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PLATFORM POLITICS AND SILICON SAVANNAHS

Fintech and the platformed motorcycle: speculating on ordinary mobility economies in urban Africa

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Cover image

Nairobi street scene (© Andrea Pollio, 2022)

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Contents

Abbreviations	2
1. Introduction: Financing fintech for financial inclusion	3
2. Fintech: optimistic promises and trenchant critiques	5
Frontiers of the unbanked	5
Disruption of legacy systems	5
Datafication and decision making	6
Cities as testbeds of innovations	6
Techno-ambivalence of fintech in Africa	7
3. City work and methodology	7
Platform Politics and Silicon Savannahs Phase 2	7
Method	7
4. Nairobi, Kigali, Cape Town	8
5. Findings and policy implications	9
Fintech and the digital platform	9
Payment systems	9
Data	10
Big dreams, small pilots	11
Green/just transitions and e-mobility	11
6. Conclusion	12
7. References	13
8. Appendices	14
Appendix I: Nairobi	14
Appendix II: Kigali	20
Appendix III: Cape Town	24

Abbreviations

API	Application Programming Interface
BoP	Bottom of the Pyramid
ICFM	Intelligent Connected Fare Meter
ICT	information and communication technology
ICT4D	ICT for Development
M4P	Markets for the Poor
STS	Science and Technology Studies
USSD	Unstructured Supplementary Service Data
VC	venture capital
VREF	Volvo Research and Educational Foundation

1.

Introduction: Financing fintech for financial inclusion

Despite sluggish growth, and the often-outright downturn of financial investments in many economic sectors in the aftermath of the COVID-19 pandemic in Africa, venture capital (VC) flows have stayed remarkably strong. Composed of various forms of private equity invested in high-risk/high-growth companies, VC raised by African startups in 2021 crossed the USD 5 billion threshold, at +264% growth over the previous year (Partech Partners, 2022). Growth continued into the following year, with the first two quarters of 2022 marking another record in terms of number of deals and volume of investments (AVCA, 2022). In parallel, announcements such as Google's Black Founders Africa pledging equity-free seed capital for 60 startups across the continent have contributed to the optimistic hype about a new era of accelerated digital economic growth in Africa.

In this context, and against the backdrop of increasing global financial instability, one might ask what is driving this investment rush? While it is true that Africa still represents a minuscule sliver of global VC, why are international, regional, and domestic investors turning their eyes to African startups? What are the sectors in which these promising high-growth companies operate? A quick glance at the available data offers an immediate response. In 2021, VC flowed to startups active in logistics, education, e-commerce, agritech, health, mobility, entertainment, and other economic activities. But the overwhelming majority of funds, more than 60%, went to fintech companies (Partech Partners, 2022). Fintech is a portmanteau (financial + technology) used in the tech industry, and increasingly in the development sector, to capture technological advancements that innovate the delivery and outreach of traditional financial services such as credit and insurance, as well as establish entirely new products such as mobile money and cryptocurrencies.

As an industry, the fintech space is composed of legacy financial corporations and new startups, but also and increasingly so, of initiatives driven by governments (for example the digitisation of welfare payments). In 2022, for instance, the Nigerian government launched its own digital currency, the eNaira, aiming to provide a regulated alternative to Nigeria's physical currency and not be subject to the volatility of blockchain open markets. South Africa has long experimented with the incorporation of data-powered technologies into its extensive social grant system. Many other nations are following this lead, with biometric tech that promises to make their citizens visible to the state as taxpayers and, at once, as financial subjects.

One of the reasons for this fintech boom is that Africa still has a large number of people who are classified as 'unbanked' (World Bank Group, 2021). The continent is thus seen as a ripe market for financial services that bypass or innovate traditional transaction accounts, and more importantly, create the conditions for the expansion of value-added services (like credit and insurance). Examples of this include new payment systems such as mobile money, to people and informal businesses that would not ordinarily have access to basic current accounts. Moreover, Africa is emerging as one of the leading markets for the trade of cryptocurrencies. In highly volatile monetary climates, these are often seen as substitute options for small savings in soft currencies, as an easier alternative to US dollars, and as a way to go round regulations and barriers for cross-border transactions (Salami, 2022).

Innovation in fintech has been avowed by development finance institutions and philanthropic donors as a key enabler of the financial inclusion programme that started gaining momentum in the late twentieth century. Financial inclusion is the process through which different financial services (payments, remittances, savings, credit, insurance, and pensions) are extended to sectors of society, usually lower-income groups and informal businesses in the global South, that have no prior or patchy access to the full spectrum of these services through traditional banks and insurers.

According to the World Bank Group, financial inclusion requires supporting information and communication technology (ICT) and financial infrastructures; partnerships between the private sector, public agencies, philanthropies and international development finance institutions; careful regulatory environments; and contemporaneous investments in financial literacy (World Bank, 2021). While criticised by many, as we will see later in this report, the financial inclusion doctrine remains very influential. The United Nations, for example, recognised financial inclusion as critical to the delivery of a number of the Sustainable Development Goals (United Nations, 2015). So too have many African nations, which have inserted financial inclusion performance indicators and goals in their developmental agendas.

Initially, the development turn to financial inclusion had little to do with technology. At the origin of this programme were micro-credit and micro-insurance schemes that originated in South-East Asia and were later embraced by development finance institutions, governments and private sectors across the global South (Roy, 2010; Rankin, 2013). The underlying idea of micro-finance was that including informal businesses, particularly those run by women, as creditworthy subjects would unleash their entrepreneurial potential and, in turn, reduce poverty all around. This resonated with other mantras of the time: the bottom-billion approach of entrepreneur C.K. Prahalad, and economist Hernando de Soto's argument that only by formalising ownership of fixed assets would poor people be able to use them as collateral to strengthen their businesses by accessing business credit and insurance cover against losses.

However, some 20 years later, the fintech sector is now positioned at the forefront of financial inclusion programmes and investments in Africa. Building on the accessibility of

ICT infrastructures in which states and telecommunication companies across the continent have heavily invested, and on the increasing availability of affordable smartphones with data-tracking capacities, digitally enabled financial innovations span new payment systems, remittance apps, retail credit services, Sharia-tech, asset financing, insurtech, as well as a number of new credit-scoring plugins.

As this report shows, fintech innovation in Africa is branching into much more than financial inclusion of the unbanked, specifically to urban economies that in recent years have seen an uptake of digital platforms. This was the topic of a previous report funded by the Volvo Research and Educational Foundation's (VREF) Mobility and Access in African Cities' (MAC) programme, authored by this team, upon which this report builds (Sitas et al, 2022). Specifically, we charted the platformisation of motorcycle taxis in Kigali and Nairobi, showcasing how an ordinary fixture of informal urban life in Africa – the motorcycle taxi – was increasingly crucial to business models and smart city initiatives seeking to digitise commuting and last-mile deliveries. Platformisation, in this framing, refers to the process of incorporating existing economies or creating entirely new ones through digital platforms that enable multi-sided markets and produce/extract value through data-driven intermediation between different actors in these markets (Poell et al, 2019).

Our previous report showed how digital platforms in African cities – international global companies such as Uber, and myriad home-grown startups – were incorporating two-wheel paratransit into their intermediation-based business models, albeit in diverse and ambivalent ways. A question that remained open was how and with what implications the platformisation of motorcycles interfaced with discourses and practices of the fintech industry, particularly insofar as payment systems and other financial infrastructures are key enablers of digital transactions?

To answer this question, this report draws on empirical research in three case-study cities – Cape Town (South Africa), Kigali (Rwanda), and Nairobi (Kenya) – to showcase some important trends at the interface of fintech and the platformisation of motorcycle economies in urban Africa. It builds on the insight that fintech is not 'just' facilitated by digital platforms, but it deploys the same business logics of intermediation and, in doing so, is often part of platformisation itself (Langley and Leyshon, 2021). More specifically, we show the importance of the financial-inclusion thrust in linking fintech to two-wheel paratransit, as well as the multiple ways in which digital platforms create new financial pathways in rapport to the physical commodity of the motorcycle; the crucial importance of payment gateways as infrastructures of additional data-driven financial innovation; the promises of risk-management through data and the pilot-based experimental practices through which these promises are given effect; and linkages to the decarbonisation of mobility systems in African cities. For each of these points, we will highlight key policy implications that will require careful attention by researchers, regulators, and private actors in the field.

In this report, we turn next to the kinds of optimistic promises and trenchant critiques that animate understanding in fintech in African cities, before introducing the research methodology. We move on to look across the three cases, providing reflections and policy opportunities on fintech and digital platforms, payment systems, data, pilots, and how these play out in just and green transitions. We conclude by sharing specific insights for mobility and accessibility scholars and activists, for fintech enthusiasts, for urban scholars and for policy decision-makers. Overall, this report takes an ambivalent perspective, noting that new technologies are neither good nor bad per se, but attached to broader political, economic, and structural dimensions upon which their effects depend. We situate this contribution between the celebratory voices and the trenchant critiques, aiming to avoid techno-determinism and chart futures that are potentially more just.



2.

Fintech: optimistic promises and trenchant critiques

As Bateman et al. (2019) point out, the 'pillars of the global development establishment and global financial industry have wholeheartedly embraced the new fintech narrative'. At the same time, critical scholars and activists have challenged this techno-evangelism, taking issue with various dimensions of the fintech development project. In each of the following sections we briefly map the optimistic discourses and the social sciences critiques of these. The section is organised around four themes: frontiers of the unbanked; disruptions; data; and urban innovation testbeds. We close the section with a call for techno-ambivalence.

Frontiers of the unbanked

From the promotional material of platforms to the research reports of development organisations, there reflects a shared belief that fintech innovations enable financial inclusion. Dovetailing discourses such as ICT for Development (ICT4D), Markets for the Poor (M4P), and reaching the Bottom of the Pyramid (BoP), the crux of this promise rests on the extension of valuable services to those otherwise excluded. It is assumed, across these discourses, that financial services such as bank accounts, loans, and insurance are products that allow individuals to become economically mobile or, at the very least, be lifted out of poverty. These efforts reflect a combination between demand- and supply-side explanations for financial exclusion. On the one hand, services needed restructuring to align to the capacity and needs of those who supposedly occupied the bottom of the wealth pyramid, while on the other hand, the poor needed the knowledge and aptitude to engage in financial products and services (Gabor and Brooks, 2017).

Critiques of these projects and programmes have taken issue with the ideological basis and practical outcomes of the frontiers approach to financial inclusion. Practically, critics have reviewed the outcomes of projects and initiatives, pointing to the programmatic failures of the development promise. For example, programmes targeted people already included in financial systems. Where frontiers were pushed and inclusion achieved, the promised benefits often never materialised (for example, in the De Soto-inspired site and service schemes, few were able to capitalise on these assets). More importantly, these scholars attest such programmes, where they work at all, produce financialised subjects – families and communities stuck in debt traps – and disciplined subjects. This financialised subject operates not with the agency imagined by the development project, but rather for the benefit of global capital accumulation. As such, financial inclusion and the associated fintech projects form the 'frontiers of neoliberal financialised capitalism in the global South' (Langley and Leyshon, 2021).

Why does this matter to the platformisation of motorcycle paratransit?

- The motorcycle mobility economy has been seen as functioning outside of the formal banking system. Platformisation is positioned as bringing riders into the system as well as making their business legible to financial institutions
- In contexts where the motorcycle sector is dominated by immigrant labour, this is also about creating economic opportunity where previously these were limited

Disruption of legacy systems

From a financial perspective, legacy systems (typified by banks and large insurers) are formatted and optimised for specific market segments and practices. For example, traditional banking has high fixed costs for transnational transfers, making it fundamentally at odds with the low-value/high-volume flows that typify the needs of African economies. Similarly, the premium charged for borrowing reflects known risks that lenders can quantify and cost, which becomes complex in a context with limited data and high degrees of uncertainty. The alternatives are also costly, risky, or even illegal: for example relying on loan sharks or informal money brokers. Fintech innovations, from remittance platforms to micro-insurance products to cryptocurrency, are presented as solutions to the clunky, inefficient and outdated nature of legacy systems and the challenges posed by less-regulated offerings. The promise is that financial technologies disrupt and democratize systems (both formal and informal) that have, for decades, monopolised end-users' options, with little responsiveness to demand or need.

The scholarly and activist critique of the disruption and innovation discourse that permeates the fintech story covers much the same ground as critiques of the frontiers of bankability discussed above. There is concern that such disruption acts solely to create and capture new markets, financialised subjects, and extractive platforms. At the same time, scholars argue that so-called disruptions are more continuous than tech proponents seem to believe. While claiming to disrupt legacy systems, these systems are in fact being reformatted to contribute to and respond to disruptions – for instance, even mobile money is usually securitised through legacy banks. Platforms are being consolidated into existing large technical systems rather than decentralising power and decision-making as was the promise. Not only do such disruptions reflect consistent legacy systems, large technical systems, and the neoliberal development project, they also reflect neocolonial tendencies. This neocolonialism critique is concerned with the ways in which both legacy systems and disruptions espouse the same discourses of modernity and progress instilled by the colonial project. In doing so they undermine social and economic systems and networks that have persisted for decades or even centuries (such as the Hawala system).

Why does this matter to the platformisation of motorcycle paratransit?

- Platforming paratransit is about efficiency and integration into a more coherent system. It enables tracking and coordinating an opaque or obscure economy. Platformisation builds on a legacy of cash-based transactions which could be clunky and tricky to coordinate
- Motorcycle platforms and the integration of fintech have been central to the disruption of legacy retailers and traditional modes of shopping that were historically based on shops and cash
- Platformisation of the motorcycle and fintech innovation enables the digital transaction of money where the right amount of money can be exchanged at the right time

Datafication and decision making

The 'data-gap' is a resounding story underpinning the African development narrative (Satterthwaite et al, 2019; Borel-Saladin, 2017). In scholarly work and development reports, authors argue that a lack of data hampers effective decision making on the part of governments, donors, lenders, and businesses. For governments, better data, for example, on where people live and work would improve the planning and delivery of key infrastructures like housing and transport (Klopp and Cavoli, 2019). This data can also be used by communities and civil society groups (civic tech) to articulate and advocate for the needs and rights of their constituents (Patel et al, 2012). For the private sector – large and small, formal and informal – better data can be used to better price services and cost the risks associated with various investment options and time horizons.

While most agree that the paucity of data is a problem, humanities and social sciences scholars remain sceptical of the deification of data and computing. This ontological interrogation is mirrored by deeply political concerns related, for example, to how data is collected, stored and deployed, the overall extractive nature, and risks related to datafication (Langley and Leyshon, 2021). As people, particularly from poor or marginalised groups, are enrolled in programmes and projects that document, track and assess them, critical scholars and data activists cite a plethora of dilemmas. And at the intersections of financialisation (see above critique of financial inclusion) and datafication, there are particular dangers. As Gabor and Brooks (2017) point out: '[a] defining feature of financial(ised) inclusion as enabled by new information technologies, particularly mobile technology, is what we refer to as the "commodification" of a new class of financial consumer, or more accurately, of his or her personal data'. In this scenario, proprietary knowledge is produced and used to create subjects legible to the financial sector. The algorithms that are developed and reinforced through this datafied and financialised subjugation, rather than rectifying the issues in the material world, further reflect them (Benjamin, 2019). As such, algorithms reflect and entrench existing racist and sexist societal realities. At the same time, these algorithms and the underlying data sets not only reflect what is, but also reshape it, engineering outcomes through behavioural changes such as disciplining or nudging (Guermond, 2020).

Why does this matter to the platformisation of motorcycle paratransit?

- The platformisation of the motorcycle sector is also relevant for the state collecting taxes and planning the city. By rendering the economy legible and visible, there is an opportunity for value capture that is beneficial for the state
- Theoretically, more data and knowledge can lower the risks and associated costs to lend to the market. If the bike and payments can be tracked, the argument is that better products – financial or otherwise – can be offered

Cities as testbeds of innovations

One of the defining features of cities is the agglomeration of people, firms, ideas and capital (Glaeser et al, 2016). Densely populated and connected through rich networks, both material and social, cities are framed as 'engines of innovation' – places where new ideas can be tested, interacted, adapted and replicated. As the World Bank points out in *Africa's Cities: Opening Doors to the World*, African cities are often 'crowded' rather than dense, and fragmented rather than connected, radically reducing the spatial and economic benefits and multipliers that cities are meant to offer (Lall et al, 2017). Notably, the cover of the aforementioned report, as well as its title, speaks volumes about the authors' suggested remedy for Africa's urban underperformance and the value placed in connecting cities to global circulations of value, innovation, and mobility. Notwithstanding these concerns over Africa's connectivity, there remains a distinct celebration of the potential of urban spaces to house innovative experiments, leapfrogging over increasingly redundant legacy systems and hosting small trials that can quickly scale (Blimpo et al, 2017). Digitisation and smart-city experiments are central to this story – from online tax payment systems to 'smart meters', smart-city innovations, and using digital platforms to optimise or improve service delivery – and form part of various innovation ecosystems.

Critiques of 'startup urbanism' and 'testbed urbanisms' (Rossi and Di Bella, 2017; Halpern et al 2013) foreground the inequalities and challenges of the 'innovation complex' (Zukin, 2021). Not unlike the 'world class city' (McDonald, 2012), the 'creative city' (Nkula-Wenz, 2019; Sitas, 2020), or the 'smart city' (Watson, 2015), the testbed city has been inscribed into discourses and investment programmes in African urban areas, shaping imaginaries and practices alike. This impulse, like other forms of boosterism, forces cities to compete with one another for investments. It also supports speculative investments in real-estate markets and in other sectors of the economy, such as business-process offshoring. This has certainly been the case in Cape Town, often cited as 'the fintech capital of Africa' (Pollio and Cirolia, 2022), which uses innovation discourse to leverage financial investments across the value chain. In keeping with the critical impulse, scholars challenge the discourses of innovation-led inclusion by reminding us of the incredible power of VC and technology firms in shaping what can be innovated, for whom, and to what end (Mattern, 2016).

Why does this matter to the platformisation of motorcycle paratransit?

- Platforming paratransit and associated fintech innovations (such as payment systems) builds on existing experimental logics within testbed urbanism
- There is a link between the platformisation of motorcycle paratransit and big capital investments. Cities brand themselves to attract capital to animate these spaces not only for venture capital for mobility platforms but also for large scale ICT invest in urban systems

Techno-ambivalence of fintech in Africa

In concluding this section, we reflect on the disjuncture between the developmental promise largely animated by developmentalist actors and technologists, and the techno-pessimism that can be found in critical scholarship from the humanities and social sciences. Across this divide, we call for a techno-ambivalent approach to fintech in Africa. As we have unpacked in the previous sections and across a range of vectors – frontiers of the unbanked, data, disruptions, testbedding and the like – there remains a common story. On the one hand, the development sector embraces the potential of fintech to overcome all manner of existing and historical constraints that plague the African landscape, while in response, critical scholars and activists show us all the ways in which these technologies enrol cities and citizens in deeply unjust, extractive, fantastical, and neoliberal projects. They argue that such celebrations fail to acknowledge the disciplining power of technology; the risks of holding, storing and using data; and the ways in which fintech reinforces rather than challenges existing power and wealth asymmetries.

We have sought, in what follows, to craft a careful path between these extreme views. We acknowledge the demands and needs that underpin the developmentalist impulse, as well as the very real violences and risks inherent in fintech both now and as it will develop into the future. In doing so, we call for an ambivalent reading of fintech. This is not, as we will show, in support of neutrality or a depoliticised reading, but rather draws on the science and technology studies (STS) impulse to resist techno-determinism frames and remain, as it will, suspended in the multiple though contingent possibilities that technology affords. We believe that this orientation aligns with a southern reading of cities, which resists seeing them as simply 'the next frontier' of whatever has happened elsewhere, beginning with what is actually happening and working our way towards conceptual, theoretical and political frames that can assist us. We argue that it is through this techno-ambivalent lens that power dynamics and possibilities can be revealed and responded to in more just ways.

3.

City work and methodology

Platform Politics and Silicon Savannahs Phase 2

Building on the previous phase of this research, this second phase focused on expanding the research to include Cape Town; deepening the enquiry in each of the three cities through a focus on the role of fintech in platformed motorcycle mobility; strengthening the budding research network across the different cities; and disseminating the research through various public platforms. Phase 1 of the project showed how a multi-case study approach allowed us to uncover new and emerging trends that revealed informative insights across different contexts. We sought to extend this approach, deploying the same method across the three cities to allow for a deeper comparison. This work supports a wider push for comparative work on African cities, which calls for studies comparing ordinary cities rather than focusing on those that have been studied and compared for decades (Myers, 2011).

As applied research scholars, we are committed to a located and relational method of research, wherein complex relationships between technologies and systems are exposed in context. The methodology therefore included relational methods informed by, for example, science and technology studies, actor-network theory, and distributed understandings of governance, power, and politics (e.g. Amin and Thrift, 2017), and understanding the complexity of challenges in context through situational analysis (Clarke et al, 2017. Fundamentally the process was underpinned by a 'southerning' of research, locating the research within places and conducted by local researchers (Bhan, 2019). Southern urban scholarship reorients the site of empirical and theoretical inquiry away from extractive research from afar, as has historically been the case with urban studies, and lands it firmly in and from local contexts. It is the similarities and differences that emerge out of engaged, southern, and relational research that can strengthen knowledge about the practice and governance of mobility and financial innovation on the continent. In addition, our comparative work was underpinned by a collaborative and co-productive approach by the team in the three cities. Pairing junior and senior researchers strengthened the research process and built capacity.

Methods

Comparative lines of questioning: To expand our understanding of platformed motorcycle mobility and fintech, the research team conducted this research based on a set of co-produced

questions focusing on payment systems, asset finance, added services, the collection and use of data, policy, experimental practices and pilots, interoperability, funding and finance, dominant narratives, and spatial-technical interfaces. In order to answer these questions, researchers conducted interviews with regulators, local government officials, tech companies, and experts in the field. We downloaded apps and contacted service-provider call centres, and we took rides and hung out on street corners observing the ways in which different platforms operated in real time in real life. In addition, we reviewed policy and trawled the digital archives of various platforms and news items focusing on startups, fintech, VC, and accelerator programmes.

Collaborative analysis: To make sense of each of the three cases in context and in comparison, we utilised a number of ways to collaboratively analyse the data. Just as we had collaborated on collecting data, we co-developed each of the cases, with junior and senior researchers working on a detailed analysis of each site. We also held regular analytical workshops, most of which were online, but one that was hosted in-person in Nairobi.

Conceptual rigour and collective theorising: To support the process of building a strong conceptual base for the project we had semi-structured weekly conversations and a structured reading group that focused on unpacking contemporary theory in the fintech and platformed mobility literature. We also held a series of writing workshops in support of developing the case reports and encouraged the researchers to author their pieces as their own (see Appendices).

4. Nairobi, Kigali, Cape Town

This second phase of research built on our previous focus on Nairobi and Kigali. As some of the research team are based in Cape Town, we were curious to expand the research to better understand what was happening on our doorstep. We were also fascinated by three very different contexts. We already knew from the first phase of our research that Kigali has a completely different regulatory environment that is more centralised and controlled than that of Nairobi. We knew that the motorcycle sector was new to Cape Town, but did not have e-hailing as an ordinary feature as in Kigali and Nairobi. We also knew that Cape Town's motorcycle sector grew on the back of the legacy of an advanced banking system rather than mobile money, and that the extension into last-mile logistics is an extension of the existing retail sector. For these reasons, we thought it would be fascinating to look at the cases in comparison and side by side.

In Nairobi, *boda boda* have been ubiquitous for some time and, as we showed in our previous report, the city's testbed reputation has meant platformisation has flourished. Fintech innovations have also proliferated, moving beyond M-Pesa as a payment gateway to include new players that offer asset finance and a growing array of added services. Companies like M-Kopa, building on their pay-as-you-go model, are piloting asset finance for e-bikes, arguing that gathering essential data from riders and the bikes will permit alternative creditworthiness measures to enable added services for riders (see Appendix I).

In Kigali, the motorcycle sector is tightly regulated and all *motos* are required to install an Intelligent Connected Fare Meter (ICFM). The dominance of Yego Moto and MoMo mean that there are far fewer players in Kigali than in Nairobi and Cape Town. Unlike in Nairobi, asset finance and added services are not yet platformed through fintech innovation, although this is on the horizon. The data collected through the ICFM means that there is a growing information base that can enable fintech innovation in the future. In addition, a government-sanctioned regulatory sandbox is creating the space for pilots to shape the fintech ecosystem amidst the stiff legal requirements that usually surround financial operators (see Appendix II).

In Cape Town, where the motorcycle sector mushroomed during the COVID-19 pandemic, fintech is interfacing with platforms on the back of existing sophisticated banking systems. Unlike in Kigali and Nairobi, there are multiple payment gateways linked directly to banks rather than mobile money. In addition, the sector has largely emerged from legacy retailers seeking to expand their offerings, for example the Checkers Sixty60 grocery shopping app. The Cape Town case also reminds us that there are some uncharted territories and that it is important to ensure riders, who are the most precarious and vulnerable within the system, do not bear the cost of fintech innovation across all three contexts (see Appendix III).

5.

Findings and policy implications

Fintech and the digital platform

The digital platform has become the site through which other financial opportunities open up in relation to the physical commodity of the motorcycle (for example asset-financing options, insurance, and other value-added services).

While on-demand platforms that have incorporated motorcycles in their offering are often imagined as a separate economy from sophisticated innovation in the financial space, our research shows that there are growing intersections between these two spheres. In fact, it is through digital platforms that produce data and knowledge about the riders and their behaviours that new fintech services are imagined, prototyped, tested and consolidated. In other words, the digital platform is the site through which sophisticated financial mechanisms can latch onto the ordinary economies of motorcycle riders.

This plays out in different ways. Some fintech startups leverage the data produced by other parties, for example platform companies like Uber and Bolt, with which they partner, to offer financial products to the riders. Others partner with logistics operators or develop their own applications that run in parallel to on-demand platforms, while some combine different strategies, for example relying on existing payment infrastructures.

The main target of these new financial services is the physical commodity of the motorcycle. As an asset it requires a significant upfront cost, as well as notable maintenance expenses given the state of the roads (especially in Nairobi) and rapid ageing due to high-frequency use. For these reasons, innovations at the intersection of motorcycle mobilities and finance mostly sit in the asset-financing space, with pay-as-you-go and rent-to-own schemes tailored and managed through digital platforms. For many of our informants, asset financing is also a viable option for transitioning to less polluting and more durable motorcycles. Through platformed asset-financing business models – for example apps that automatically charge repayments when riders earn money, or platforms that require daily payments for the motorcycle to operate – riders who would not ordinarily be able to pay the upfront cost of a battery-powered electric motorcycle become potential purchasers of one of these more expensive vehicles. This is especially visible in the case of Nairobi, and emerging in Kigali and Cape Town.

Beyond asset financing, a plethora of other ancillary financial services can be linked to the asset of the motorcycle. The most important is perhaps comprehensive insurance that includes third-party liability. Riders working informally often do not have or cannot afford this kind of insurance. Through platforms, fintech startups can negotiate access with insurance companies and bill this cost to riders by building it into the daily repayments. Customised insurance products can be created thereof. Similarly, cash advances and micro-lending services can be built into riders' platforms and securitised through the asset of the motorcycle as well as the data that platforms harness about their risk profile as borrowers. However, with the high rate of defaults in the repayments for motorcycles that has been anecdotally observed in many contexts, such as Kigali, these are still mostly promises that fintech companies are crafting and experimenting with.

Policy implications

Asset financing through digital platforms could be crucial to improving the safety and sustainability of motorcycle networks. As collective mobility infrastructure will require growing upfront investments, more durable and less polluting motorcycles could, in the medium term, offer a solution to shifting to less carbon-intensive options. However, avoiding predatory loans and related defaults, as well as avoiding riders from being the only players bearing the cost of this transition, will require careful regulation.

The future of insurance markets is clearly oriented towards products that are tailored to incremental markets and the specific behaviours of end users. The implication for regulators will be to make sure that necessary insurance is not only provided to new entrants, for example through asset financing, but also to the whole gamut of riders existing in this space.

Payment systems

Payment systems (either sophisticated or mobile money) have been the foundation on which fintech innovations were built and iterated in the motorcycle space.

The platformisation of motorcycle mobility has relied on the legacy of fintech innovations, particularly in relation to the myriad payment systems that are made available. In Cape Town, platforms rely heavily on sophisticated existing banking systems where users and riders interact through the use of debit and credit cards, e-wallets, gift cards, and subscriptions. In Nairobi, mobile money transactions dominate. Generally the typology of payments includes platform-owned payment gateways, third-party aggregators (integrated into the platforms), and mobile money with M-Pesa as the modal choice. These could be built into the platform or app (M-Pesa API) or out of platform using a regular app or USSD. Like in Nairobi, in Kigali payments predominantly rely on mobile money, with MTN-Airtel's MoMo dominating. While there are competitors, none have yet to compete significantly.

What all of these payment gateways offer, which marks a fundamental shift, is moving money without moving cash. Platforms and payment systems embedded in or alongside them digitise the facilitation and tracking of payments that would have otherwise been in the cash economy. In terms of commuters and e-commerce, these platforms allow people to pay for services where they are and outsource payment transactions between the

business, the rider, and the user. Payment data is also shaping the way asset finance and additional services are calculated.

While this may appear seamless, especially to a user, tracking payments needs to happen in real time to track on-demand work. In some cases payment systems are in place with mobile money, while in others they need to be brought on. They interface directly and indirectly. Some have been integrated, others have not. Different payment systems have different payment structures and some have higher transaction fees than others. On the backend there is sometimes a lag, which poses different challenges depending where one is in the system. The end user may not see what it means to pay through these different gateways, but the person receiving the payment does. For a business, payments are not always instantaneous as in the case of sophisticated banking systems. Riders may not be paid instantly and therefore have to make careful calculations about when to refuel.

While these payment systems have made the facilitation and tracking of money easier in many respects, it is important to understand how this impacts differentially if governance and regulation are to protect those most vulnerable within the system. Essentially, even if riders do not think of themselves as such, they are often treated as small businesses rather than labourers. They do not receive wages for work done from a single employer, but rather manage complex income streams and navigate trade-offs. The promises of these payment systems may not always be how they are experienced.

Policy implications

Seamlessness on one side of the transaction does not necessarily translate into seamlessness on the other. It is therefore important that policy addresses the interests and needs of those most vulnerable within the sector: the riders. Regulation needs to ensure that riders are not bearing the cost.

Data

Data collected through motorcycle platforms is positioned as a solution to deal with urban economies perceived as risky.

The importance of data in decision making in urban economies is at the forefront of how fintech interacts with motorcycle mobility. Increasingly platforms have become seen as opportunities for fintech innovation framed around three promises. The first promise is linked to the individual rider, where collecting and aggregating data is seen as a means to extend and include riders in new financial circulations through lowering the cost of credit. The proposition is that knowing more about a person's financial flows and motorcycle movements can help assess whether a rider is creditworthy and, if so, how much finance can be offered. The second promise of data in the motorcycle space is linked to cross-platform interaction, creating a mid-layer of connection that provides competitive advantage between businesses. The third promise offers systemic opportunities, where the argument is that, with this data, cities can improve management of the sector and how the city works.

Platforms, either through the motorcycle itself or the phone, make an array of data available: where the bike is, petrol usage, battery life in the case of e-bikes, and income earned by riders. While a lot of data is being collected, for the most part data capture is partial as different platforms have access to different information points. For example, Uber Boda has access to all of its own data through the platform on the phone, which includes location, distance, how many riders are in the system, and what income is coming through the platform. It does not have data about the motorcycle. Ampersand can track information on the motorcycle through Internet of Things (IoT) in the battery, but does not have access to the financial transactions linked to rider payments as this information is held by MoMo. YegoMoto, through the mandated ICFM, is an example where data on the motorcycle, battery, and payment systems are all integrated into one system. This data is available to the platform and the state, but has not yet embedded fintech innovations around asset finance and other added services as has happened in Nairobi where there are credit schemes.

In Nairobi, asset finance through fintech innovations include several hire-purchase companies as well as asset-finance credit facilities by commercial banks and micro-finance institutions: for example scheme credit (e.g. Uber, Moove, C&G) and non-scheme or individual credit (e.g. KCB, Mogo, Watu). Increasingly these schemes extend to other added services such as insurance and motorcycle maintenance. Companies like M-Kopa are actively experimenting in this space, exploring how to extend their solar business to e-bikes where repayment schemes can be calculated on a daily basis. The IoT in the bike and platform enable M-Kopa to charge in smaller increments, for example daily, and can turn off the bike on non-payment, thus mitigating risk.

In Cape Town and Kigali, data is also seen as important for promises of fintech innovation, but widespread implementation of data in risk management is still speculative. If trends elsewhere demonstrate anything, it is very likely that similar data-driven risk assessments at the intersection of fintech and the motorcycle are inevitable and imminent.

Policy implications

When it comes to gathering and sharing data with different parties, data privacy becomes an important issue to manage and regulate. Riders will make trade-offs in terms of data privacy in order to access finance. It is important to ensure that all the trade-offs are not sitting with the rider. For example, what happens if a rider defaults? Startup companies know they are entering a risky market, but riders remain the most at risk within the system. There is a role for policy in shaping how these companies can make sure that the risk is not transferred to the state or an already precarious labour force.

It is important to remember that data does not automatically equal good decision making. There is an assumption that data can seamlessly be turned into policy- and decision-making tools, but this is not always self-explanatory. For cities to make use of this data, they need people who are adept at making sense of the technical, social and political implications, otherwise data can be used to reinforce already skewed power dynamics and have problematic outcomes.

Big dreams, small pilots

The VC startup space requires big dreams, small pilots. To attract investments and grants, startups operating at the intersection of platform mobilities and fintech 'dream big'. Their glossy promises portray seamless solutions, profitable data-driven economies, disruptions of legacy systems and predatory informal financial channels, and a redistribution of the value created by algorithmic optimisation across riders and other workers. These promises emerge from the more general techno-optimism that characterises digital companies across the world, but they are also more specifically curated for the developmental context of African cities, where they dovetail paradigms such as financial inclusion, ICT4D and others described in earlier sections of this report.

In a context where VC and other investments in small companies still operate in a very narrow band despite a surge of interest, as our informants observed, the majority of these fintech startups claim their space through small pilots and localised experiments. On the one hand these experiments serve the purpose of proving the financial viability of business models that are only imagined on paper and lack proof of concept to showcase profit margins. Therefore, many of the startups we interviewed for this research focused these trials on 'getting profitability right', as one founder told us. Equally important is the role of pilots in creating knowledge and, therefore, increasing investor confidence in financial operations that are seen as risky because they target an informal economy. But it would be a mistake to only interpret these experimental activities as a function of startups trying to achieve investment readiness with bootstrapped resources. In fact, small pilots are data-gathering operations. A typical example that we encountered in both Nairobi and Kigali involved companies giving a small number of riders motorcycles or batteries and tracking their activities to gauge price points, understand the best technical solutions, fine-tune financial arrangements, and predict unforeseen risks. In other words, while dreaming big, fintech startups strategically deploy small-scale trials to appraise and shift market dynamics.

For better or worse, these experimental pilots have a fraught relationship with regulations. This is true across the board of fintech economies. For instance, cryptocurrencies are not fully regulated in any of the three case-study cities, but this has not stopped fintech startups from experimenting with crypto wallets. As a consequence, regulatory authorities find themselves chasing innovation and retroactively declaring some practices illegal, especially when they are exploitative – as happened in Kenya when dozens of lending wallets were shut down by the authorities. As far as regulation goes, the three case-study cities present very different dynamics. Because regulatory frameworks are not traditionally designed for pilots, we observed diverging approaches, shifting from the overlooking of compliance that is common in Kenya, to the much stiffer regulatory standardisation that is embedded in these platforms in South Africa, to the enactment of sandbox legislation in Rwanda (i.e. spaces of experimentation that are temporarily deregulated and reregulated ex post). Ultimately, these mismatches between regulatory environments and experimental practices are also sources of risk for platform startups, which may invest in technical solutions that are declared non-compliant when standards are set at the legislative level. For this reason, we also observed that even very small companies are in conversation with government authorities and regulators to ensure that standards emerge as a compromise between collective interests and business priorities.

Policy implications

In a context where innovations are piloted and tested at a small scale, regulations need to be reimagined not just as retroactive, but also as experimental activities in and of themselves. This is not easy but crucial to ensure that these fintech economies are not predatory and create a space for regulators to act if they are. Regulating ex post, as the case of Nairobi clearly shows, creates spaces of non-compliance that are hard to address.

Green/just transitions and e-mobility

The future of the paratransit sector is in e-mobility. In all three case-study cities, e-bikes are being touted as the future of urban mobility. While petrol motorcycles still dominate, the environmental and fuel consumption narratives linked to e-bikes is compelling. Ampersand in Kigali are ramping-up and companies like M-Kopa are assertively piloting fintech-integrated platformed motorcycle arrangements for asset finance and an array of added services in Nairobi. Although still not connected to fintech, some service providers in Cape Town are starting to stock fleets of e-bikes.

The shift to e-mobility is wrapped up in the pursuit of green/just transitions in African cities. There are three ways in which the motorcycle sector relates to green/just transition narratives. The first is based on the idea that moving people onto e-bikes will reduce the cost of petrol and improve the business model for riders. This move is enabled by data and goes back to the tracking of financial flows to finance the motorcycle. In other words, fintech innovation can enable better business models for riders in more ecologically friendly ways. The second is premised on the question of how to contribute to the economy and reduce CO_2 emissions? And the third is linked to a fiscal issue based on spaces where energy is overproduced (this is the case of Kenya, which is a net producer of renewable energy). The story of the *boda boda* within the green transition appears to be a good fit for reducing CO_2 emissions and, from an urban-economy perspective, linked to reduced fuel production and consumption by using the overflow from energy systems in places like Kenya, Uganda and Ghana. This triad between end-user costs, fiscal and utility costs, and the wider global green financial question, come together around the motorcycle and are inextricably linked to the platforming of finance and mobility. Asset finance is central to this model.

At the centre of the picture is the rider. While it is clear that *boda boda* riders are not the problem when it comes to climate change, their business is increasingly wound into the story of greening cities. As introduced earlier in this report, VC is being generously invested in pilots that cover the upfront costs of the transition through innovative financial models enabled by the platform–motorcycle–fintech interface. Being able to offer profitability and

access to expanded economies is compelling. A scramble for bringing in finance and retrofitting green stories to attract global investments can put riders at risk, but could also be used to leverage the VC rush to socio-spatial and economic benefits.

Policy implications

Any effort for attracting green finance should speak to multiple requirements and imperatives at the city and user scale. Policy decisions need to work out how to speak into the global green finance scramble as well as the real needs of the sector – specifically about riders and the platform dilemmas they face.

6. Conclusion

By way of a conclusion we have drawn together key points on mobility and accessibility, fintech, urban theory, and policy:

Mobility and accessibility: For those scholars and activists who are interested in mobility and accessibility in African cities, this report suggests that it is important to pay attention to algorithms and technical systems and in particular how they include and exclude different people and urban economies. In addition, the proliferation and expansion of motorcycle platforms and fintech innovation points to the need to get savvy about capillary systems that are vital to urban mobility in Africa, and how they are or could be financed.

Fintech: For those interested in the rise of fintech in contexts of informal and precarious economies, this report cautions against merely seeing the paratransit motorcycle sector as a market to be tapped and extracted from. We encourage fintech enthusiasts to recognise that motorcycle economies have existed for some time and are a lifeline for many people in African cities, including migrant workers in Cape Town and youth in Nairobi and Kigali. It is important to understand that interventions in this sector involve stepping into a highly political and precarious space.

Urban theory: For those scholars interested in conceptual debates, we encourage challenging normative ideas about fintech frontiers on the continent. We believe it is necessary to reformat conversations about the socio-technical dimensions of fintech and paratransit in locally relevant and responsive ways. There is a tendency to assume that the sector is dominated by Silicon Savannah-esque foreigners coming in and co-opting these markets, but what we are seeing is a great deal of variation, building on existing practices and sometimes in direct relation to local governance. We also propose that crucial to better understanding African cities is encouraging research to be conducted in localities and by locals.

Policy: For those who are interested in the role of policy at the intersection of motorcycle mobility, fintech and African cities, we propose that governing the sector needs to find a balance between leaving enough space for piloting and experimenting and protecting those most vulnerable in the system: the riders. Policy is often on the back foot and battling to keep up with the rapidly shifting nature of the sector. There are opportunities for regulation itself to be experimental. There are also risks, therefore it is important to ensure that riders already in precarious situations are not carrying the burden of these risks. In the absence of many forms of social protection, regulation can play a role in curtailing predatory practices while allowing enough room to imagine how value can be created and shared across all actors in these systems.

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Appendix I

Nairobi

Motorcycles, digital platforms and fintech integration in Nairobi

Jack Odeo



A platformed e-commerce delivery motorcycle in Nairobi (© Andrea Pollio]

Introduction

Motorcycles for passenger and delivery services, better known as boda boda or simply boda, are everywhere in Nairobi. They are always on the move, sometimes on pavements and pedestrian walkways, and many times on the wrong side of the road, but never held back by traffic. Stories abound where people have got out of cars and hopped onto a boda boda to beat the infamous Nairobi traffic to catch a flight or to get to an appointment in time. Boda boda filled a critical gap at a time when transport infrastructure was limited, thus offering an important mobility service, especially on short trips within the central business district and environs, and in areas of the city far removed from the bus termini or where infrastructure is missing, thus requiring an agile vehicle.

In 2008 the government action of zero-rating import duty on motorcycles up to 250cc led to an explosion in the number of motorcycles in the country, especially in urban centres, without a counter policy framework on their registration, regulation, and designation as public service vehicles (PSVs) (Kariuki, 2020). Owing to this gap it is not clear how many motorcycles operate in Kenya, however the National Transport and Safety Authority (NTSA) reports that nearly 1.4 million motorcycles had been registered as of February 2018 (Opondo & Kiprop, 2018). In recent years the sector has undergone some transformation, driven by innovations and new business models, including the emergence of digital mobility platforms and mobile money payment systems. Platforms for coordinating motorcycles for commuting and deliveries have created a foundation to integrate fintech into the last mile logistics and e-hailing services that use motorcycles for everyday movement.

Sub-Saharan Africa has witnessed tremendous financial innovation in recent years, competing with the USA and China, the leading innovators in financial technology. Fintech startups have emerged, using inexpensive accessible technologies to mobilise consumers and mobile payment systems have become an important tool for financial transactions. Within the proliferation of fintech, Nairobi has distinguished itself as an innovation hub, with several incubators and other entrepreneurial innovation spaces that seek to capitalise on the fact that Kenyans are early adopters, and that with M-Pesa and the availability of affordable phones there is a distributed financial system to which most people have access (Kiamba & Sotiriou, 2022). M-Pesa has played a significant role in catalysing financial development (TheCityUK & PwC, 2022). Initially piloted by Safaricom, the leading mobile service operator in Kenya, as a person-to-person money transfer service in 2007, it has developed into a large ecosystem of mobile payments, demonstrating innovative adaptability and reinterpretation, thus positioning the country as a world leader in mobile money (Guma, 2022). In this context, Nairobi has become a testbed for fintech startups looking to build advanced payment solutions that target the *boda boda* industry.

Fintech and platformed payment systems

> *[In] Kenya … 97% [of payment is] mobile payments. [Out] of that 97%, 99% is M-Pesa. That means you need to have connectivity with Safaricom, and then you can plug it in. The beauty of Safaricom is that they already have open APIs that the engine is able to plug in.*
>
> ~ A finance expert working on innovative financing models

The adaptation of digital platforms and the integration of mobile money technologies in business processes has been aided by different innovations and multiple (re)configurations of the M-Pesa system to facilitate person-to-business (and vice versa), and business-to-business transactions. These include mobile-to-bank (and vice versa) services, Paybill, Till Number, and *Pochi La Biashara.* These mobile payment solutions have been adopted by players in the two-wheeler mobility ecosystem, ranging from asset finance companies to mobile lending platforms. Digital payments have helped to reduce costs and improve the speed of collections for asset lenders, while allowing customers to pay anytime, anywhere, and with a system that is already familiar.

> M-Kopa was founded in 2011 as a consumer products startup specialising in pay-as-you-go solar energy solutions in off-grid areas, especially in rural Kenya, but has since diversified into other products and services including TVs, refrigerators, and motorcycles (petrol and electric). It runs operations in five African markets: Kenya, Uganda, Ghana, Nigeria and, most recently, Zambia. It operates a different payment model in each market. For Kenya, mobile money (M-Pesa) is integrated into its consumer API-powered platform and accepts payments off-app. Users can make payments in-app or opt-in using a USSD service code. M-Kopa has partnered with Roam, an e-mobility startup, to allow riders to acquire electric motorcycles and pay them off over a period as they earn an income from them. The same pay-as-you-go model powered by M-Pesa has been installed in the motorcycles' IoT batteries.

The M-Kopa example shows how mobile money has enabled financial inclusion through digital credit and ready-made payment solutions, driven by the demand for fast, secure, and simple digital payment solutions. Payments, however, are not the sole or main fintech innovation, especially considering that M-Pesa has a quasi-monopoly over mobile money. Fintech startups are positioning themselves to increase their share in the lending sector and, as a result, lenders and asset finance companies are integrating new tools and platforms into their growth strategies to help clients through the lending experience.

> *Let me tell you something about fintech in general. Anybody who enters payment processes, that's just a hook … you can never break even on payments. The margins are so small. … The essence of any fintech is lending.*
>
> ~ A financial expert working on innovative financing models

Affordability is one of the biggest impediments to motorcycle ownership as riders are required to make once-off payments. The quoted sums are usually beyond the reach of most people, and particularly *boda boda* riders who belong to the lower income rungs of Kenya's urban classes. The price of a new motorcycle ranges from KES 90,000 to KES 150,000 (USD 680 to USD 1,130) depending on the brand and engine capacity, with Indian brands like TVS, Boxer, and Bajaj dominating the market.[1] It is this gap that microfinance startups working in the asset finance space are working to fill. They target motorcycle-taxi operators, building their business around daily micro-payments using available technologies, thus disrupting the traditional cash-based market. Powered by mobile technologies, innovators are building a modern infrastructure that is changing the mode of payment.

[1] Exchange rate as at 4 April 2023: USD 1 = KES 132.90 (https://www.xe.com)

There are various payment typologies in the fintech space including third party aggregators who have built commercial payment systems to facilitate transactions (e.g. Jiji and iPay) as well as entities that have built their own payment gateways (e.g. JumiaPay). However, M-Pesa, notably, has become and remains the backbone of mobile payments.

Boda boda riders desire products beyond asset coverage, including insurance and micro credit to cover for motorcycle repairs. This is where asset finance companies come in, combining the power of digital payments, risk reduction, and data gathering tools like Internet of Things (IoT) technologies. They finance the purchase of the motorcycles, then create a value-added service including service and repairs, spare parts, protective gear, and insurance. Through a digitised pay-as-you-go (PayGo) model, riders get instant access to motorcycles while building ownership over time through flexible daily micro-payments. Asset companies, such as Moove, employ technology-enabled mechanisms in their operations, including GPS tracking to monitor movement of the assets as well as remote locking to shut off the assets in the event of non-payment. Riders only obtain full ownership after paying the full cost of the lease, but the asset companies retain the ability to repossess the asset in the event of default. Sometimes riders are unable to make the daily payments and resort to alternative credit – mostly digital microloans – to pay their asset loans. This has seen the number of digital credit companies and digital loans disbursed in Kenya grow exponentially since the launch of M-Shwari in 2012. Digital lenders offer instant, automated, and remote credit decisions, removing the need for in-person applications, thus giving borrowers a quick and convenient option for credit. Despite a government crackdown on digital microlending, industry practices around pricing, marketing, debt collection and customer data handling have raised concerns. However, the promise of these fintech business models is also to offer riders additional services that they would not otherwise access.

> *We have built in the insurance [premium payment] into the daily [asset financing] repayments. [and] it is a game changer.*
>
> ~ A product manager in a Nairobi fintech startup

> Moove, an asset finance company, has partnered with Uber to finance the acquisition of motorcycles by platform riders. Riders operate on the Uber platform, but the motorcycle is monitored by Moove. On signing up, the rider agrees to a certain range/radius of operation, outside of which the engine is automatically switched off, as in the case of non-payment of daily instalments. Moove has also partnered with Car and General to undertake exclusive servicing of the motorcycles for the duration of the loan (covered in the instalments and therefore at no extra cost to the rider), adding a mandatory physical touchpoint with the rider from time to time through the dealership service centres.

Data, risk, and decision making

> *Most of the e-commerce sites [and other entities] that have some muscles are building their own internal systems. Because if you do, you have control of the float. That is the first thing. The second thing is that you now have 100% control of the traffic data that's coming through, which is a goldmine.*
>
> ~ A finance expert working on innovative financing models

Many *boda bodas* across the city are acquired on asset financing arrangements. Since motorcycles are notoriously easy to steal, the need for spatial interfaces as a security measure, such as GPS tracking, has become almost a mandatory requirement. In the case of electric motorcycles, there is an added physical interface –charging/swapping stations – ensuring almost daily physical contact between the rider and lender. E-mobility companies such as Roam do not operate charging/swapping stations but digitally and remotely collect data from the assets. A lot of data is collected daily from riders by multiple entities including the platform they operate on and asset financing companies. The data includes geographical coverage in terms of distance, time, number of trips, and amount made, although this is difficult to measure because of sign-ups on multiple platforms. Electric motorcycle data includes the level of charge in the battery, battery temperature, and charging frequency. The data generated becomes an important aspect in the processes of risk identification and assessment in terms of the health of the assets, the condition of the infrastructure on which the asset is operating, the security of a given geographical area, and risk profiling of the riders. Table 1 categorises some of the data collected and their uses.

Table 1: Categories of data collected

Type of data	How	Why	Example
Financial	Third party access to M-Pesa log, rider app	Analyse rider's credit worthiness	Mogo, Watu, Moove
Spatial temporal	GPS tracker on motorcycle, on battery, rider app	Analyse rider's zone and time of operation, and traffic behaviour, possibly for risk analysis	Stimaboda, Roam, M-Kopa
Asset health	IoT technologies in batteries	Monitor asset health and use (level of charge, battery temperature, etc.)	Moove, Stimaboda, Ampersand

Roam, an electric mobility startup, operates on the model of charging a battery anywhere. The charging adapter acts like an interface between the domestic power output (in homes and offices) and three-phase input needed to charge a high-capacity battery for powering a motorcycle. The data collected through the IoT embedded in the battery includes level of charge in the battery, battery temperature, and charging frequency. Such data is useful in developing a profile for individual riders and could be shared with a financial product partner for the purpose of risk rating.

If we know the patterns of the riders, we can build a case for the insurer for differentiated rates based on how a rider behaves. The data [we collect] allows us to see the speed and other information about the actual riding. If they drive safely, they can get rebates on their insurance.

~ A product manager in a Nairobi fintech startup

Regulatory framework

In Kenya Vision 2030, financial services have been identified among the key enablers for national prosperity (GoK, 2007). However, like many countries, Kenya lacks an overarching regulatory framework for fintech, therefore regulation is sectoral based, according to financial activity or product. The National Payments Strategy 2022–2025 aims to realise the vision of a secure, fast, efficient, and collaborative payment system that supports financial inclusion and innovations. As per the National Payments Systems Regulations, fintech companies providing payment solutions are registered and licensed by the Central Bank of Kenya (CBK) as payment service providers, and with the growth of digital lending, amendments to the Central Bank of Kenya Act seek to place the sector under the direct authority and supervision of the CBK (GoK, 2014, 2021).

The growth of digital financial services has also raised important questions about volume, variety, velocity, veracity, and security of customer data. The Data Protection Act was enacted to give effect to the provisions of Article 31 of the Constitution of Kenya that grants every person the right to privacy (GoK, 2019, 2010). The Office of the Data Protection Commissioner regulates the processing of information related to an identified or identifiable natural person. This is key for fintech operators as it is inevitable that they will interact with personal data, like Know Your Customer (KYC) Compliance, and transactional information.

Generally, the regulatory environment in Kenya is characterised by a duality of gaps in regulation, and laxity or non-enforcement of existing regulations. This has allowed for a lot of experimentation, but has also concerned some operators (who have slowed down scaling of innovations fearing their practices might be delegitimised when regulations catch up), and created grey areas for predatory practices, especially around pricing and aggressive collection and recovery practices. The digital lending space in Kenya has been characterised by a lack of transparency on terms and conditions, leading to high default rates.

Speculation/trends/experimentation: Nairobi testbed city

Innovations in the transport and mobility sector are key in contributing to a decarbonising pathway (Eccarius & Lu, 2020). Pollution from urban mobility, making up to 25% of greenhouse gases, with over 70% coming from urban paratransit systems, is one of the greatest challenges to the future of air quality in cities. In Africa, transport contributes up to 10% of greenhouse gases (Conzade et al, 2022). Electric motorcycles, considered a virtuous form of urban mobility, are quickly gaining ground, aiming to offset the negative externalities linked to urban commuting and last-mile logistics. However, the emergence of e-mobility systems presents new challenges. While the Standards Act mandates the Kenya Bureau of Standards to promote standardisation in industry and commerce, and provide facilities for the examination of conformity to set standards of imported and locally assembled and manufactured goods, gaps do exist in the electric mobility sector in terms of the operating standard for imported and locally assembled electric motorcycles and parts. Industry players are divided on an interoperability push but do agree on an incremental push towards standardisation, experimenting with different models for the mainframe and the batteries. While some operators prefer to sell the motorcycle with the batteries, others, such as Stimaboda, sell the motorcycle but retain ownership of the batteries and offer it to the riders as a service. As a new technology being tested to understand what the customer wants, operators are concerned that a hurried move towards standardisation may lock the system into a specific solution that does not meet the demands of the *boda boda* industry.

So far, all these players coming out with their own options are putting out small numbers of bikes, fearing that new laws will come out that will make their bikes non-compliant.

~ A product manager in a Nairobi e-mobility startup

Standardisation will lead to interoperability and this will hamper scalability, although it is important to standardise safety.

~ An e-mobility startup founder

Stimaboda is an e-mobility startup in Kenya, in partnership with an Indian manufacturer, that produces electric motorcycles targeting the boda boda industry. The company operates on a battery-as-a-service model, where riders lease-to-own the motorcycles through an arrangement with asset finance companies, while the batteries remain the assets of Stimaboda on a pay-per-use basis at any point in a network of battery charging/swapping stations.

The e-mobility push in Kenya comes against a backdrop of current power generation that is relatively small for a country of more than 50 million people, but is higher than actual demand (in part because of low access in rural areas) and mostly coming from renewable sources. The promise of these startups is that,

in buying the extra capacity to power motorcycle batteries, they will contribute to the state fiscus by reducing its dependence on fuel imports. These imports are highly subsidised and therefore constitute a constant budgetary headache for an indebted nation like Kenya, where a big proportion of revenue goes to servicing external debt.

> *We see Nairobi as the future of e-mobility. All the benefits of e-mobility can be found enhanced in Kenya: cost of fuel is high, there's very intensive usage of motorcycle taxis, high renewable energy content of the grid, and a couple of other things like ease of doing business, presence of big multinationals like Bolt and Uber that can support the growth of the sector, asset financiers, the existence of M-Pesa … It is the perfect storm.*
>
> ~ An e-mobility startup founder

Table 2 shows some of the experiments taking place within the two-wheeler e-mobility space across different players in Nairobi.

> *Kenyans are very receptive to new technology. They adapt to and embrace new tech very fast. Likewise, if something doesn't work, they'll drop it tomorrow. So that has provided a good platform to come and test ideas for Africa. Something may work here and not work elsewhere, but if it doesn't work here, it's not going to work anywhere else. Since Kenya provides a good platform, there has been this rush to come and experiment.*
>
> ~ A finance expert working on innovative financing models

Table 2: Experiments in e-mobility

Experiment	Description	Example
Charging Model		
Swapping/charging station	A network of purpose-built infrastructure for charging and exchanging batteries	Stimaboda, Ecobodaa
Charge anywhere	A charging device is provided that allows riders to charge at any point	Roam
Tracking		
Track motorcycle + battery	Tracking devices on motorcycle and battery	M-Kopa
Track battery	Battery is fitted with an IoT that tracks its GPS location and its health (level of charge, temperature, etc.)	Stimaboda, Powerhive
Product Model		
Sell motorcycle + battery	Rider gets to own motorcycle and battery	Roam
Sell motorcycle + lease battery	Rider owns the motorcycle, but the battery remains an asset of the company and is leased on a pay-per-use in a swapping model	Stimaboda, Powerhive
Other		
Smart cabinets	To navigate the challenge of locating an address in the last mile, smart cabinets are strategically placed where riders can drop off deliveries for clients to pick up	Speedaf

Conclusion

Motorcycles, more robust and agile to navigate through Nairobi's traffic and access the unconnected last mile, have become a modal choice for reliable passenger and delivery services. The sector interfaces with several other urban economies, including digital payments, thanks to high mobile phone penetration in the country and novel innovations in mobile telephony and financial technology. M-Pesa, a disruptive fintech innovation, has created a new market and value network that has expanded financial access in the country. Its role in catalysing financial development with its fast, secure, simple distributed digital payment solution cannot be underestimated. Indeed Nairobi is a leading centre of innovation on the continent, with a growing number of tech incubators and a population eager to try out and adopt new innovations. Lack of data trails, however, has been cited as an impediment to the development of more robust digital financial services. Fintech platforms and other mobility platforms can bridge this gap by collecting and sharing [responsibly] vital data that can revolutionise digital finance services and improve their value proposition. Platformisation of motorcycles has expanded the scope of fintech beyond payment gateways to digital credit and related added services like insurance. Finally, thanks to new and enhanced regulations in Kenya, including the requirement for digital lenders to obtain licences and disclose all conditions including fees and charges, issues such as data privacy and consumer protection are being addressed. This shift in the regulatory landscape is geared towards building consumer confidence, fostering growth of the sector, and curbing financial crime.

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Appendix II

Kigali

Fintech and paratransit in Kigali: uniformity, gaps and speculative pilots

Alexis Sebarenzi



Traffic stop for dignitary passage in Kigali (© Uganda High Commission, Rwanda, 2022)

Introduction

A visitor to Kigali might be struck by the ubiquity of motorcycles in the city and their near uniformity in the red vests worn by the *motaris*, the mode of payment, and the amounts paid. The backend of this uniformity consists of a wide range of features resulting from the interface between the fintech and motorcycle sectors. These aspects consist of the existing dominance of some players, gaps in tackling *motaris*' fundamental concerns, and speculative practices.

This case report unpacks these three aspects of the fintech and motorcycle interaction in Kigali: first, by showing that the uniformity is, at least in part, due to the dominance of particular players; second, by demonstrating that gaps between the sectors indicate absent features that are fundamental to the motorcycle sector; and third, contrasts these features with speculative and experimental practices.

Dominant systems, uniform platforms

The significant growth of mobile money payment systems in Rwanda has provided a base that various fintech actors have sought to leverage and profit from. While other methods of digital payment have also been on the rise, their growth has been less significant in value and in volume than mobile money payments. In the five-year period from 2016 to 2021, mobile payments quintupled in value to reach a transaction value of close to USD 10 billion in 2021 with 5.1 million active subscribers (BNR, 2021). This growth has been accompanied by the proliferation of fintech companies, with the Rwanda Fintech Association counting 31 members. In the mobile money sector, MTN MoMo has consistently been the dominant player, accounting for close to 70% of subscribers in 2020 (BNR, 2020; *The New Times*, 2021).

> MTN MoMo, a subsidiary of MTN Rwandacell PLC, was established in 2021 to focus on fintech as a separate business area. MTN started operating in Rwanda in 1998 and enjoyed a monopolistic position in the mobile telephone business for 10 years, thereby establishing a legacy and status as the frontrunner in the telecommunication sector. The company has steadily grown to reach close to seven million active subscribers in 2022 and covers virtually the whole of the national territory (RURA, 2022b). MTN MoMo has leveraged the legacy and status of its parent company as well as its customer base and territorial coverage.

The dominant position of MTN MoMo is also reflected in paratransit sector payment systems, where it remains the most widely used despite the existence of rival platforms. Vuba Vuba, the biggest food delivery platform in Rwanda, offers various payment modes which include mobile money, SPENN and Vuba Wallet. It is noteworthy that MTN MoMo is the most widely used payment system on the Vuba Vuba platform. The dominance of MTN MoMo as a mode of payment is, however, most visible in the moto-taxi transport sector, which offers a multiplicity of payment methods including MTN MoMo and Airtel Money (mobile money services), SafariBus and YegoMoto Ride-Tap-Pay (card-based services), and SPENN (e-wallet).

Despite the dominance of MTN MoMo, alternative payment methods offer more added services. For instance, SafariBus, beyond being a moto-taxi payment card, can be used for public bus transport due to its interoperability with AC Group, a company that dominates the public bus transport sector with its Tap&Go cards (RURA, 2022a) SafariBus cards can also be used to electronically pay for recreational events such as music concerts and football matches, with occasional discounts. Moreover, the SafariBus card functions as a UnionPay ATM card issued by local bank, Cogebanque. SPENN not only offers cheaper transaction fees because of its ability to use blockchain technology, but also credit of approximately USD 500 on interest-free terms for the first 14 days. This loan is described by SPENN as 'the daily startup capital' that *motaris* can leverage on a short-term basis to bootstrap themselves in the event of any unplanned event that results in temporary cessation of activities. While other fintech platforms might occupy a bigger share of the paratransit sector because of their ability to use newer technology and offer more versatile added services in the future, MTN MoMo is still dominant for the moment.

> SPENN is a fintech company that operates in seven countries including Rwanda, Tanzania, and Zambia. SPENN styles itself as spearheading MoMo 2.0 using blockchain technology. SPENN Rwanda has close to 400,000 subscribers to its platform and works as a mobile banking platform in partnership with I&M Bank, a commercial bank with headquarters in Nairobi, Kenya.

> SafariBus is a bus/motorcycle transport card that doubles as an ATM card. It is a product of Centrika Ltd., which has been in transport digital payment systems for a while, changing names from time to time. It started in the upcountry bus transport business in 2012 and adapted to changes in the sector. SafariBus has helped the company to break into the motorcycle business whilst integrated with other transport payment systems.

YegoMoto is another dominant player that has emerged in the moto-taxi sector. Apart from being one of the payment modes, it is also a platform in which other payment systems operate. This is due to Yego Innovision Ltd, YegoMoto's parent company, currently being the only approved provider of the Intelligent Connected Fare Meter (ICFM), a device that is fitted on all moto-taxis to calculate the journey fare. The ICFM enables YegoMoto to function as a payment aggregator for moto-taxis and, more importantly, confers on it semi-regulatory powers. YegoMoto exercises this power inasmuch as it has the discretion to select which payment platforms are hosted on its ICFM. YegoMoto allows different payment systems to be on the platform without giving precedence to its own systems.

It is the sheer dominance of MTN MoMo as a payment method and YegoMoto as an ICFM platform that explains the apparent uniformity of the motaris in Kigali – a uniformity that the current growth in fintech has so far perpetuated rather than disrupted.

> YegoMoto is a digital payment systems aggregator. It is a product of Yego Innovision Ltd which also has YegoCabs and Yego ICFM. Yego Innovision intends to become an integrated super-app platform that offers a variety of services (Sitas et al., 2022). After a long and convoluted process of piloting the ICFM, only YegoMoto ICFM met the specifications of the Rwanda Utilities Regulatory Authority (RURA) and, as a result, is a monopoly.

Gaps, failures and fintech opportunities for motorcycle finance

Existing platforms have not been involved in tackling some of the *motaris*' fundamental concerns about financing and insuring motorcycles. The main source of finance for motorcycle acquisition is still individual investment – either by the *motaris* buying motorcycles themselves or other individuals buying motorcycles and giving them to *motaris* to operate. A rent-to-own scheme was initiated by Universal Auto, a motorcycle trade company selling Bajaj Boxer motorcycles. At its outset, the

scheme presented interesting prospects because it was premised on the idea that a *motari* would pay less than the daily amount that is usually paid to operate another individual's motorcycle, known as *versement.* At the time of writing, the daily payment was RWF 3,800,while the *versement* was around RWF 5,000.) This advantage was accompanied by the considerable benefit that ownership of the asset (motorcycle) would revert to the *motari* at the end of 18-month payment period. Furthermore, the scheme adopted a mixed approach to risks, which consisted of asking the beneficiary *motari* for a deposit of around USD 100 as a financial hedge against payment default and presenting at least three signatories vouching for the beneficiary's 'good character'. Despite its positive prospects, the scheme had to be stopped because almost one-third of *motaris* defaulted. Among the reasons given for this failure were that the *motaris* were overburdened by various taxes and fees required on a daily basis, which made regular repayments difficult. As one respond put it: 'The *motaris* are required so many things from so many institutions and they are not helped very much.' While the causes contributing to the failure of the rent-to-own scheme are complex and involve multifaceted socio-economic factors, the use of fintech solutions, such as the ability to use a push-and-pull methodology as a smoother payment method/reminder, might have played a positive role.

Other asset finance schemes not only lack fintech integration, but are also of limited reach. Notable among these is Ampersand, an e-motorcycle company that specialises in manufacturing motorcycle batteries. Ampersand sells its e-motorcycles at wholesale value to subcontracted companies such as JALI Finance, Watu, Shell, and Bboxx, to start rent-to-own schemes. These schemes have not made huge impacts yet given that Ampersand e-motorcycles in circulation in Kigali only number 405, which is not overly consequential as over 30,000 moto-taxis operate in Kigali. Despite the competitive economy of e-motorcycles, which are estimated to be 41% more profitable than petrol motorcycles in terms of take-home revenue, petrol motorcycles still dominate.

Another notable fintech gap in the paratransit sector is motorcycle insurance. This has been a thorny issue, especially after motorcycle insurance premiums were tripled from around RWF 65,000 (USD 59) to around RWF 200,000 (USD 180) in 2021.[1] This led to a mini-strike by the *motaris* and multiple calls for the President of the Republic to provide a solution (Hakizimana, 2022). The insurance companies have so far adopted a low-tech approach to evaluate risks, considering only age and use of motorcycles to estimate insurance premiums. There has been no serious attempt to leverage, for instance, ICFM data to offer a more sophisticated and individualised fintech solution. This makes motorcycle insurance an unexploited opportunity for the growing fintech sector in Kigali.

Experimental practices and speculative pilots

Parallel to the gaps in and unexplored opportunities of fintech in the paratransit sector, the fintech sector is replete with speculative and experimental practices that take the form of logistical tweaking, speculative advertisement, and regulatory experimentation – all of which are yet to be realised.

Logistical tweaking consists of situations where no new technology is introduced but platforms expand their services by rearranging the existing setup. One instance of this is PayingTone, which plans to experiment with in-house delivery by leveraging the 250 Stores chain as delivery points instead of offering door-to-door delivery. SPENN also wants to leverage the *motaris* on its platform and offer an asset-financing solution in the future.

> PayingTone is a 'buy now pay later' platform that aims to track the carbon footprint of products on its platform to raise awareness on climate change issues. The platform has close to 300 merchants with varied products including furniture, clothes, and consumables.

Speculative advertisement consists of producing a generic and speculative product to showcase a company's ability. In the Rwandan fintech sector, speculative advertisement usually consists of presenting the potential of a product to an interested party without necessarily showcasing the roadmap to achieve it. For instance, the ICFM is sometimes presented as a core to a bigger system that includes credit scoring and larger platformisation, without necessarily demonstrating the way in which it will be done. Various other payment systems also speculate on the possibility of offering their users the opportunity to invest in international companies, such as Tesla or Alibaba, without specifically charting out ways in which this would be possible.

Regulatory experimentation is being enabled through Rwanda's Regulatory Sandbox. This allows fintech platforms to apply for a relaxation of the existing regulatory framework for a period of up to two years in order to test a product in the market (BNR, 2022). Although the regulatory framework exists, test products and applicants are yet to be communicated.

[1] Exchange rate as at 3 April 2023: USD 1 = RWF 1,108 (https://www.xe.com)

Conclusion

In Kigali, the rapid growth of digital payments, and especially mobile money, has led to the growth of various fintech platforms wanting to leverage from the growth of digital payments and join an already robust paratransit sector. This underscores the fact that payment systems are the basis on which fintech platforms intersect with the motorcycle sector. The interaction between the paratransit and fintech sectors has resulted in the dominance of some actors, notably MTN MoMo and YegoMoto, hence the uniformity in *motaris'* clothing choice and payment methods. This interaction has brought to the fore a number of gaps in asset finance and motorcycle insurance, for which no fintech solution has been attempted despite their relatively high importance. This provides a case in point to rethink the complexity of data-enabled solutions, especially the conditions for such solutions to emerge. Finally, in Kigali, fintech platforms have engaged in various speculative and experimental projects, including regulatory experimentation, which are not dissonant with venture-capital financing frameworks.

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Appendix III

Cape Town

Fintech and motorcycle platform services in Cape Town: legacy capital, retail extension and growing experimentation

Alicia Fortuin



Adderley Street, Cape Town CBD (© Andrea Pollio)

Introduction

There is a strong sense of colonial and European influence in Cape Town, particularly in the city centre. The tall buildings accommodate legacy capital and it is here that financial services abound. Many of the digital startups in Cape Town are found in the 400-year-old central business district. One bank building opposite another, fintech startup offices overlooking each other, the city is considered one of the fintech capitals of the African continent. Supported by digital strategy investment by the City of Cape Town and the Western Cape Government, there are booming partnerships, alliances, and interdependencies among legacy financial institutions and new, innovative fintech operations in sectors such as digital payments and cryptocurrency. In the shade of the city's tall buildings, one can often see groups of motorcycle riders waiting for their next delivery to pop up on their smartphones. While motorcycles are not used for pillion commuting, as in other African cities, they are a common sight delivering packages across the city. This is a growing urban economy made possible by the alliances of fintech and legacy retailers.

The key insight of this report is that, unlike in other African cities, the interface between fintech and motorcycle platform services in Cape Town is made possible by two long-standing institutions of legacy capital: the advanced financial industry and consumer retail. This has generated different pathways for large retailers and fintech payment schemes diversifying through the use of motorcycles.

Fintech, motorcycles and supermarket experimentation

Legacy retailers partner with fintech, in particular digital payment service providers, to create new markets in different socio-economic demographics and, in doing so, motorcycle delivery services have become one of the enablers of this market expansion. In other words, the motorcycle sector in Cape Town is, in many ways, an offshoot of large retailers and fintech seeking new frontiers of expansion through online services.

Legacy seeking new frontiers

At first glance, it seems like fintech is a late entrant into the growing motorcycle delivery platform (and in some ways it is) however the fintech sector has been present in Cape Town for some time. It is through payment systems enabled by digital technologies that fintech is seeking new frontiers, innovating and experimenting particularly in the instant payment options sector. The growing motorcycle delivery platform industry and on-demand services sits in the interstice of fintech and legacy retail mobility, where the motorcycle and rider are the key enablers. Integral to the story is the shopping retail industry in Cape Town and in South Africa more broadly.

A good example of this is blue-chip retailer Shoprite Holdings Ltd, Africa's largest supermarket chain, headquartered in Brackenfell, Cape Town. Shoprite-owned Checkers (a brand targeting middle-income customers) launched its own on-demand grocery delivery app in 2019 – Checkers Sixty60 – which is a product of its own innovation incubator business unit that uses technology and data science to improve its operations and offerings to customers. Shoprite invested in a local technology startup company, Omnisient, a consumer data platform. Shoprite is also the first retailer to launch its own fully fledged transactional bank account as part of its widely successful Money Market offering. Boosted by the COVID-19 pandemic and lockdown regulations, the success of Checkers Sixty60 exceeded expectations, resulting in the further rollout of stores where on demand services would become available, including previously overlooked areas of the city. To achieve this, Checkers Sixty60 relied on three last-mile logistics operations: one in-house and two contractors. Following Shoprite's success, Cape Town has seen a proliferation of large supermarkets offering last-mile on-demand services such as Pick n Pay ASAP!, Dis-Chem DeliverD, and Woolies Dash from Woolworths.

South Africa has a modern retail sector dominated by big supermarket chains such as Shoprite, Checkers, Pick n Pay, Spar, and Woolworths, which depend on the country's warehousing and distribution infrastructure. In other cities on the continent, this is not the case. In post-apartheid South Africa, supermarkets started expanding into township areas – in part due to increased investment in previously neglected areas and by building on existing cold-chain infrastructure, but also due to the increased presence of a black middle and working class (Battersby and Peyton, 2014).

As one investor and expert in the sector put it, the competition between legacy retailers and their alliance with fintech operators is behind the proliferation of services that increasingly rely on motorcycle deliveries. In other words, while motorcycle taxis were already present in many African cities prior to ecommerce and platform deliveries, in Cape Town it has been innovation driven by existing legacy capital and retail supermarket success that has brought motorcycles into the urban landscape.

> *There is steep competition in the retail space – driven by the market share of these major retailers in South Africa.*
>
> ~ Startup pre-seed funder, 2022

Innovations in payment solutions

Using a pharmacy delivery app such as Dischem DeliverD, one notices a plethora of payment options. With an advanced banking system like South Africa, why are there so many different ways of paying with a debit or credit card? The answer is that, for more than a decade, startups and older financial institutions in Cape Town have been experimenting with services to bypass technical and legal constraints concerning financial payments. In this context, digital payment providers such as Yoco, iKhokha, and Ozow have been competing for a share of this market with innovative solutions. A corollary of the COVID-19 pandemic has been increasing digital behaviour by consumers and small businesses (merchants and users of mobility platforms), but the influx of early-stage venture capital into fintech and payment gateways had been gaining momentum for many years. Lately, as in the case of Ozow, they have been partnering with retailers such as Dis-Chem Pharmacies to increase the number of customers using their system.

> *Try as many solutions as possible and see what sticks through consumer behaviour.*
>
> ~ Startup pre-seed funder, 2022

One of the issues that fintech payment services seek to fix is the delay in real-time payments. In South Africa the bank transfer system requires a day or two and does not allow for real-time payments, which is significant in the on-demand delivery sector. The need for real-time payments is one of the main reasons for innovation in this space. In this way fintech payment system startups open up the market to as many people as possible, with network effects on both sides of the market. For the merchant, speed of payment, reliability, and processing and transactional costs are key reasons why they offer a suite of payment options.

Consumers have the option of paying whichever way is quickest and easiest for them to access. Different apps offer their own payment systems: for example, Uber Eats uses vouchers and gift cards and has an Uber Eats monthly subscription pass that can be used across the platform for Uber (e-hailing), Uber Eats, and Uber Connect. Bolt has a similar payment option across its platforms called Bolt Balance, which can be used as an e-wallet for Bolt Food, rides, and parcel delivery/pickup.

In this context, fintech, large retailers, and other last-mile delivery platforms find connections. These corporate alliances rely on motorcycles and their riders to bridge the last-mile gap. This is a significant insight as experts in the field cite the presumed small margins made in last-mile logistics, yet the proliferation of last-mile delivery platforms continues. The question bears, who is taking on the risk and is all return on investment speculative? As Checkers Sixty60 has proved through its 150% profit in 2021, it is not bearing the costs and instead making huge profits. This has led to the trend of legacy retailers like Pick n Pay, Dis-Chem Pharmacies, and Woolworths diversifying their markets through the motorcycle delivery sector. Fintech startups do the same by offering electronic funds transfer (EFT) and quick response (QR) options to retailers on their last-mile delivery apps.

Digital or cash?

Not all innovations at the interface of the fintech and platform delivery sectors are driven by century-old retail companies or fintech startups. Coupled with the need to offer cash-paying customers the option of delivery, local e-commerce business, PayCheap, sought to expand its enterprise through last-mile delivery. PayCheap's founder and CEO, Pascal Ojong, exhausted his options with the existing motorcycle delivery platforms in Cape Town.

> *We were actually looking for a service to offer cash-on-delivery. But there were very few companies offering that. We approached all the major guys and they were not really interested in doing cash-on-delivery because it's risky.*
>
> ~ Ojong, 2022

In March 2020, PayCheap launched its logistics arm, Udreo. Ojong explained how existing logistics companies like DHL and Aramex did not want to take on the risk of doing cash-on-delivery payment options. Recognising the gap, Udreo developed application programming interface (API) technologies to accommodate other e-commerce merchants also wanting to cater to cash-on-delivery customers. They saw the need to cater to customers who were not yet comfortable with or unable to make online payments.

> *Think about it … if you look at what actually accelerated Takealot's uptake and increased its market share, its cash-on-delivery.*
>
> ~ Ojong, 2022

Udreo is one of the local last-mile delivery platforms in Cape Town, offering a range of services to its customer base across the city, including the parts considered unsafe which other delivery platforms typically avoid.

> Udreo is a delivery platform that was born out of the need to offer customers the option to pay cash for online purchases, thus increasing market and client bases. It also operates as a software service through which other businesses can download the API and use Udreo's cash-on-delivery services for their needs. Udreo also offers GPS tracking of riders for collections and deliveries.

These examples show how ecommerce platforms using motorcycles have developed additional fintech solutions when they have not been directly available in the market. In doing so, they become fintech operations themselves, offering plug-and-play services to other retailers.

Acquiring motorcycles and added services

We have seen so far how the boom of motorcycle deliveries in Cape Town depended on legacy retail and existing fintech startups seeking new markets. Despite this, motorcycle riders remain almost invisible to the fintech sector. One interviewee from a payment solution company, for example, stated that his startup chose 'not to deal with the motorcycle riders'. Another informant from a tech delivery startup operating in Cape Town's townships mentioned 'we haven't considered using motorcycles for our delivery'. In other words, for historical reasons, using motorcycles is still considered too risky. We can speculate that one of the reasons might lie with the vast majority of riders being foreign nationals who require additional paperwork and permits to work in the city (Webster et al, 2021).

There is also little evidence of new fintech services in asset finance offering insurance designed to target the riders themselves. So far, motorcycle delivery platforms have taken an asset-light approach. In order to become a rider or independent contractor for delivery platforms, one of the requirements is to already own a motorcycle. Riders therefore have to rely on their own capital to secure a motorcycle. Some riders buy second-hand motorcycles through informal forums, Facebook, and WhatsApp groups. There are tight-knit forums where riders share information about work, where to get motorcycles, and who to rent them from.

Renting motorcycles in Cape Town

In the Cape Town context, there are some new entrants seeking to tap into the motorcycle market using rental financing schemes. For example, FlexClub, a fintech startup based in the Netherlands, formally partnered with Uber to provide drivers with rental cars, asset finance, and subscription. In July 2022, FlexClub announced it would expand its offerings to riders who work with delivery platforms such as Uber Eats, Mr D Food, Checkers Sixty60 and others by providing motorcycles to riders by way of a weekly subscription service costing ZAR 600–800 (USD 34–45) depending on the make of the motorcycle (Honda

or Bajaj).[1] The motorcycles are fitted with USB ports to allow drivers to charge their phones and stay connected to delivery platforms. A rear-mounted delivery box can also be rented from FlexClub for approximately ZAR 128 (USD 7) per week.

Lularides assists riders in acquiring motorcycles and e-bikes through free registration on their website, or sending a WhatsApp message or calling its office. Interested riders then attend an information session at Lularides' office in Parow (north of Cape Town) and pay an administration fee to help obtain a learner's license if the rider does not have one, assist with rider training, and acquire a motorcycle or e-bike on obtaining a full license. All of these services are included in the administration fee. However, the service is only available to South Africans, hence cutting out a significant part of the platform labour force as the majority of platform workers in the delivery sector are foreign nationals.

> Lularides is offers rider training and lessons for riders to obtain their licence. The payment arrangement between the rider and Lularides after the initial admission payment is not clear. However, riders are given a motorcycle after the successful acquisition of their motorcycle licence.

Although Mobile Macs is not based in Cape Town but in Johannesburg, it is an example of a company that assists individuals and businesses to rent motorcycles, scooters, and e-bikes. Mobile Macs offers various options to its clients, depending on their needs. Typically rentals start at around ZAR 91 (USD 5) a day to ZAR 600–800 (USD 34–45) a week. The Kauai app franchise in Cape Town rents two e-bikes, paying a fee of ZAR 1,500 (USD 84) a month per bike. Mobile Macs also offer added services to its client base including onsite services, and repairs and maintenance of fleets and individual bikes. It has also partnered with Uber Eats to offer riders the opportunity to rent refurbished bikes (Honda Elite) at ZAR 600 (USD 34) per week.

> Mobile Macs is a rental 'specialist' that offers motorcycles, scooters and e-bikes to businesses and individuals. They also offer added services to their clients such as repairs, a breakdown service and GPS tracking.

Table 1 summarises the financial models, services and rates offered by the experimental fintech services in Cape Town in December 2022.

Regulation

At the moment there are no specific laws governing fintech products and services in South Africa. However, the range of sector offerings fall within the ambit of key financial services regulatory bodies in South Africa, which are highly developed. The main regulatory bodies and government agencies that oversee fintech activities in South Africa are: the South African Reserve Bank (SARB), which regulates the payment industry; the Financial Sector Conduct Authority (FSCA), which ensures stability and transformation in financial markets, and promulgates relevant financial sector legislation; the Prudential Authority (PA), which regulates banks, insurers, and financial service providers with international markets; the National Credit Regulator (NCR), which advises government on relevant policies and legislation; and the Financial Intelligence Centre (FIC), which assists government in the identification of unlawful activities and upholding the integrity of South Africa's financial sector.

New frameworks and amendments to existing legislation to regulate the fintech sector are emerging. Amendments include the stronger enforcement of the Protection of Personal Information Act (POPI Act). As of March 2022, the Conduct of

[1] Exchange rate as at 4 April 2023: USD 1 = ZAR 17.92 (https://www.xe.com)

Table 1: Fintech services offered in Cape Town as of December 2022

Financial model	Added services	Rate	Example
Acquisition of Honda and Bajaj motorcycles through rent-to-own schemes	Riders can also rent containers	Motorcycle subscription: ZAR 600–800 (USD 34–45) per week Delivery box: ZAR 128 (USD 7) per week	FlexClub
Rented motorcycle and e-bikes through a once-off subscription fee	Assists riders in obtaining a motorcycle learner's license and rider training (At this point in time the services are only available to South Africans.)	Not disclosed	Lularides
Rented motorcycles, scooters and e-bikes	Branding, licensing, repairs and services, tracking and roadside assistance	ZAR 91 (USD 5) per day or ZAR 600–800 (USD 34–45) per week or ZAR 1,500 (USD 84) per month	Mobile Macs

Financial Institutions (CoFI) Bill was introduced to consolidate the conduct and standards of financial institutions. The Bill is aimed at protecting customers and promoting fair treatment of customers by supporting transparent and efficient financial markets. CoFI is predicted to transform South Africa's fintech sector with additional amendments to the Know Your Customer (KYC) regulatory regime. Regulation is also meant to support tech innovation.

In sum, regulatory bodies have not done specific work on the interface of fintech and motorcycle platforms given the reality that riders have not been the main targets of dedicated fintech services for credit or insurance products. As yet, there has not been any specific regulatory push to govern these kinds of transactions or practices.

Conclusion

Cape Town represents a unique context of innovation and experimentation for 'finteched' and platformed motorcycle mobility in last-mile logistics. The foundation of local government investment in broadband infrastructure by municipal and provincial organs of state, coupled with investment in cold storage infrastructure, cloud computing, deep sea cables, and an advanced financial and regulatory system, has laid solid ground for experiments of various levels of sophistication to take place. The mix of socio-economic issues and seemingly uncharted terrain serves as a testbed for mobility and fintech innovations and well-established supermarket retailers to expand their reach. Motorcycle platform mobility has led to a diversification of industries in existing urban economies such as supermarket on-demand delivery. Different businesses are also able to leverage one another's offerings resulting in various partnerships and corporate alliances. In an attempt to increase market share, startups in the motorcycle and fintech spaces are innovating their methods and payment options to increase the number of potential customers across economic classes. Although fintech innovations primarily occur in the payment options sector, in the case of Ozow and instant EFT, the asset finance and insurance offerings in fintech are only emerging experimentally. What remains clear is the need to crowdsource the existing rider network of individuals, primarily foreign nationals, who are more vulnerable and more exposed to risk than locals. If there are low margins to be made in last-mile delivery in the African context, who is really bearing the cost? And to whom is the risk being shifted? The question begs: how just are these practices, and who are the winners and losers?

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