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19 April 2024

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Published online: 30 Apr 2022.

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Fintech urbanism in the startup capital of Africa

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ABSTRACT
From innovations in mobile money to bookkeeping devices, the burgeoning of financial-technologies (fintech) in the Global South has been critiqued by scholars concerned with financialization, datafication, and recently, neo-coloniality. While sympathetic to these concerns, this paper argues for a more descriptive, ambivalent, and urban reading of the implications and stakes of this fintech boom. Using Cape Town as a case study, we explore how the city has become and positioned itself as a/the capital of fintech innovation in Africa. With two detailed vignettes that look respectively at the recent histories of business process offshoring in the city and at the cycles of experimentation that via Cape Town bring fintech to the rest of the continent, we make three arguments. First, that the urban state has been instrumental in shaping how fintech lands in cities and how the infrastructures which support it develop. Second, that diverse cultural economies of experimentation engender the worlding practices through which local fintech ecosystems operate. Overall, we suggest that paying attention to these different ways in which fintech is enabled and mobilized by the urban state opens a necessary research agenda into the ambivalence of financial innovation in Africa.

Introduction

In 2018, investment in tech companies in Africa crossed the billion-dollar threshold. A year later, venture capital (VC) directed to African startups almost doubled, reaching USD 2 billion (Partech Partners 2020). According to the most recent *Tech Venture Capital report* (Partech Partners 2021), Africa is the fastest growing VC region in the world. This capital rush is driven by startup companies that operate in the so-called 'fintech' sector. A portmanteau of 'financial' and 'technology,' the word 'fintech' captures a diverse array of technologies that innovate the delivery, management and outreach of financial services such as credit and insurance. Although fintech, and the associated development discourses of financial inclusion[1], is constituted through a much wider, deeper, and more ambivalent set of processes than merely capitalization of startup firms by VC, these statistics are nonetheless revealing, as they illuminate what the capital market recognizes as the most promising high-growth companies in Africa.

Current social science scholarship on fintech, according to Langley and Leyshon (2021), has addressed two interrelated aspects of its emergence: the financialization of daily life through various forms of 'datafication' enabled by digital technology (e.g. O'Dwyer 2019); and the infrastructural configurations of fintech, which extend beyond the domain of innovative or disruptive technology,

into legacy financial architectures and mundane technical systems (e.g. Bernards and Campbell-Verduyn 2019). These two strands of scholarship map onto Africa-based research with two kinds of foci: a 'frontierist' critique, charting how fintech enables new forms of enclosure and accumulation in African economies, often along enduring colonial traces (Bernards 2022); and a more relational 'science and technology' (STS)-inspired perspective, exploring the diversity and the hybridity of the infrastructures enrolled in the functioning of Africa's new financial systems.[2]

In this essay, we build on this second perspective and chart the making of a fintech ecosystem in a city – Cape Town – that has emerged as one of the key startup hubs of Africa. We ask: how has Cape Town become a central node in the cultural and economic circuits of fintech in Africa? Or more bluntly, what makes Cape Town one of the fintech capitals of Africa[3]? Our aim is to complement existing accounts of African fintech (e.g. Bernards 2019) with a perspective attentive to the role of the *urban state* in producing both hybrid digital infrastructure and the urbanization of cycles of experimentation and consolidation upon which financial technologies rely (Langley and Leyshon 2021). To do so, we bring into dialogue scholarship on urban statecraft in (South) Africa with the notions of 'startup urbanism' (Rossi and Di Bella 2017), and thus develop an STS-inspired analysis of the urban infrastructure configurations that support a 'startup city' like Cape Town in producing, experimenting with, and worlding[4] fintech. In particular, we take a cue from Mavhunga's invitation (2017) to consider how technology is produced and tested *in* Africa. This pushes our inquiry beyond a critique of the neocolonial and capitalist facets of financial inclusion (Mouton and Burns 2021) and allows us to foreground the role of the urban state in the cultural economies of African fintech.

To substantiate this contribution, we craft empirical vignettes articulating two core processes that have shaped and continue to configure Cape Town's simultaneous grounding and worlding in Africa's fintech: the development of cloud and broadband infrastructure; and the continental reach of acceleration programmes and Africa-focussed ICT4D (ICT for development) startups which use Cape Town both as a base and as a testbed to latch onto wider African economic networks.

Methodologically, these vignettes reflect a synthesis of several projects undertaken between 2015 and 2019, involving interviews with coworking space hosts, incubator and accelerator managers, venture capitalists, social enterprise startup founders, programmers and coders in the sector, and ethnographic work at tech conferences, hackathons, business schools, and workshops. This work also reflects informal conversations with experts involved in various aspects of the finance and technology interface, for example, people working at Cape Town's many call centres, startups, and social enterprises. These sector-tracking activities were complemented by reviewing online policy documentation (both on open repositories and on government intranets), blogs and posts related to the tech sector, news articles, and promotional material for various companies.

The empirical vignettes simultaneously speak to the three core arguments of this article. First, that the fintech phenomenon, and startup economies more broadly, are not simply happening *to* cities, but are deliberate and laborious creative processes, in which ambivalent infrastructures are engendered to multiple economic and political agendas of the urban state. Using the entwined histories of Amazon's cloud computing and the city business process offshoring sector, we make a case for not seeing Cape Town, either city or metropolitan government, simply as a recipient of fintech urbanism as a 'startup city' model from elsewhere. Rather, the latter should be read as an ambivalent infrastructural project of the local developmental state's attempt at redressing economic segregation while seeking to attract global and local capital through the possibilities of labour offshoring.

The second argument of this article is that, particularly when looking at some of the instantiations of startup urbanism – such as acceleration programmes and urban fintech testbeds – both the design and experimentation of these technologies appear to enrol ambivalent desires and diverse worlding practices. By 'de-scripting' (Akrich 1992) some of the processes of what we call 'Made in Cape Town for Africa,' the second vignette of the essay shows the multiplicity of fintech technologies that from the city operate at continental scales. We recognize that some of the stories that we

recount are not just about fintech startups, but may apply to the city's tech ecosystems more broadly. Moreover, fintech innovation depends on additional urban configurations, such as retail and migrant networks (Cirolia *et al.* 2022), which we only briefly mention in this paper. However, not only did our informants specifically use the fintech sector as a litmus test of broader trends in the local tech ecosystem, including the boom of the cloud industry in South Africa which we discuss later, empirical data also shows that in the African context the majority of tech investments has been indeed directed towards fintech startups (e.g. Partech Partner 2021).

Finally, in foregrounding the role of these experimental startups, and how their continental expansion has been supported by the local urban state, our paper makes the case for moving beyond the binaries of, on the one hand, unbridled techno-optimism and, on the other, cynical techno-pessimism that sees fintech users, and, we argue, also fintech producers, as pawns of global capitalism. This is not just a case for re-stating the complexity of the fintech phenomenon in Africa, but also for recognizing the diverse infrastructural agencies and experimental practices that may orient and align technological innovation to emancipatory intentions.

Startup urbanism and fintech infrastructure in Africa

To ground this work, we bring into dialogue scholarship on urban statecraft in (South) Africa, which we cover in section 2.1, with the notions of 'startup urbanism' (Rossi and Di Bella 2017), 'urban entrepreneurialism 2.0' (Rossi and Wang 2020), or the 'startup city' (McNeill 2017, Zukin 2020a, 2021), covered in 2.2. In different but related ways, this literature points to the importance of understanding the mutual constitution of technological infrastructure and the urban state.

Urban statecraft: infrastructure and state formation at the city scale in Africa

Beyond the more apparent role played by urban authorities in the delivery of infrastructure in African cities (Smit and Pieterse 2014, Pieterse 2019, Marrengane 2021), significant scholarship has addressed how urban infrastructure is also enrolled in state-formation at the urban scale (Cupers and Meier 2020; Cirolia and Harber 2021). In other words, infrastructure – such as ICT or energy – can be seen as a site of urban statecraft. Croese (2018), for example, charts how the Dubai-style waterfront developed for the Bay of Luanda operated to consolidate and perform state power in Angola's capital city. Terrefe (2020) shows us how mega-transport projects in Addis Ababa provide the material and discursive context to extend political party power in Ethiopia's capital city. Doherty (2019), reflecting on Kampala, maps how the municipal authority uses garbage collection and beautification to understand itself.

The urban state, as these scholars have argued, is not conflatable with local governments or municipalities. In the African context, where conflicted and partial decentralization (Resnick 2021) has left urban states fractured, the state is made through and of its relations. National sectoral departments, regional authorities (such as Provinces, in the case of South Africa), corporatized utility companies, and many other arms (and maybe legs) of the state compete for power over urban spaces (Cirolia and Harber 2021). As such, the making of the urban state can be found at the intersections of these multiple authorities and scales of territorial mandates and infrastructural materializations. In Cape Town, compared to other cities in Sub-Saharan Africa, the local government has considerable control over key aspects of urban investment; however, this does not dilute the relational reality of urban statecraft (Palmer *et al.* 2017, Cirolia and Robbins 2021).

While urban statecraft is a relatively new discourse in the (South) African urban studies debates (as it is within urban studies, see Pike *et al.* 2019), there is a long lineage of scholarship that explores the often contradictory tendencies within the South African state between being developmental and entrepreneurial (Parnell and Pieterse 2010). Undeniably, the design of multi-level government in South Africa, and the many tools and instruments granted to sub-national governments (e.g. local and provincial spheres) to realize the progressive post-apartheid promise, reflect a

commitment unprecedented on the continent.[5] However, most of these important developmental efforts have fallen short of delivering on their economic and spatial justice intent. Institutionalized through clunky bureaucracies and enmeshed with debilitating political battles, Cape Town remains a city fraught with challenges. Some of these challenges have been captured by scholars concerned with the entrepreneurial and neo-liberal turn in urban governance at large. In the face of austerity and fiscal stress, and underpinned by implicit racist and classist legacies, larger South African municipalities have in fact pursued entrepreneurial programmes at the local and global level. City-branding exercises which promote Cape Town as a creative-city, a tech-city, and a city which is well run with clean audits and clean streets, are cases in point of this neoliberal restructuring of urban politics (McDonald 2012). Positioning itself to compete with other cities in South Africa and in the world for global investment, access to finance and various other accolades, the urban state often operates at the expense of more ambitious projects of redistribution and transformation.

While it is not the purpose of this paper to establish whether Cape Town's urban governance is either entrepreneurial or developmental in nature, the blossoming of a local fintech ecosystem (and a tech startup scene more broadly), we argue in what follows, needs to be understood in relation to the contradictory impulses and expressions of local statecraft (Parnell and Robinson 2012). It is with this in mind that we turn to the question of startup urbanisms – a mode of urban governance sitting at the intersection of developmental and entrepreneurial urbanism, public and private forms of capitalization, and many different infrastructural layers.

Startup urbanism and silicon savannahs

Before the global financial crisis of 2008–2009, the clustering of technological companies was rarely seen as an urban phenomenon (Zukin 2020a). This has changed in recent years, with cities playing an increasingly important role for the tech economy. Sociologist Sharon Zukin links this shift to what she describes as the 'innovation complex' – an emergent infrastructural matrix of buildings, research labs, coworking spaces, data infrastructures, hackathons, lobbying groups, universities, urban development agencies and economic policies, brought together by a discourse that has been promoting technological entrepreneurship as a solution for value-creation in cities hit by financial stress and deindustrialization (Zukin 2020b).

The policies supporting the progressive urbanization of the 'innovation complex' have been variously termed as 'startup urbanism' (Rossi and Di Bella 2017), 'urban entrepreneurialism 2.0' (Rossi and Wang 2020), and more broadly as the 'startup city' phenomenon (McNeill 2017, Levenda and Tretter 2020) – with the argument that this trend ultimately represent a neo-liberal, neo-developmental reinvention of older forms of entrepreneurial urbanism. In other words, startup urbanism replicates a long-standing alliance between urban statecraft and capitalist interests, with the aim of forging new, high-tech forms of accumulation. For reasons of space, we cannot go into the details of and give justice to this debate. What is relevant for this paper is the fact that scholars in this field recognize that startup urbanism, while aligned with the entrepreneurialization of city governance, and with competition to attract scarce forms of capital, such as VC, is also a variegated phenomenon with many fault lines and in which tangible infrastructures are important sites of urban statecraft, as shown by Zukin (2021) through the parable of New York's tech ecosystem.

Yet, while New York is a paradigmatic case of 'planetary Silicon Valley' (Zukin 2021), it is hardly the only city to have engineered an 'innovation complex'. Thanks to performative practices such as place branding (Nathan et al. 2019) and inward identity building (Gill and Larson 2014), Silicon cities have proliferated across the world, including in Africa, where Cape Town's Silicon Cape, Nairobi's Silicon Savannah, and Lagos's Yaba Valley (or Silicon Lagoon) are among the best-known tech clusters. These cities, with few exceptions, have not been considered in the startup city debate, yet they show a growing concentration of infrastructural investment, tech companies and VC directed to them. As acknowledged above, VC is a significant crucible of startup urbanism:

not only is it a decidedly urban phenomenon (Florida and Mellander 2016, Pan *et al.* 2016), it also foregrounds what investors see as the most promising, high-growth areas of technological innovation (because of its high-risk/high-return nature).

Although the slice of global VC directed to Africa remains small, VC is expanding at a faster rate in urban Africa than anywhere else in the world, particularly for the fintech sector (Partech Partners 2021). From mobile money, to bookkeeping, to blockchain-based, sharia-compliant credit services, to remittance mobile-phone apps and financial hardware for informal traders, a few African cities have become both testbeds and generators of these technologies. This centrality of the urban, we argue, is an underexplored aspect of the fintech revolution in Africa, as most scholarship that addresses the political economy of tech-mediated financial inclusion in the Global South focuses on the financialization of development (e.g. Gabor and Brooks 2017, Mader 2018, Bernards 2019), or, conversely, on the cultural-economic diversity of the drivers that shape new financial technologies (e.g. Maurer 2012).

It is for this reason that in this essay we consider startup urbanism as an exemplary site of the contradictions of the urban state in Africa, whereby developmental and entrepreneurial rationalities concurrently shape the cultural economies of financial innovation. In doing so, we respond to the call made by scholars of the urban state to pay more detailed attention to the infrastructural formations that underpin the cycles of experimentation and consolidation through which certain urban economies take hold as matters of local statecraft. We therefore embrace a technopolitical sensibility to the study of urban infrastructure, a perspective in which technical systems appear in their heterogeneity (Furlong 2014, McFarlane *et al.* 2017, Amin and Cirolia 2018), and in their inherent ambivalence (Von Schnitzler 2016), operating in what Vally calls 'a plural terrain of politics' (2016, p. 996). It goes without saying that these insights apply not just to traditional urban technical systems – water, sanitation, energy and the likes – but extend to seemingly but not less material digital and media ecosystems, which too emerge as a combination of diverse, heterogeneous infrastructures (Larkin 2013; Guma and Monstadt 2021, Aurigi and Odendaal 2021).

However, as Mavhunga has pointed out (2017), in the study of digital infrastructure and more broadly in the study of science and technology in Africa, there has been a tendency to focus on how people or places 'receive' new tech as part of colonial and neocolonial projects, and appropriate it in ambivalent ways (e.g. Burrell 2012, Breckenridge 2014, Hecht 2014). But technical systems are also made and remade in Africa. In this sense, we are inspired by Mavhunga's claim that technology is constituted in Africa too, and that ambivalence should not just be located in the user side, but also in the diverse, overlapping – not just technical – rationalities that forge infrastructure from the designer or policy side. In many ways, such an approach echoes a long-standing STS mode of reading technology, which Akrich (1992) famously described as 'de-scription'. Such epistemic strategy involves looking at the many narratives, desires, and purposes that are materially inscribed in technologies. Obviously, this strategy does not need to be limited to single artefacts, but usefully extends to infrastructural systems, which too can be tentatively de-scripted:

> If we are interested in technical objects and not in chimerae, we have to go back and forth continually between the designer and the user … . *Between the world inscribed in the object* and *the world described by its displacement* … the notion of de-scription […] is the inventory and analysis of the mechanisms that allow the relation between a form and meaning constituted by and constitutive of the technical object to come into being. (Akrich 1992, pp. 208–209)

In what follows, we articulate this inventorying analytical strategy using the startup city as a vantage point – with two possible de-scriptions of how Cape Town operates as a fintech capital in the African continent – to map both the role of the urban state and its worlding experiments in the making of fintech.

Two de-scriptions of fintech urbanism in Cape Town

Of the many, emerging African 'silicon locales' hosting fintech companies, capital and startups, the case of our paper is Cape Town, South Africa's second-largest city and legislative capital. Located on

the south-westernmost peninsula of the African continent, and scarred by a long, unended history of imperial circulations, forced removal, and market-led displacement, Cape Town remains today a very unequal city, with a diversity of urban typologies mapping onto older patterns of racial segregation: from colonial homesteads to glitzy waterfront condominiums attracting global investment, to informal shack settlements, to older townships developed to realize urban apartheid. The coexistence of such different urban spaces has been the object of planning and economic development policies, but it has also engendered experiments with technological solutions that seek to bridge these urban divides (Pollio 2020b). As we will explore below, the fact that Cape Town boasts one of, if not the, largest fintech ecosystems in Africa is contingent on both the city's highly developed financial infrastructure and the possibility of using areas of poverty to test and consolidate fintech solutions that can then be exported across the continent.

An early entrant in Africa's digital economy (Pollio 2020a), Cape Town was the first of only three African cities to be featured in the Startup Genome survey, the most important global ranking of startup cities (McNeill 2017). At the time of the ranking, Startup Genome reported that Cape Town had the largest number of tech startups in Africa (Startup Genome 2017). This narrative was later adopted by the city government, the Cape Town Metropolitan Municipality (the City), and by the Western Cape provincial government (the Province), which produced a large volume of promotional materials to showcase Cape Town's primacy in a series of innovative sectors, particularly fintech, edtech and enterprise software.

One of the reasons for Cape Town's ascendancy as a startup city, as argued elsewhere (Pollio 2020b), was the success of Cape Town's business process offshoring industry (BPO), from the late 90s onwards, built from the alliance between the private sector and the urban state. This is what we explore in the first vignette, charting how the recent history of cloud computing shows the incidental and yet crucial role that Cape Town played in generating the infrastructural backbone of its fintech ecosystem.

The second vignette is more specifically about fintech startups that have chosen Cape Town as their home. Our focus is on what we describe as the 'made in Cape Town for Africa': processes through which the local fintech sector operates at a regional scale that goes much beyond the city and the country. In fact, many of the financial inclusion technologies developed in Cape Town, while tested in the city's poorest townships, only become economically viable when expanded to the rest of the continent. The processes which we highlight in the vignette include remittance flows, the experimentation of fintech technologies using Cape Town as a testbed, and finally the acceleration programmes through which early-stage capital (including venture capital) is funnelled to fintech companies that through Cape Town operate across the continent.

The cloud, BPO and broadband infrastructure

While the origins of cloud computing cannot be ascribed to a single location or company (Hu 2015), the history of commercial cloud services is inextricable from Amazon's evolution from an online bookstore to one of the largest technology companies in the world. In the early 2000s, Amazon was just an online retailer that had survived the tech burst operating at very low margins. By the late 2000s, however, the company had become the world's most important provider of cloud computing services, with its subsidiary AWS granting other companies and individual customers the possibility to offshore computing tasks that would be too complex, too 'slow,' or too expensive on a single computer or server. As of 2021, AWS is still the world's largest commercial cloud, its market surpassing the combined share of its two main competitors Microsoft and Google (SRG 2021). Underpinning AWS services is the Elastic Compute Cloud (EC2), a software architecture which allows users to rely on a virtual cluster of computers, for both storage and computing.

Launched in 2006, EC2 was the brainchild of Benjamin Black's and Amazon's VP of engineering Chris Pinkham's, who in 2003 had presented a co-authored concept paper to Amazon's founder Jeff Bezos, laying out the possibility of using and selling virtual servers as a business (Black, n.d.). It is

then that the story of Amazon's AWS had crossed the oceans between Seattle and Cape Town. Chris Pinkham was not new to the technology ecosystem of the latter city, where he had moved as a child and then attended university. In the early 90s, while South Africa was reemerging from years of isolation under the apartheid regime, Pinkham had launched *Internet Africa*, South Africa's first-ever Internet service provider (ISP), defying the telcom monopoly that still existed at the time. In fact, *Internet Africa* and other Cape Town-based ISPs became the vanguard of the fight for broadband liberalization that marked the transition from apartheid to a liberal democracy in the telecommunication space (Horwitz 2001). Over the decades that followed, these pioneers of the South African Internet advocated for increased broadband infrastructure and cheaper connectivity prices (Pollio 2020a). After selling Internet Africa to MTN, then a small company poised to evolve into Africa's largest telcom, Pinkham worked as Amazon's VP of engineering for several years and then decided to return to Cape Town for family reasons.[6] In order not to lose Pinkham's talent, Bezos allowed him to form a team that would work on the cloud concept he had presented earlier on, and opened an Amazon Development Centre in Cape Town.[7]

As a location, Cape Town was favoured by three important colonial legacies: the English language, a lower labour cost, and a top-notch university with a great engineering programme, as attested by many University of Cape Town graduates who had by then become famous Silicon Valley 'argonauts' (Saxenian 2007). Among them were a few members of the so-called Paypal Mafia, and the co-creator of the world's first commercial web browser, Willem van Biljon, who also became part of the Cape Town's team that developed EC2. Later on, Pinkham and van Biljon went on to found another cloud startup, Benguela. With a name inspired by the cold ocean current that from Angola reaches the shores of Cape Town, Benguela replicated the same offshored geography that Pinkham and van Biljon had learnt from Amazon: headquarters in Silicon Valley, where venture capital was raised[8], and a development centre in Cape Town, where its software engineers launched an alternative cloud service to EC2. Ephemeral like many startups can be, Benguela was soon sold to Oracle, which used it as a blueprint for its own cloud.

While this short corporate genealogy of Amazon's EC2 foregrounds the coloniality of digital technologies in Cape Town, and the role that big tech companies play in these processes, we argue that Amazon's presence in the city should be also read against the backdrop of the urban state's desire to be a hub for tech innovation, particularly through its support for the BPO sector. In fact, by the time Amazon opened its offshored development centre in Cape Town, the city had already become a destination for business process outsourcing, and several call centres of global corporations – from Lufthansa to Shell – had already opened their doors to hundreds of customer service operators.

Although the accomplishment of EC2, and the successes of other software companies developed in Cape Town, such as Verisign and Yola, were told as stories of unexpected, off-the-map technological innovation, the city had been busy building the infrastructural foundation to become a global BPO destination. In a series of moves that involved the municipal, provincial government, and national government (for example the liberalization of VOIP services in 2005), support for BPO had been gradually enshrined as a key developmental mandate of local economic policy. The rationale was twofold: BPO would easily yield decent-paying customer-service jobs in a region battling with extremely high unemployment rates, simultaneously generating opportunities for entrepreneurs to start up their own BPOs in more complex areas, such as telemedicine, legal and IT services.

Incidentally, voice-service BPOs relied on similar colonial heritages that made Amazon's move to Cape Town smooth. Not only was the city conveniently located in relation to central time zones, so-called 'accent neutrality' was too cited as one of the competitive advantages for preferring South African rather than Indian voice services, despite the slightly higher labour cost (e.g. Mills 2006). Leveraging these seemingly natural advantages, the local government formed an alliance with the private sector, and against the national government-controlled Telkom's monopoly (Pollio 2020a). One of the key constraints for BPO companies was indeed the high cost of communication (for voice and data). Both liberalization and infrastructure investment were therefore advocated by

the various representative organizations that were formed as BPO lobbies and by local government bodies. Eventually, fledgling steps taken towards infrastructure availability showed exceptional results. Between 2003 and 2006, the year in which Amazon announced its EC2, the Cape's jobs in the BPO sector had more than doubled (Mills 2006).

During this time, the local government and the BPO industry kept asking a series of infrastructural questions: who should manage connectivity infrastructure and how? Could the broadband of submarine cables be allocated differently, between national and provincial levels? Could non-market, developmental tariffs be applied to BPO that created enough jobs? Could a local government entity own a telecommunication network? These questions of urban state-making were addressed implicitly and explicitly in numerous reports and white papers that municipal and provincial authorities published in those years, showing how these institutions saw ICT as a testbed to local developmental policies. Supporting infrastructures obviously extended beyond the physical network of connectivity, with both the city and the province providing government-owned buildings to BPO firms at subsidized rates, but it was the incremental expansion of broadband that became the backbone of the city's double regional advantage as a BPO hub and as Africa's startup capital.

Many of the underlying factors shaping the BPO drive to Cape Town were exogenous, but failing to acknowledge the active role of the City and the Province is a mistake. Policy documents produced by various levels of government between the late 90s and the mid-2010s show that broadband infrastructure, as a matter of developmental statecraft, was seen as an investment that would build the local government's capacity to foster economic growth through what was then described as the 'knowledge economy'. While the City and Province were obviously hoping to attract sophisticated offshored services in due course, and Amazon's development centre became a tangible example of their success, their primary objective had been to foster the creation of decent paying jobs for a less educated workforce (author 2020). Still recently, the municipal agency in charge proudly reports that half of the jobs created in the city in 2018 were in the BPO business.[9]

Moving forward, the City intends to continue to direct and even control investment. As new undersea cables are poised to shore in the city in the coming years, multiplying the landscape of providers that connect southern Africa to the Internet, the municipality has become an infrastructure operator itself, rolling out one of the world's first city-owned fibre networks, which can be used and aligned to specific economic and city-planning strategies. In the meanwhile, the city already offers services such as data centre co-location in their switching centres, and other cloud services that streamline the connection between its own and other private network infrastructures. To harmonize and outwardly promote these investments, a platform called *Invest Cape Town* has been created. Through this platform, once again, the City is explicitly linking the BPO and the tech sectors as a matter of policy. Having become a cloud infrastructure operator itself, the City of Cape Town can now use cloud pricing and locations to orient job creation and pursue its developmental mandate, using the startup city as an overarching narrative that frames both soft and hard policies. This platform is also linked to the provincial authority for trade and tourism (WESGRO), which operates as a *trait-d'union* between the city and the national government, for example lobbying for the enactment of a startup visa programme that would benefit Cape Town as a destination for remote workers and startup founders (personal conversation, Nov 2019).

What we begin to see, with these recent infrastructural histories, is that the development of broadband has been a variegated process[10], blending the personal biographies of Silicon Valley returnees, 'big Tech', the BPO sector, the early commercialization and privatization of the internet, and an attempt by the city's government at using digital infrastructure for local development. One of these tangible infrastructure of the startup city – the fibre-optic broadband network – was also a site for the urban state to see itself as much more than a regulator and experiment with infrastructure-driven economic and job growth.

While broadband laid the literal groundwork for Cape Town's purported primacy in the startup economy, obviously this is not the sole possible explanation of Cape Town's regional advantage in fintech, as the startup economy extends much beyond the fintech ecosystem itself. However, it has

been in the fintech industry that Cape Town's most recent successful startups have expanded to the rest of South Africa and to other countries: examples such as Jumo (perhaps Africa's most famous fintech company – see Langley and Leyshon 2022), Nomanini, Yoco and Snapscan are cases in point. These extremely successful companies rely on existing broadband infrastructure, concurrently creating the demand for additional investment, particularly in cloud services. Circling back to Amazon, in 2020 AWS launched its first African cloud, with a couple of data farms that went live in Cape Town in the early days of the Covid-19 pandemic, almost two decades after opening their first development hub[11] in the city. Having a local cloud node means that fintech startups like Jumo, which relies on outsourced computing capacities, can now access better services and with less latency. As we move to the next section, we begin again with Jumo, a company that from Cape Town enables far-away financial transactions across many other countries in the continent and beyond.

Made in Cape Town for Africa

Having started as a financial inclusion startup, providing a mobile wallet to unbanked people with no collateral, Jumo is now a cloud-powered fintech company with a footprint across the continent. Operating from the hilly, leafy Cape Town suburb of Gardens, Jumo's headquarters sit just across the road from Amazon's development centre, overlooking Cape Town's harbour. Seemingly incidental connections between Jumo and Amazon do not end there. Chris Pinkham, who was once involved in the development of Amazon's EC2, became a member of Jumo's board in 2017. In an interview at the time, he reflected on the startup and its relation to cloud computing available in the city:

> They're a very cloud-centric company. They rely very heavily on the public cloud services available to them. Philosophically, it works very well for an emerging market company who is situated very remote from the technology centres of the world. To have access to these world-class infrastructure facilities.[12]

However, although these financial innovations are emanating from Cape Town, where Jumo is located, the social and economic issues of financial access that the company wishes to solve are problems across the continent, with limited (or quite specific) applicability to the South African urban context. Many financial inclusion innovations aim to fix broken or limited banking and borrowing systems, evident in much of Africa.

In contrast, Cape Town, like South Africa overall, has strong banking infrastructure, with higher levels of formal access than most places on the continent. This reflects the highly regulated domain of South African financial institutions as legacy systems, as well as the strong push in the post-apartheid period to address financial inclusion (James 2014). There has even been innovation in the conventional banking sector confronting the often high cost of banking for the poor; Capitec Bank is now one of the leading banks serving low-income clients, minimizing banking fees by focusing on ATMs, linking with supermarkets, and using online platforms. While many of these innovations have been critiqued for producing financialized subjects, steeped in costly debt (Torkelson 2021), big banks' penetration has had discernible impacts. For this reason, fintech innovations designed for unbanked customers, such as mobile money and e-wallets like M-Pesa, have struggled to find a market in South Africa (Finmark Trust 2017, Mothobi and Grzybowski 2017).

Given how financially unique Cape Town is in the context of Africa, then, how do financial-technology companies place themselves in Cape Town when they want to serve the continent more broadly? This question needs not present itself with the reductionist tendency to question the 'African-ness' of Cape Town, or replicate the problematic trope of South African exceptionalism. Instead, it begs us to understand how Cape Town is coming to the fintech 'world' through relational, specific, and multi-geographical practices of innovation. Below, we identify three ways in which this worlding takes place. First, we look at innovations which link Cape Town to the continent; second, we look at innovations which are first tested in Cape Town's informal areas, before

being mobilized for other African urban contexts; and finally we look at how Cape Town hosts Panafrican accelerator programmes which train fintech entrepreneurs and connect them to larger capital ecosystems.

Innovations that connect

Remittances are an interesting example of fintech innovations aiming to link Cape Town to the continent, through flows of money. In 2016, 43% of the remittances received within sub-Saharan Africa came from other African countries, of which South Africa was a dominant sender (CENFRI 2018) despite the fact that 'intra-Africa remittance corridors have the highest cost of transmitting remittances' (Mudungwe 2017, p. 12). It is also widely acknowledged that the legacy systems and technologies on which formal transnational transactions rest are now outdated (Gomber *et al.* 2018). So too is the Western Union model, which has a vast and diffuse franchise in almost every African country, leading to high fixed costs. These problems have been met with a siliconvalleyan 'disruption' mentality (Geiger 2020); fintech startups are driving costs down and challenging existing financial patterns. In Cape Town, MamaMoney, Mukuru, and similar companies, make their money on very small margins, with a lean and flexible approach. They deploy partnerships between banks, retailers and cell phone companies in strategic ways to reduce costs through competition and agility.

As the founder of MamaMoney explained:

> We are consciously a partnership-based model … that's our DNA. We don't want to own the entire value chain … because we've been going for a while, we have three partners in [each African] country we work with. So we say to them listen, you can't charge us this much because otherwise we'll direct the traffic elsewhere .. we create some competition (interview, June 2020, Woodstock, Cape Town)

These remittance startups are a core component of the fintech innovation systems. Not only do they disrupt legacy financial systems for trans-national money transfer, they create new and diverse digital and financial pathways between Cape Town and the rest of the continent.

Testbed experimentation

In this context, Cape Town has not only positioned itself as a fintech leader by developing unique financial technologies which originate financial flows, but also as a centre where fintech innovation is tested. These tests provide proof of concept to unlock funding for continental expansion. Like other South African urban centres, the city is marked by notoriously high levels of inequality. As previously discussed, the long histories of colonization, apartheid, and post-apartheid investments have resulted in a highly divided urban fabric. While the city centre – Waterfront and surrounds – are globally renowned holiday destinations, the peripheral low-income suburbs reflect a very different set of experiences and challenges. Cape Town's so-called townships and informal settlements are used as real-life experimental microworld for fintech ideas.

A good example of these testing practices is the corporate profile of Spaz.up[13], a company whose founder and CEO we interviewed in late 2019, in the fashionably gritty townhouse that hosted a French government-sponsored technology incubator for social startups. Spaz.up developed a mobile phone platform that allowed *spaza* shops (informal convenience stores) to compare and buy wholesale from various providers. They then added a logistic management system, which was also tested in Cape Town's townships. By the time of the interview, Spaz.up had more than 5000 spaza shops registered on the app, an exponential growth rate of deals, and, more importantly, they were ready to become a fintech operation, thanks to the cloud of financial data recorded in each transaction. In other words, the CEO explained, end customers would be able to access credit services based on their track record of weekly and monthly expenses (interview, Nov 2019).

Spaz.up, while currently located only in South Africa, hopes to expand their offering in other countries. As the CEO revealed during the interview, the growth of the company, and its capacity to use Cape Town's townships as testbeds of future expansion plans are core to the longer term

vision. Perhaps anecdotally, this fintech company is an example of the many offerings that are first tested in Cape Town with hopes of global expansion. The rapid growth to date of Spaz.up had depended on the role that acceleration programmes had played in the early phases of Spaz.up. These programmes, the CEO explained, had offered more than just seed capital, office space, cloud computing and other in-kind services: they had provided Spaz.up with a network of other fintech companies, including more established ones which enabled various forms of mentorship, and with the financial leverage to actually conduct the testing phase in the townships. It is in these networking operations that the role of the urban state shores up again.

Accelerator programmes

Accelerator programmes are indeed another example that links Africa-wide circulations of fintech ideas, people and capital to specific alliances between the local tech sector and the urban state in Cape Town. To give a sense of the prominence of these initiatives, at the end of 2020 the Silicon Cape organization surveyed more than 25 accelerators and incubators that had recently been active in the city. Startups like Spaz.up or MamaMoney would normally attend more than one of the programmes, in their first, very mobile years, gaining the possibility to survive in conditions of early market-failure, as well as access to mentorship and testing opportunities across town. For example, the oldest technology incubator in Africa – the Barn – features two separate buildings, with their respective initiatives: one in a converted warehouse in the up-and-coming Woodstock, a suburb that functions as Cape Town's creative hub, and one in Khayelitsha, one of the city's largest and poorest township, in a building that, a few years ago, became the first to be reached by an underground fibre cable that brought fast connectivity beyond the borders of rich suburbs (author 2019).

The Barn is run by CiTi, a not-for-profit public-private partnership which exemplifies Cape Town's capacity to see itself as an international startup hub. Not only is it a partnership of different governmental institutions, including the City, the Province and other government departments, such as the Job Fund, it also operates to align government and the private sector around specific areas of innovation that promote the city's competitive edges in the use of digital technology for social inclusion. Among CiTi's programmes operating at a continental scale, fintech is a central focus, through the Fintech Open Innovation Cluster, whose first member in 2015 became the Barclays Accelerator. A bank-sponsored programme open to fintech startups across the continent, the Barclays incubator brought Techstars, the world's largest, most famous franchise accelerator, to Cape Town, a first in Africa, and used it as a base to promote financial innovation around the rest of the region. Not long after, the World Bank followed suit, with its XL Accelerator in 2017. With a similar structure, XL featured a panafrican selection of promising startups, and a training camp in Cape Town, where the winning teams met the VC funds that had partnered with the World Bank.[14] XL is perhaps a unique case, because of the multilateral involvement of the World Bank, but it is one among many similar accelerators (Pollio 2022), which engineer the 'made in Cape town for Africa' fintech pipelines.

The case of CiTi showcases how an initiative of the local urban state has operated as a blueprint for these accelerated pipelines of fintech development, by conjoining VCs, financial corporations, blossoming startups, global tech companies like Amazon and Google, and support from different levels of government, from the provincial chapter of the national job fund to sector-specific authorities. VC funds use these accelerators to de-risk early-stage investment. Banks and insurance companies, as corporate sponsors, get first-hand access to fintech innovation that they may purchase.

Through these accelerator programmes, African startups get knowledge, mentorship, networks, and the possibility to meet venture capitalists, whom, without travelling to Cape Town, would have been hard to access. Given the availability of specialized legal services, fintech startups also often use the city as a base for early incorporation, aided by province- and city-run agencies such as WESGRO and InvestinCT. These and other local agencies are, in fact, sponsors or cosponsors of

many of these accelerators. A different form of sponsorship, on the other hand, comes from companies like Amazon, which offers fintech startups free trials of their cloud services through a mechanism that nurtures the next generation of cloud users across Africa. As fintech companies grow, so does their need for cloud infrastructure, especially for fast computing for data analytics and additional security products to protect their customers. Throughout these pipelines, the alliance between the urban state and the private sector is forged as a matter of statecraft, one where worlding the city's edge as a fintech capital in Africa orients the way in which Cape Town 'sees' itself and its infrastructures in relation to financial innovation across the continent. These are more than just acts of 'de-risking' financial inclusion (Gabor 2021), but operations through which local authorities build their seat at the table of African fintech.

In summary, these 'made *in* Cape Town *for* Africa' processes highlight, once again, the complex, relational systems which animate a local fintech ecosystem with panafrican ambitions – each small in their own right, but fundamental to the making of a robust and ever-changing entrepreneurial fabric. By highlighting three different ways this world-making process happens, we can see how interconnected and distributed these modes of financial innovation are, and how, ultimately, they link back to the inextricable lattice of entrepreneurial and developmental statecraft. In fact, the need to attract international capital and foster profit opportunities coexist in these worlding practices with significant localized and relational value: from cheaper remittance rates for South Africa-based migrants, to emergent financial products which in fact ease spaza shop marginal economies, to resources for local entrepreneurs to build businesses, to the opportunity for many African startups to experiment and survive in conditions of market failure, thanks to the acceleration programmes that enrol them. In the concluding remarks that follow, we will thus focus on the implications of a careful reading of these different scripts of fintech urbanism.

Conclusion

In this article, we narrated two processes which have shaped and substantiated Cape Town's positioning as a fintech capital of Africa. The first de-scription focused on the rollout of broadband and cloud infrastructures, which have supported ICT development in the city. We showed how the development of Amazon's cloud in the city, and the concurrent drive of the government to attract BPOs locally in order to create lower skilled jobs, provided the infrastructural foundation onto which fintech startups hinge and grow. Linked to this, and building on Cape Town's infrastructural backbone, we charted some of the processes through which fintech innovations are launched, experimented, and resourced in Cape Town, coalescing to position the city as central to a continental development project. These fintech innovations not only depend on the existing infrastructure, both the financial and the broadband ones, but concurrently create the demand for their expansion and integration. There are, of course, many ways to read and make sense of these two interlinked processes. The dedicated critic may sustain scepticism of the development project generally, and particularly of the sort of techno-optimism celebrated by the fintech version of the 'bottom of the pyramid' development mantra.

These critiques are vital. However, we would like to suggest that these readings are not enough to capture and understand how the fintech industry is imbricated in the formation of the urban state in the age of startup urbanism, and how cycles of experimentation and consolidation are couched in the urban specificities of an African city such as Cape Town. Our de-scriptive approach shows that the city is not simply a soft-landing pad for today's financial flavour of startup urbanism. In fact, while the urban state has been using the city's fintech ecosystem, and more broadly its home-grown tech sector, to give effect to its own vision for local economic development, different actors at different scales use their agency to reach the rest of the continent, particularly through experimentations and innovations which aim to address financial issues of various sorts. These worlding practices provide a counterpoint to an all-too easy 'frontierist' critique of financialization, if anything in the fact that they enrol a range of diverse urban agendas, rationalities, and geographies.

Obviously, this is just one of the possible cultural economies of fintech in Africa. Our focus on the urban state and on the worlding experiments that have shaped Cape Town's role as a fintech capital provides a reading of startup urbanism, and its fintech inflection in urban Africa, shoring up the diverse scripts undergirding the 'innovation complex' in a city that falls outside the usual list of global financial capitals, New York, London and the likes. However, important questions of 'economic lives' remain in the background (Zelizer 2010). Just as much as the production of fintech needs to be read against the grain of its multiple scripts, the lived experiences of financial access through new technological platforms must also be discerned and interrogated on their own terms – something that we could not do in this article but that deserves attention, nonetheless. Financial technologies are already transforming the fabric of African cities. For a future research agenda, therefore, recognizing that fintech development is also an intervention – either of the urban state or of other urban actors, either contingent or by design – is a necessary step to envision how these fast-paced technological transformations could be more just, equitable, or simply otherwise.

Notes

1. Financial inclusion, which is the specific name given to the expansion of financial services to the unbanked, is even part of the United Nations' Sustainable Development Goals (Target 8.3 and 8.10 of Goal 8). In fact, and aside from venture capital, African national and local governments, multilateral banks, NGOs, and other bottom-up initiatives have also been supporting and nurturing the creation of financial inclusion startups.
2. While these contributions are too many to be acknowledged here, see Mawdsley's (2018) and Lai and Samers' (2020) overarching reviews, and the diverse contributions in Maurer *et al.* (2018), addressing both cultural and infrastructural facets of fintech expansion in the Global South.
3. Note here that other cities in Africa have claimed the title of 'fintech capital', including Nairobi (Kenya) and Cairo (Egypt).
4. We use the word 'worlding' drawing on the work of anthropologists and urban scholars who have sought to show how also cities in the Global South, although often absent from the canon of social theory, participate in the articulation of global flows of value and knowledge. McCann *et al.* (2013, p. 584) write: the worlding of the South is a complex and dynamic story of flows of capital, labour, ideas, and visions. To pay attention to such ambitious experiments – inherently unstable, always contested, always incomplete – is to move beyond the handful of stereotypes through which cities of the global 'South are mapped.'
5. These tools have evolved over time, including – but not limited to – the mass-scale roll out of subsidized 'RDP' housing with provincial governments, the provision of Free Basic Services (FBS) using funding in part from national governments, and the importance of Black Economic Empowerment (BEE) features in urban development projects (Parnell and Pieterse 2002, Van Donk and Swilling 2008). Arguably, the amalgamation of Cape Town into a single metropolitan city in 2000, allowing for high revenue producing areas to be merged with struggling councils, also formed part of the developmental effort to cross subsidize and share resources at the city-scale (Cirolia and Robbins 2021).
6. https://techcentral.co.za/chris-pinkham-veteran-of-the-virtual/25403.
7. https://www.biznews.com/global-citizen/2017/07/10/silicon-valley-chris-pinkham-amazon-twitter-exec.
8. https://www.reuters.com/article/urnidgns852573c4006938800025774300563013-idUS37364255320100615.
9. https://www.investcapetown.com/opportunities/business-process-outsourcing/.
10. Even the arrival of 5G in South Africa has generated conversations, both technical and political, about what percentage of the band should be 'developmental.' The issue was for example debated by policymakers at 2019's Africacom, in a session attended by one of the authors.
11. More recently, it was also announced that Amazon would be the anchor tenant – with a new Amazon Campus – of a brownfield development on a site fraught with complex and controversial visions. This shows how platform companies have become catalytic actors in urban real estate speculation.
12. https://www.biznews.com/global-citizen/2017/07/10/silicon-valley-chris-pinkham-amazon-twitter-exec.
13. name anonymised upon request of the interviewee.
14. https://ventureburn.com/2017/04/world-bank-launches-xl-africa/.

Disclosure statement

Funding

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