individual self-interest from the shackles of an outmoded tradition of mutuality, and to become aware of the pros and cons under different circumstances of what they develop.

Why are remittance costs in Africa, and particularly South Africa, so high relative to other parts of the world? Is it that the remittance transfer operators in Africa are still caught up in using legacy technologies requiring amortisation? Or is that they must borrow expensive currency in order to make remittances for their customers (and insure the loans against potential default)? Or is it simply the case that they charge as much as they can get away with? On the face of things, South Africa would seem to provide many examples – ranging from bank charges to the cost of data - where the latter is the most likely case, given that the purveyors of these services are few in number and powerful, and the state's regulations do not rein them in.

INSIGHTS FROM THIS SESSION

- There are significant opportunities for large financial institutions in the African remittance market.
- There are opportunities for South African banks to participate in growing low-cost remittance channels from South Africa by adopting digital remittance technology. The banks have shown little interest in this to date.
- Mobile money remittances made it easier for migrants to send money to mothers, grandmothers and wives, thereby giving women greater prominence in networks of mutual assistance in rural Kenya.
- One should take care not to romanticise networks of mutual assistance in rural Kenya. They are not fail-safe insurance, and are often sites of contest between those involved in them.
- Innovators in the field of remittances should take account of what happens to remittances after they have been sent and received.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SESSION 5: G2P PAYMENTS

The use of electronic government-to-person (G2P) payments such as social pensions and child benefits to advance financial inclusion in developing economies, and the role of new payment technologies in this field.

Prospera-Proiif: a pathway towards the atomized 'poor citizen'?

Prof Solène Morvant-Roux, University of Geneva

This presentation deals with the social impact of digitised G2P payments and their implications for relations between citizens and the state. It is based on a study of the Mexican social welfare system Prospero-Digital (more recently Prospera-Proiif).

About 700 million poor people worldwide receive some sort of social grant. These are largely disbursed in terms of policies advocated by the World Bank and other global institutions and adopted from the late 1990s onwards, based on the notion that social grants would promote human development. They are distributed, mainly in cash, to poor people, most of whom are unbanked. Many of these programmes are accompanied by simple cash-based micro credit schemes.

In the late 2000s, the idea began to develop that micro credit was not sufficient, and that social grants could be used to help leverage full and universal financial inclusion. The first step was to digitise the grants payment systems, and the second was to broaden these systems to include a range of financial services.

One such programme is Prospera-Proiif in Mexico (previously Prospero-Digital), the latest in a series of social programmes implemented in this country since the 1980s. Nearly 50 per cent of Mexicans live in poverty. Prospera is a conditional and non-universal social grant scheme that provides for about seven million families in rural areas, but leaves aside about 55 percent of eligible recipients.

Women in rural Mexico queue for social grants.

The programme moved to digital delivery in 2008, implemented via various channels, and a full financial inclusion package was introduced in 2015 by the national social bank, BANSEFI. By 2018, beneficiaries held 2.4 million accounts with BANSEFI. However, branch coverage is weak, and the transition to the accounts system is still incomplete. As a result, one third of beneficiaries still cash out their grants in various ways by means of electronic cards. The study reported on here provides a message from the bottom, about people's lived experiences of these financial instruments, and how they are incorporated into their daily lives.

Prospera is a selective programme. Recipients have to meet certain criteria, and in any given village, only some people will qualify. As a result, Prospera money is seen as a privilege and not a right. Prospera is also conditional; the new benefits come with new obligations, or sets of prescriptions about how the money should be spent. This amounts to a moral contract between the state and beneficiaries, implying that the latter need to behave in certain ways in order to be good citizens. These obligations involve the areas of health, nutrition and education. In concrete terms, they amount to spending money on children's schooling, family care, attending fitness classes, and adopting healthy eating habits.

Local Prospera representatives are the main 'voice' of the programme. They organise the women, and make the programme work at the local level. While there are pockets of resistance, the overall message is that the recipients need to comply with those obligations no matter what.

The shift from the old programme to the new one has involved changes in obligations that have caused a lot of confusion. Previously, people were told that, because they were poor, they were free to spend the money in any way they wanted, and were encouraged to spend all of it. In fact, many women were under the impression that saving part of the grant was forbidden. Now, under the new programme tying Prospera to Proiif (financial services), they are told they should not spend too much of the grant. They are expected to save at the bank, and also borrow from the bank.

So the women are very confused. Many say they don't know what their obligations really are, and how they are meant to behave. At the same time, the prescriptions around Prospera money are emphatic, and sanctions for 'bad' behaviour are very strong. As one beneficiary put it: 'I feel bad because I'm not borrowing, and I should be.'

The digital grants are beneficial in various ways. Instead of having to queue for hours on the same days, at the same pay points, to receive their grants, women can now cash them out in various ways without anyone knowing, whether shopkeepers, money lenders or their husbands. This has greatly improved their lives. But this has come with new norms with which they are expected to comply.

Prospera-Proiif is animated by the view that poor people should be provided with formal financial instruments, and that, given the right incentives, they would begin to use them. However, the figure below shows that people with bank accounts, even in high-income economies, do not necessarily use those accounts for formal savings, or save money at all.

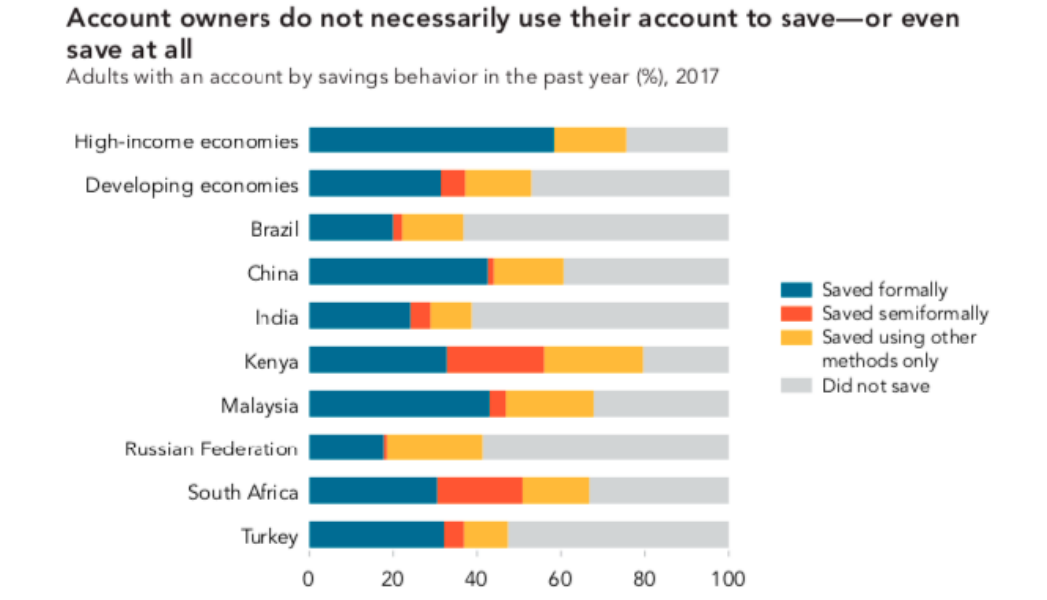
In line with this, the diagram below shows that most Prospera grant beneficiaries in cities as well as rural areas still make use of informal savings and credit instruments rather than the formal ones that are now at their disposal. This is related to families' use of social networks to protect themselves and improve their security. People save in different ways, among others by lending money to friends and family members. So pushing them towards only one type of financial instrument only is not a good idea.

To conclude, this study underlines that the new benefits introduced by G2P systems are often accompanied by new expectations. They are based on the idea that poor people are market anomalies that need to be fixed, and that these instruments are the way to fix them.

Digitising social grants may improve disbursement, but it also enables the state and financial institutions to trace what people do with the money, and to monitor its use more intensively. This has led Robert Haering to remark that 'Financial inclusion is Orwellian newspeak for taking away the option of using cash' (2018).

These prescriptions often conflict with the participation of recipients in existing social networks, including local distributive systems involving complex patterns of interdependence, protection, and control over resources.

The argument is not that these financial instruments should not be introduced. However, this study and others suggest that this should be done in such a way that they help rather than hinder people to sustain their social networks, maintain their protection and survival strategies, and meet their social obligations.



Financial inclusion via social cash transfers: the case of South Africa

Lena Gronbach,
Pretoria University

The use of Social Cash Transfers (SCTs) and other Government-to-Person (G2P) payments to advance financial inclusion has become increasingly popular in developing countries. The core pillars of this strategy are:

- A transition from cash payments to electronic transfers;
- Biometric verification, allied to the compilation of a national beneficiary database;
- A prominent role for private sector companies; and
- A business case for financial service providers (FSPs).

The third and fourth pillars correspond with a general push for greater private sector involvement in development programmes, based on the notion that the private sector is more efficient than the public sector, and better able to develop the technologies needed to implement new financial systems.

The business case for FSPs is twofold. First, they earn government fees for delivering the cash transfers to their intended recipients, and for setting up the payment infrastructure. Second, they cross-sell other financial products, such as loans and insurance to SCT beneficiaries.

This is meant to create a 'triple-win scenario' for governments, financial companies and the poor alike. It allows governments to make SCTs more cheaply and efficiently, opens up new markets for financial companies on the back of lucrative government contracts, and brings the numerous developmental benefits of financial inclusion to the poor.

How has this played out in South Africa? With 17 million beneficiaries, the South African cash transfer programme is the largest in Africa. It is the primary source of income for almost a quarter of South African households, and a third of the population benefits from some form of social grant. It therefore plays a vital role in the lives of the poor.

In 2004, the South African Social Security Agency (SASSA) was established to centralise, consolidate and modernise the country's SCT system. In 2012, SASSA appointed a company called Cash Paymaster Services (CPS) to act as the programme's national paymaster. The CPS system involved free bank accounts for beneficiaries; smart cards for payment withdrawals; biometric verification via fingerprints or voice recognition, recorded on a central database; and payments via bank transfers, merchants, or cash pay points.

Shortly after the CPS system was established, reports emerged about unauthorised debit deductions from beneficiaries' bank accounts, including deductions for air time, loans and insurance. Recourse systems were poor or non-existent. Beneficiaries who tried to have these deductions cancelled were sent from pillar to post. Almost a quarter of the 10 million bank accounts were affected by the deductions. In April 2016 alone, 23 000 complaints were lodged with SASSA, and the problem was probably still under-reported.

More than half of the deductions were traced back to sister companies and partners of CPS, whose parent company, Net1, comprised a set of interlocking companies selling a wide range of financial services specifically to SCT recipients. The total monetary loss due to deductions has been estimated at R800 million. Of this, only R1.5 million has been recovered. Net1, on the other hand, managed to establish a lucrative profit-making scheme on the back of the SCT system.

In response to the huge public outcry in response to the deduction scandal, as well as a range of legal challenges, the South African Post Office (SAPO) was appointed as the new paymaster in 2017. However, the transition has been problematic and expensive. Among other things, SAPO has cut down on cash pay points, and has asked the government for major fee increases, potentially making its service more expensive than CPS had been.

A mixed outcome

Rather than a triple-win scenario, the outcome of the G2P strategy in South Africa has been mixed. The state did manage to extend the SCT programme and increase the levels of financial inclusion. At the same time, it became too dependent on CPS, and was unable to act against the unauthorised deductions. Lastly, the transition to the new SAPO system has been problematic and expensive, largely because inadequate provision had been made for a transition away from Net1.

Net1 / CPS managed to build a successful business case around South Africa's SCT system. The company has established a client base which it continues to serve independent of the SASSA contract. It has also diversified internationally, taking its South African systems and experience to other countries. At the same time, it has suffered considerable reputational damage over the deduction scandal and a range of costly court cases and legal challenges.

Cash transfer recipients benefited from a modernised and more convenient payment system, and gained access to formal financial services. However, they were saddled with deductions many claimed they did not agree to, landing in debt traps in the process.

Lessons from the South African experience

The South African experience illustrates the potential dangers of SCT digitisation, not just for beneficiaries, but for business and government as well. It is unclear whether the full digitisation of payments is either feasible or desirable. In Mexico, most people still rely on cash, and so do many people in South Africa. Given this, closing down cash pay points will simply load the costs of drawing payments back onto the beneficiaries.

Biometric verification has been expensive, and only partly effective. The degree to which fraud has been reduced through the use of biometrics has been contested.

FSPs and the new technologies do have an important role to play in SCTs and financial inclusion. However, this has to be based on a sound and well-structured collaboration between the state and the private sector.

The cross-selling of financial services by the SCT paymaster was highly problematic, first because it opened the door to unscrupulous financial practices, and second because it gave one company preferential access to 17 million customers, thereby amounting to uncompetitive practice.

On a broader level, the current credit-centred financial inclusion agenda is also highly problematic. Having emerged from the micro lending movement, it continues to dominate current understandings of financial inclusion. However, giving people credit often fails to address underlying problems of poverty and inequality. On the contrary, there is a growing body of critical research on micro finance and its failures to achieve positive developmental outcomes.

There are other financial products – such as savings and payment products - that can have a more beneficial impact. Attention needs to be shifted towards those products, and away from credit.

Lastly, the South African case raises the question of the extent to which the business case for private service provision should be allowed to dominate the social policy agenda.

The potential role of mobile money in social cash transfers

Mobile money is playing a major and rapidly growing role in people-to-people and people-to-business transfers. However, its potential role in G2P transfers remains unclear. While people are still cashing in and cashing out, mobile money has no real benefit. The larger question is whether or not mobile money could help to resolve some of the problems encountered in South Africa and elsewhere.

Discussion

Experience elsewhere confirms that mobile money may not be a panacea for improving grant payment systems, and that a wider mobile money infrastructure needs to be in place in order to make it work.

In Colombia and Haiti, for example, the initial intent was to use mobile phones to identify the beneficiaries, and then load the money on to their phones. However, those countries did not have the ecosystems in which people could pay for goods and services with mobile money. As a result, they had to use agent networks established for other kinds of cash-in, cash-out transactions to pay out social grants.

In practice, people walk to pay points, queue for hours, show their mobile phones as identification, and get money on their phones. They then move on to agents, who cash out their grants. This underlines that the key issue is more about establishing a rural payment infrastructure than about mobile money.

It is questionable whether South Africa will ever be able to use mobile money for its grant payment system. It is more feasible in countries such as Kenya, Uganda and Tanzania with more developed mobile money ecosystems. However, even in South Africa, mobile money could be an additional

channel for grant payments.

Fintech could help to improve the transparency of the South African grant payment system. This could include the use of public ledgers, notably blockchains.

Despite the fact that South Africa is a card-rich country, it should move towards mobile money, tied to an appropriate agent model. However, agents need to be properly incentivized so that they start to create new distribution channels themselves (as in Kenya, Uganda and Ghana).

New grant payment systems should be properly tested before being taken to scale, and back-up systems for disaster recovery should be created.

Funds should be distributed via open networks that are startup-friendly. This means that startups instead of the state will do the work of expanding mobile money ecosystems.

The focus needs to shift to open ecosystems that move value on to consumers rapidly and reliably. States should not build their own systems.

The South African case illustrates the tension between social objectives and business imperatives, manifested in the widely documented failures of public-private partnerships. This is often caused by the failure of private companies given state contracts to invest in the necessary infrastructure at the expense of short-term profits.

If financial services companies are contracted to provide certain services, they should make a profit. However, if they are contracted to pay out social grants, this should be reasonably profitable on its own. The business case should not involve leveraging grant delivery to provide other financial services. When companies break the rules, they should be held accountable.

Fintech, including mobile money, should be used to bring down the costs of disbursing grants. This will make it easier for service providers to make reasonable profits without having to provide questionable services on the side.

INSIGHTS FROM THIS SESSION

- The South African case illustrates the problems surrounding Public-Private Partnerships in developing countries. On the one hand, the state does not have the capacity to formulate competent tenders. On the other, there are too few potential service providers to make a competitive business model work. This can lead to distorted tender processes, as well as near-monopolies marked by various forms of malpractice.
- Mobile money does not function in isolation, but needs to be embedded in extended financial ecosystems which minimise the need to cash in and cash out, and maximise opportunities to purchase goods and services, particularly in rural areas.

SESSION 6: MICRO AND MOBILE INSURANCE

Current trends and developments in the provision of micro insurance to low-income customers and the emergence of mobile phone-based insurance as an alternative to traditional insurance products.

Digital Insurance: managing the risks that really matter

Jeremy Leach, CEO, Inclusivity Solutions

Insurance penetration in developing countries has traditionally been low. In Mozambique, for example, less than 2% of people have insurance cover. Mobile phone usage, on the other hand, has been increasing at an unprecedented rate and could be leveraged to offer tailor-made and affordable insurance products to the poor.

In recent years, numerous developmental and financial players have recognized the importance of insurance for low-income households and have been emphasizing the positive developmental impact of micro-insurance products. In this context, health insurance plays a particularly crucial role as it frequently proves challenging for poor families to raise funds for medical emergencies, let alone for the treatment of chronic illnesses.

Credit is usually not readily available, remittances can be slow to arrive, and even close friends and family members are often reluctant to contribute to medical expenses. According to the Financial Diaries project, this is due to the high levels of uncertainty with regard to the final cost and the effectiveness of medical treatment. Ironically, people therefore tend to be more likely to contribute to the cost of a funeral than to send money for a potentially life-saving medical procedure.

Traditional health insurance plans have several shortcomings. First, they cover only specific conditions and treatments, while additional medication, follow-up treatment and rehabilitation expenses must be paid out of the patient's own pocket. Second, the process of reimbursing hospitalization costs or specific health care expenses is cumbersome, admin-heavy and expensive, thus affecting the viability of traditional health insurance models.

New insurance providers, such as Inclusivity Solutions, attempt to address these issues. By offering a defined benefit model that offers a predetermined cash pay-out – regardless of the nature of the incident or medical condition – the administrative burden is kept to a minimum. All claimants have to do is to submit proof that they were hospitalised for a certain number of days or received treatment for a medical condition (which can be done via email, SMS or a messenger app) in order to access their cash benefit. They can then spend the money as they see fit instead of having to claim for every item of medication or every step of a lengthy medical treatment.

These new insurance platforms are increasingly mobile-based and use USSD and SMS as their main channels of communication. Insurance apps are not (yet) popular among low-income clients since many of them use basic cell phones or feature phones instead of smartphones.

Another core feature of Inclusivity Solutions' business model is the human-centred approach to product design. Through a process of co-creating new products together with end users, the company continues to learn about the needs and requirements of its customers. In addition, the insurer works with aggregators, such as banks and mobile network operators, to leverage its impact and to offer its products to a larger customer base.

One of the main challenges for micro-insurance companies and mobile insurers consists in testing their products in a real life environment. Unlike with other financial products, the time span between policy inception and the first claim and pay-out of an insurance plan can be long – in many cases up to several years. According to a CGAP study, it takes approximately seven months for clients to build trust in a new financial product. In the case of insurance, however, clients pay small, regular

It may not deliver in time for every type of need. Shortly before Christmas, Isaac's wife became ill and had trouble swallowing. After review, the hospital informed her that she had a tumour in her throat that would need to be removed. It would cost KSh23,000. They weren't sure how they would raise that kind of money, so his wife went to her mother's house to rest. The mother insisted on a traditional healer and Isaac sold his phone for KSh6,000 to help pay for that. But, they could not raise the full KSh23,000 fast enough and his wife died. Immediately, Isaac was flooded with contributions in cash and in kind worth more than KSh33,000. The social network worked but, in this case, too late to save a life.

Source: Kenya Financial Diaries

amounts over the course of several months or years, sometimes without ever submitting a claim.

In addition, insurers need to consider the specific cultural context in which they market their products. In Kenya and Tanzania, for example, customers felt offended and threatened by adverts for a new funeral insurance and felt that the company was invoking death by advertising their product.

Other challenges result from the human-centred approach to product design taken by Inclusivity Solutions and others. Although customers may say they want a certain product or feature, their actual behaviour might differ from their stated preferences. For instance, when customers were asked what kind of marketing campaign they were most likely to respond to, most said they would prefer statistics and factual information about the product. In practice, however, the highest insurance uptake was achieved through 'urgency' messages such as 'don't miss out' or 'you have not yet registered'.

Finally, concerns about data protection and storage have started to emerge on the African continent, following regulatory reforms and more restrictive legislation in most of the global North. In Rwanda, for example, companies are no longer allowed to take mobile subscriber data out of the country and therefore had to start using local servers. Most FinTech companies rely on cloud-based systems with servers located across the world, which clashes with these new regulations.

Overall, however, the insurance market is a highly promising field for both financial companies and developmental organizations and offers considerable potential for growth. The development of mobile-based insurance products is still in its early stages but is expected to expand rapidly across the continent and to integrate with other (mobile-based) financial platforms.

Discussion

The mobile phone is rapidly becoming the key instrument in marketing, selling and delivering insurance products to low-income customers. Not only is the communication between insurer and client conducted via SMS or USSD, but customers can make payments and submit documents via their phones. Many insurers also send regular text messages to their clients, informing them about new products, features and processes, thus increasing customer loyalty and providing financial education.

The Know-Your-Customer (KYC) requirements for insurance products tend to be less stringent than for other financial services, unless the insurance plan comes with a savings component. This makes

it easier for insurance companies to market their products since a complicated and tedious sign-up process is one of the main obstacles to uptake.

Mobile insurance should not be seen as an alternative to national healthcare systems, but rather as playing a complementary role. In countries where hospitals face frequent shortages of medication and equipment, patients often have to pay for these items out of their own pocket. A guaranteed cash pay-out (as offered under Inclusivity Solutions' business model) can help patients deal with some of the typical challenges faced by public healthcare systems in the developing world.

Despite its usefulness in providing additional funds for medical treatment, micro-insurance and mobile insurance cannot replace a well-functioning public healthcare system. Hence, while investment in insurance for low-income clients can have a positive developmental impact, investment in a country's healthcare infrastructure is equally – if not more – important.

Formal insurance is often complemented by informal, community-based or 'social' insurance mechanisms which have existed for centuries. Social networks can mobilize remittances and other, more immediate forms of support in case of a medical emergency. Introducing formal insurance products therefore carries the risk of 'crowding out' informal support structures, as the provision of cash by an insurance provider can result in the withdrawal of community support.

INSIGHTS FROM THIS SESSION

- Insurance uptake has traditionally been low among low-income households, but new mobile-based solutions have made insurance products more affordable and accessible.
- Insurance providers need to consider cultural norms, values and perceptions when designing and marketing their products, especially in the case of funeral insurance.
- In order to achieve a positive developmental impact, the expansion of health insurance coverage must be accompanied by investments in health care infrastructure, such as hospitals, pharmacies, doctors and medication.
- Formal insurance can either compete with or complement existing informal and community-based insurance mechanisms.
- Stricter regulation – especially with regard to data usage and storage – could pose an obstacle to the expansion of micro-insurance and mobile insurance in developing countries.

SESSION 7: STARTUP CAPITAL

Typical challenges faced by Fintech start-ups in the process of raising capital to market their innovations. Different ways of raising start-up capital in theory and practice, and the resulting implications for entrepreneurs and funders.

Creditable: the story of a South African start-up

Sechaba Ngwenya, former CEO, Creditable

Creditable began in 2013 with an idea about how to fill a gap in the banking services available to blue-collar workers in South Africa's main urban centres. A rough estimate was that there were four million such workers at the time, earning up to R8 000 per month. Many of these workers had bank accounts but found banking difficult because their working hours were longer than the banks' opening hours. If they needed a loan, for instance, the workers only option was to turn to loan sharks and their notorious 'pay day loans'.

Creditable aimed to make banking easier for these workers, by acting as intermediary between the workers and their banks or their employers. It planned to arrange loans to workers and to make short- and long-term saving more convenient. The technology it intended to use for this had to be adapted rapidly when it became apparent that many target customers had access to internet banking, owing to the rapid spread of smart phones and PCs among the urban population at that time

This provided an opportunity for technological innovation. The company came up with a way to measure a customer's state of 'financial wellness' at any given time, using an algorithm to interpret information provided by the customer when signing up for the service and by tracking the customer's spending patterns and patterns of social interaction. Customers granted Creditable permission to scan their bank accounts, SMSs, and Facebook accounts, and the company used the resulting data to make 90% accurate predictions about when they would need loans and their ability to repay them. Creditable was also able to give customers strategic guidance on when and how much to save.

Creditable was fortunate to find a large client for this service at the outset. Like others in South Africa, this company was interested in making loans to its workers from its own resources, but struggled to manage the process adequately in the face of an impending amendment to the Credit Act requiring creditors to act responsibly and keep proper records of transactions. Creditable signed up 8 000 of the company's workers for its service, thereby providing proof that its concept worked.

At this point, however, the company hit a ceiling, finding it difficult to raise more capital to fund its expansion locally. The founder had attended an overseas accelerator for six months in 2013, but found the results frustrating. There had been a lot of talk about funding opportunities, but all that materialised were small investments from four or five international investors. In 2014 the founder decided to seek support to expand internationally, and hit on the idea of relocating to Singapore. This was an inspired choice, because Singaporean banks with subsidiaries in Thailand, and the Development Bank of Singapore, gave both financial support and practical assistance for Creditable to acquire 300 000 customers – blue-collar workers in Thai industries – in a short space of time. The banks' approach was 'let us work with you to make your idea work'.

The outcome is that while Creditable maintains its local operation, South Africa has become an outlier in its future planning. The company is now registered and headquartered in Singapore, is growing rapidly in Thailand, plans to expand into Nigeria, and has a research facility in the USA (and may launch a service there in future).

There are several reasons for this. One is the small size of the personal services sector in the South African economy, accounting for only three percent of total revenue generated. ICT falls within this sector, so it accounts for only a portion of the three percent, although average return on ICT invest-

ment is higher than in other parts of the economy. This implication of the small size is that many Fintech start-ups in South Africa are likely to fail locally or to follow Creditable's path of relocating to a more favourable environment.

On the other hand, if start-ups manage to weather the first few years of local operation, they may do reasonably well. Their prospects are hampered, however, by the fact that South African innovators design products and services that are not sufficiently people-focused. This means that they often choose to concentrate on the wrong things, financially-speaking, at the wrong time. Asked to explain the importance of what they are doing now, IT specialists commonly give answers which are exciting from a technological perspective, but are not related closely enough to people's needs and circumstances. Creditable was not entirely immune to this. Its technology provided accurate predictions regarding loans and savings, but at the cost of the huge effort required to take account of the complex demands from relatives and friends on the wages earned by the South African workers it signed up. Thai workers are simpler to track.

Discussion

Fintech innovators in South Africa, and Africa generally, need better education about how the industry works. Being 'tech-savvy' is one thing, but it is also important to know that a start-up will live or die by whom it accepts business from. Innovators should club together whenever possible, because one-person ventures are very risky. Contacts are vital, and innovators should seek to make as many friends in the industry – in Africa and elsewhere - as possible.

Investor education is equally – if not more – important. There is money available in the continent, but big asset managers are mostly 'old school', their thinking not extending beyond the idea of safe returns to investors. There are some venture capitalists and angel investors in Africa, but even in South Africa they are relatively few in number, disburse capital in small amounts, and insist on quick returns on investment.

Africa has nothing similar to the Silicon Valley model, in which large amounts of capital are made available to innovators and investors are willing to wait for returns, take risks by purchasing equity

in start-ups, and buy out start-ups wanting to liquidate after achieving proof-of-concept. The latter enables innovators to amass millions in new capital quickly and to plough them back into another round of innovation, sometimes by becoming venture capitalists themselves. By contrast, African innovators survive principally by generating a revenue stream from their products and services, which may be shaped more by the necessity of doing this fast than by the needs of the people using them.

In South Africa, large companies are obliged to contribute a small proportion of profit to a state fund to support emerging SMEs, but administration of this fund is weak, and it rarely gives more than R500 000 to support any venture – an absurdly small amount for Fintech start-ups. State-driven support is negligible in the rest of Africa, and innovators there have to break into the international venture-capital arena, which they find very difficult. The result is readily apparent: innovators from outside Africa, with Silicon Valley-type financial backing, are pushing their way into the African market with services that are not tailored to local needs. Because they have little interest in finding out what people in Africa need and want, their services often turn out to be predatory, and the financial returns flow out of the continent.

Ninety percent of Fintech start-ups in Africa fail. The success ratio is probably not much higher in Silicon Valley, but there are many more start-ups there and the number of successes is therefore much higher. Venture capitalists know that the millions – possibly billions – they will make out the few that succeed will compensate for their losses on the others. Silicon Valley's investment ecosystem was developed over eighty years, however, and Africa cannot afford to take another eighty years to catch up.

One solution for Africa is to raise the proportion of successful Fintech start-ups. The best way to do this is to ensure that the products and services offered by start-ups are closely aligned with the needs and wants of the continent's inhabitants. This conference has started a conversation between academics and innovators about how to understand people's needs and innovate in their interest. The conversation must continue.

INSIGHTS FROM THIS SESSION

- Africa has many competent Fintech innovators, but their start-ups are often unsuccessful or succeed only by relocating to a more favourable environment elsewhere in the world.
- One reason for this is that the innovators are 'tech-savvy' but not necessarily attuned to the needs and wants of the people for whom they design products and services.
- Another reason lies in the fact that the financial ecosystem necessary to support African Fintech start-ups is unsophisticated.
- Given that this ecosystem in unlikely to become vastly more sophisticated in the short term, innovators in Africa should focus attention on designing products and services that address the needs and wants of the continent's inhabitants closely. This will help to reduce the proportion of Fintech start-ups that fail.
- An ongoing conversation between innovators and academics whose research pays attention to the intricacies of people's needs and wants in different contexts in Africa is likely to be a significant component of this endeavour.

SESSION 8: THE BLOCKCHAIN

The emergence of blockchain technology as a potential vehicle for financial inclusion and other forms of inclusive development.

The South African Reserve Bank and Fintech innovation

Gerhard van Deventer, South African Reserve Bank

The South African Reserve Bank (SARB) has a constitutional mandate to maintain price stability and a statutory mandate to enhance financial stability in South Africa. It addresses these mandates in various ways, ranging from the formulation and implementation of monetary policy through to acting as banker to the Government. Its responsibility to regulate and supervise banks, insurance companies and other financial institutions in order to ensure the stability, efficiency and security of the financial system is of most concern to the present discussion.

The SARB does not set out to regulate Fintech or Fintech firms per se. It asks, instead, how their activities fit into existing frameworks for assessing risk, if these frameworks are relevant to their activities, and whether existing frameworks are appropriate and proportionate to the risks their activities involve.

As part of this approach, the SARB created a Fintech Unit in 2017, dedicated to examining the policy and regulatory implications of new Fintech developments. The Unit, overseen by the Reserve Bank Finance Steering Committee, interacts closely with other SARB departments.

The Fintech Unit is currently engaged in updating SARB's 2014 position paper on crypto 'assets', assessing the various uses of these assets, and facilitating Fintech innovation through 'Project Khokha'.

A private crypto 'asset' is a digital representation of value in which encryption techniques are used to verify the transfer of funds (and generate additional units of value) independent of any intermediary (including a central bank). Such an asset can be used as currency, security or commodity, and for the purpose of payment, investment, raising capital (in the form of Initial Coin Offerings), and trading in derivatives.

The blockchain underpins many of these developments. It is 'a new type of secure database or ledger for keeping track of who owns a financial, physical or electronic asset in which data is shared in peer-to-peer manner across multiple sites, countries or institutions' (ITU-T Focus Group on Digital Financial Services, 2017).

The blockchain has many advantages over earlier databases: speed of settlement, efficiency, cost saving, transparency, reduction of fraud, and reducing redundant intermediaries. At the same time, however, the blockchain presents challenges at present. While some versions of this technology are easier to use than others are, they all reinforce the 'digital divide'. They all involve transaction costs, as well as operational risks (relating to protection keys, exchange and security failures). Few blockchains are in production yet, and there are problems of 'scalability'. 'Proof of work' involves high electricity costs. There are 'stewardship' challenges, and an overall legal framework is still lacking.

Many of these challenges can be resolved by providing 'innovation hubs' to help firms to navigate existing regulatory frameworks, 'regulatory sandboxes' to enable live testing of new products and services in a controlled environment, and 'innovation accelerators' allowing for collaboration between central banks, the financial services industry, and individual firms to develop new products and services.

Early in 2018, Phase 1 of Project Khokha explored the effectiveness of distributed ledger technology (DLT) for South Africa's real-time-gross-settlement (RTGS) system, in conjunction with seven leading banks and technical and support partners. The experiment set out to test whether transactions could be executed by leveraging the ISO 20022 format, messages could be processed at sufficient scale, blocks could be propagated at sufficient confidence levels, confidentiality of transaction could be maintained, and the system was sufficiently 'visible' for oversight by SARB.

Future phases will examine the exchange of token money for bonds and securities, cross-border payment, and Common Monetary Area fund transfers.

SARB's Fintech Unit is involved in local initiatives such as the Intergovernmental Fintech Working Group with the Treasury, the FIC, and the Financial Sector Conduct Authority, and international initiatives with the Task Force on Financial Technology and the Association of African Central Banks.

With the help of these collaborations, the Fintech Unit has identified a number of challenges to the use of DLT as means to increase financial inclusion specifically. These relate to access and cost, the continuing dominance of cash among those whom financial inclusion targets, the digital divide, and consumer protection against shadow banking and price volatility. Moreover DLT's inclusionary potential should be explored in conjunction with other developments in the field, including application program interface, open architecture, AI and data analytics, and alternative credit scoring mechanisms. DLT may not provide the most promising route to financial inclusion, and is certainly not the sole silver bullet in this regard.

Ross McEwan, Wala / Dala Foundation

The blockchain and decentralised finance

The blockchain is a distributed and immutable ledger that records transactions. The first step in creating the blockchain was taken in 1991, when Haber and Storneta produced a white paper on how to timestamp a digital document. They incorporated Merkle trees into their solution in 1992, allowing the collation of multiple documents into a block.

Many see the blockchain and Bitcoin as synonymous, but the latter emerged only in 2009, as a direct response to the financial crisis of the preceding year. Bitcoin solved the 'double spend' problem hitherto associated with digital cash. The Bitcoin white paper proposed 'proof of work' as a means of validating transactions recorded in the public ledger. Bitcoin laid the groundwork for the next generation of cryptocurrencies.

A nineteen year-old Canadian, Vitalik Buterin, developed Ethereum in 2013. Ethereum is a decentralized, Turing-complete machine executing scripts using a distributed network of public nodes ('smart contracts'). This paved the way for big advances in crypto adoption, and provided the framework and the tools to decentralize the global financial ecosystem. There are now numerous blockchains built on Ethereum smart contracts, including Ripple, Dash, NEO and EOS.

Decentralized financial systems are important because they are fault-tolerant, and attack and collusion resistant. They avoid excessive reliance on a single central party and the risk this entails. They chart a course towards a more equitable global economy. Consider the following comparisons between present centralized systems and future decentralized ones:

Interacting with a store of value today requires integration with a financial institution that imposes hurdles to engagement and barriers to innovation. By contrast, if value is stored on ERC20/223 on Ethereum, the money itself is programmable and encapsulates the relevant business rules and constraints.

Proving one's identity today requires physical credentials in the form of documents or centralised digital credentials. Physical identity documents are open to forgery while centralized repositories are open to hacks and compromise, as the examples of Equifax in the USA, Master Deeds in South Africa, and Aardhaar in India demonstrate. On the other hand, blockchain applications can provide lifetime, portable identities for all persons, organizations and things in the world. This self-sovereign identity does not depend on any centralized authority, can never be reproduced or taken away, and comprises a Zero Knowledge Proof which shares only a verified claim rather than the data on which the claim is based.

Currently, ownership of something of value is attested by title deeds, contracts, and handwritten signatures which are difficult to decipher and therefore easy to forge. In future ownership will rest on non-fungible tokens involved in smart contracts on a blockchain, and on a digital 'signature' that cannot be reproduced fraudulently.

Digital borrowing is difficult in South Africa today, even though there are numerous 'fast loan' firms in operation. Companies such as Wonga will make a loan available quickly provided one has an ID book, proof-of-income, and a bank account. Not all South Africans can meet these requirements,

and the proportion of the population that cannot is higher in countries elsewhere in Africa. What must a young entrepreneur do to get a loan in, for instance, Uganda where few fast loan opportunities are available and few young entrepreneurs have bank accounts? The limited options available are likely to involve exorbitant interest rates. In future, however, these entrepreneurs should be able to access direct peer-to-peer lending systems such as Ethlend and Salt or the Dharma Protocol that puts borrowers in touch with lenders through a decentralized system of underwriters.

Mechanical Turk is an example of an Internet market place enabling businesses and individuals to co-ordinate the use of human intelligence to perform tasks that computers cannot yet do. It is a centralized platform run by Amazon, which takes a fee of up to 20% of the often sub-minimum wages paid by the businesses involved to the individuals who perform the micro-tasks on offer and are defined as 'independent contractors' rather than as workers. New non-centralized platforms such as Gems or Kazi (the latter powered by Dala) charge either no fees or lower fees than the existing centralized platforms.

The same holds true of the so-called 'sharing economy', currently dominated by centralized platforms such as Uber, Airbnb, and Gumtree. They charge high fees, and may exercise arbitrary control over who may use the service they provide. Recent entrants to the sharing economy, such as Origami Network and Origin Protocol, are decentralized and avoid rent seeking and arbitrary interference.

Decentralized solutions are still in their infancy and have a long way to go to prove their efficacy, even in the developed world. This does not mean one should lose sight of their potential. There are two billion people, mostly in developing countries, who need loans, and micro-jobs, and an opportunity to participate in the sharing economy on fair terms. Decentralized financial systems based on the blockchain are likely to be their best bet for financial inclusion in future.

Prof John Sharp, Director, Human Economy Research Programme

Blockchain as a site of contest

Debate about the blockchain focuses on its standing as a new technology. Proponents insist that it will revolutionise many aspects of our lives in future, from making payments to drawing up contracts, storing and managing data, and verifying authenticity. Critics counter by arguing that the blockchain is an unnecessarily complicated and expensive way of undertaking tasks that existing technologies perform as well if not better.

Some observers attempt to broaden discussion of the blockchain, pointing out that is both an emergent technology and an idea that encapsulates many of the concerns that people throughout the world have about the location of power and authority in contemporary society. In an article titled 'Taking blockchain seriously', Robert Herion (2018) berates its critics for focusing solely on its technological (de)merits. He says they miss the point that the blockchain is 'a powerful cultural and political product' emerging from the turbulent conditions post the 2008 financial crisis.

Although few people understand how the technology works, many sense that the blockchain opens up the question of who should have 'the capacity to establish the rules of conduct within a particular field of action'. Five competing visions of the blockchain's potential in this regard have been discerned (Manski & Manski, 2018).

One is the vision of the blockchain's originators. Their innovations do not simply reflect the post-2008 world, but are also engaged in constituting it. They literally code the world they want to see into the new technology. Bitcoin's inventor claimed that it would appeal to libertarians who held that society best facilitates individual will in an economy free from regulation by states or corporations. Bitcoin's intention was to advance individual sovereignty by facilitating trust-less, direct exchange among individual property owners.

Some aspects of this vision are challenged by advocates of the notion of a 'co-operative commonwealth' as the basis of the future economy. They pioneer the development of crypto-currencies such as Dunoter and Faircoin which aim to avoid the fact of Bitcoin's scarcity (which encourages hoarding and speculation) by providing users with a so-called Universal Dividend.

While some innovators subscribe to one or other of the visions above, others become caught up in the power conferred on them by their technological mastery. Coders are not necessarily immune to the temptations of 'expert sovereignty', which finds its logical extension in the phenomenon of 'decentralised autonomous organisations' which can become nearly – or entirely – independent of everyone except the experts in consequence of their built-in capacity to leverage smart contracts.

Business corporations have the financial muscle to promote permissioned rather than open distributed ledgers and to process the big data they record. The resources available to corporations can also shape the direction of future blockchain innovation in ways that strengthen 'corporate sovereignty'.

Some states seek to channel the direction of blockchain innovation through regulation, and the emerging Internet of Things will provide them with new opportunities: 'when there is a blockchain connected chip in each material object with which we interact, states will certainly seek to monitor and discipline the personal, political and economic activities of the many' (Manksi and Manski, 2018). The Chinese authorities are not alone in seeking to employ big data to exercise control over citizens, but they seem to have gone furthest down this road, given the steps already taken to introduce a 'national reputation system' to rank individuals based on their economic and social conduct.

It can be argued that the special character of the blockchain is that it encompasses a number of features that could not have co-existed in earlier technologies because they would have been entirely incompatible. The problem is that proponents of the various visions of the future the blockchain appears to promise select out those features most suited to their ends and jettison, or at least de-emphasise, the rest. The libertarians highlight blockchain's liquidity and decentralisation, while those in favour of a co-operative commonwealth stress its liquidity, permanence, decentralisation and future focus. The experts like its ethereality (the fact that all transactions are digital) since this gives them the edge. Corporations and states both find the qualities of verifiability, permanence, globality and future focus attractive, but put these features to different ends.

This 'pick and choose' approach undermines the blockchain's central strength as a technology in which all these features come together for the first time. To capitalise on this one needs to work with all the features simultaneously. One has, somehow, to draw on the contradictions the co-existence of these features involves, not try to solve the problem by jettisoning those one does not favour.

The blockchain's multiple features may point to the notion that sovereignty should be divided rather than absolute – that sovereignty should be located at various levels of society for different purposes. However the technology alone cannot provide answers to the challenge of which levels should exercise domain for which ends. This is a matter for informed political debate and judgement. It is correct to insist that the blockchain's impact as an idea will be as important as its effect as applied technology.

Discussion

The blockchain was invented in the 1990s, but its potential as a means of financial inclusion emerged only with the subsequent development of cryptocurrencies such as Bitcoin and Ethereum.

The fact that they are so new means that many express concerns about these new technologies. Questions are posed about their control, the risks involved in their use, and their potential for misuse in, for instance, money laundering. These concerns are legitimate, but the questions sometimes betray a lack of understanding of what the new technologies actually involve. So there is an urgent need for responsible Fintech innovators to find ways to 'demystify' the blockchain and its associated cryptocurrencies.

On the issue of who controls their use, for instance, innovators need to explain clearly that cryptocurrencies are different from fiat money or, indeed, mobile money such as M-Pesa. In the latter cases, control is placed in the hands of centralised, 'expert' authority, and if a bank goes bust, depositors lose their money. In contrast, control over cryptocurrencies is decentralised - placed in the hands of multiple users. Having launched Ethereum, Vitalik Buterin cannot pull the plug on it or, indeed, manipulate it to serve a particular interest.

At least some of the risk associated with cryptocurrencies arises from the fact that their adoption is often only partial. For instance, P2P money transfers would be exposed to risk if they were done through the medium of Bitcoin, given that Bitcoin's value fluctuates rapidly. But this risk comes into play only if the transfer process involves the conversion of one fiat currency into Bitcoin at the start and the conversion of Bitcoin into another at the end. If, on the other hand, Bitcoin was in full use at both ends (and could readily be used as a means of payment, for example), the risk would not arise. If conversion is necessary, however, it would be wise to encourage the use of a stable cryptocurrency such as Dai, which has been pegged to parity with the USD, rather than Bitcoin. Observers often miss the point that a suite of cryptocurrencies with divergent characteristics has been developed and that it is important to pick the one that is fit for a particular purpose.

Cryptocurrencies are open to money laundering - but so is fiat money. So this is a common problem, but at least with cryptocurrencies one can come closer to identifying where the abuse is likely to occur. Bitcoin, for instance, would be a very poor vehicle for laundering money, because it involves a public record of all transactions and those using it are shielded by pseudonyms rather than being entirely anonymous. On the other hand, there are several secret cryptocurrencies, and the use of any of them to transfer large sums of money should ring alarm bells with anti-money laundering authorities. This example points to areas that can, and should, be targeted by regulators. They cannot regulate cryptocurrency exchanges, as Russia discovered when it tried to ban the use of Bitcoin, precisely because their control is decentralised. But the so-called 'on-ramps' and 'off-ramps', where cryptocurrencies are converted into and out of fiat money, are amenable to close scrutiny.

Spirited defence of the blockchain and cryptocurrencies leaves the impression, nonetheless, that there are many contradictions within this new technology, and that it will long be a site of contestation between different interests. If this is so, how would one seek to develop the critique of its growing significance from the perspective of the Humanities?

Here one should emphasise the importance of disciplines in the Humanities rejecting any insistence that they ought simply to 'support' the further development of this technology and the emergence of the 4th Industrial Revolution in general. In this regard constructive critique should not be confused with dismissive criticism, and innovators should recognise that they need to be involved in a

wider conversation, precisely in order to navigate a way through the contradictions they themselves identify as residing in the new money technology. The latter may promise a world of money beyond the control of states and large financial corporations. But such a world would be reached only when, and if, there was universal adoption of cryptocurrencies. In the interim, however, there is the danger that as payments shift to being made digitally, leaving a big-data record of everyone's purchasing propensities, states and corporations may compensate for their diminishing hold over money by gaining greater control over citizens and consumers.

Humanities academics should seek to locate new money technology in the long-term history of money. The most recent period in which states claimed a monopoly on issuing money was relatively short, and before that banks and trading houses, and indeed people 'on the ground', created their own stores of value and means of exchange. The world has, arguably, gone through cycles of centralised and decentralised control over money, with each stage in the process producing its own contradictions and attempted resolutions. By looking at past cycles, what could one learn about the contemporary attempt to resolve the contradictions of state control via decentralisation, and about the contradictions that will accompany this attempt in turn?

One advantage of the present juncture is that the contradictions involved in the blockchain and cryptocurrencies are being identified quickly, and many Fintech innovators are willing to acknowledge the need to face up to them. Decentralisation of the money system cannot be universal. We should decentralise only when doing so is in the interests of the people at large.

On the other hand, one can easily foresee 'the interests of the people' becoming an empty cover for the pursuit of the interests of other parties. Can Humanities scholars do the careful field research necessary to give real substance to the notion of 'the people's interests', and can they work with the innovators to develop the judgement essential to knowing which innovations will serve them?

INSIGHTS FROM THIS SESSION

- SARB does not set out to regulate Fintech or Fintech firms. It asks, instead, how their activities fit into existing frameworks for assessing risk, if these frameworks are relevant to their activities, and whether existing frameworks are appropriate and proportionate to the risks their activities involve.
- SARB established a Fintech Unit in 2017 which is currently engaged in updating SARB's 2014 position paper on crypto 'assets', assessing the various uses of these assets, and facilitating Fintech innovation through 'Project Khokha'.
- Decentralized financial systems are important because they are fault tolerant, and attack and collusion resistant. They avoid excessive reliance on a single central party and the risk this entails. They chart a course towards a more equitable global economy.
- This is shown by comparing present centralised systems with future decentralised ones in areas such as interacting with a store of value, proving one's identity, proving ownership of assets, and platforms for the so-called 'sharing economy'.
- Few people understand how the technology works, but many sense that the blockchain opens up the question of who should have 'the capacity to establish the rules of conduct within a particular field of action'. There are competing visions of the blockchain's potential in this regard.
- The blockchain's multiple features may point to the notion that sovereignty should be divided rather than absolute – that sovereignty should be located at various levels of society for different purposes. However the technology alone cannot provide answers to the challenge of which levels should exercise domain for which ends. This is a matter for informed political debate and judgement.

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