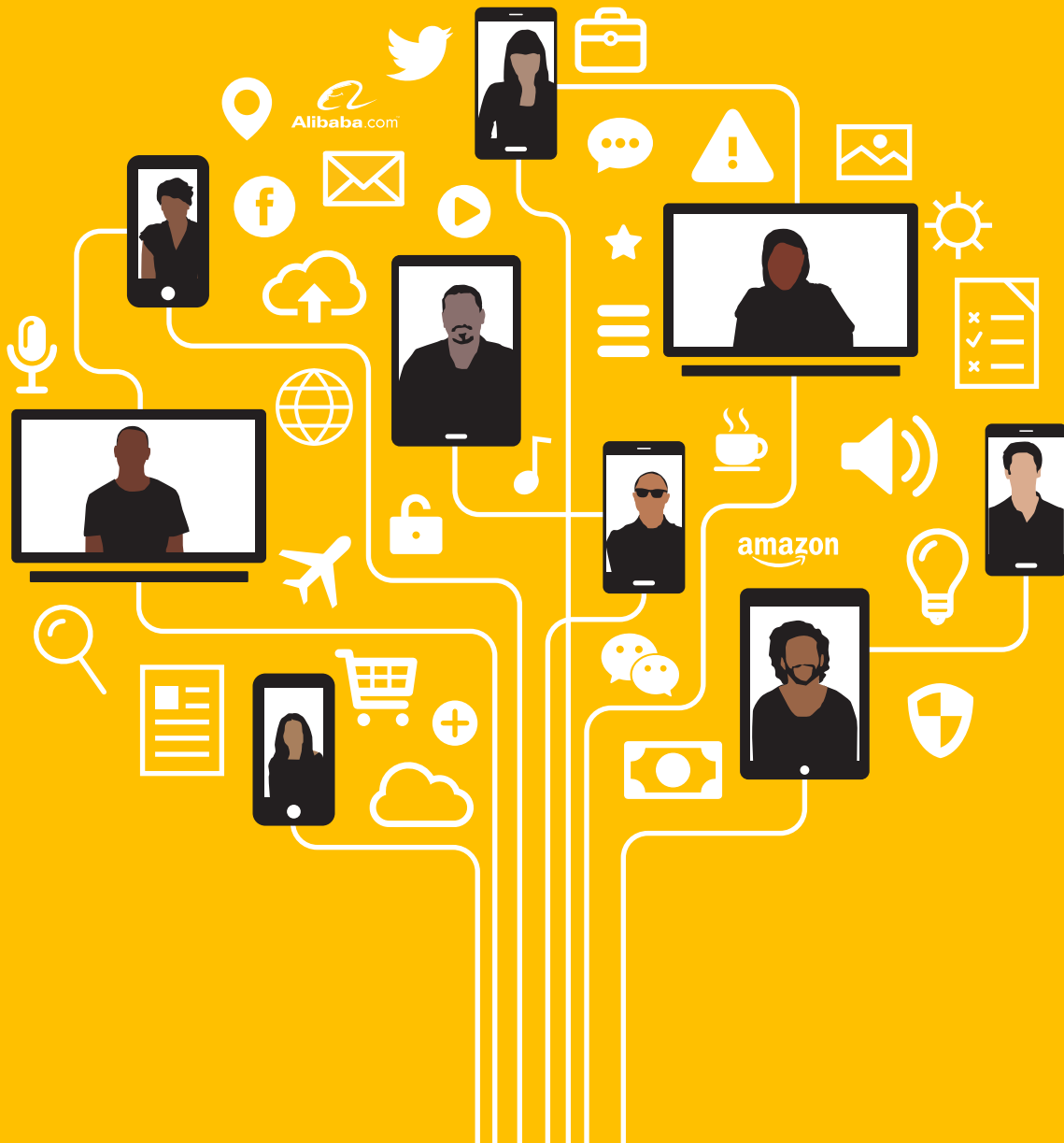




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FIBR PROJECT WHITE PAPER NO. 2  
December 2017

# Inclusive digital ecosystems of the future



# Foreword

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FIBR is a BFA project funded by Mastercard Foundation.<sup>1</sup> As set out in the first FIBR white paper published at the outset of the project in late 2015,<sup>2</sup> FIBR employs the power of a “pull” rather than a “push” approach in which the daily interactions of low-income people are digitized through a range of relevant touchpoints such as shops, schools or clinics to drive access to additional services.

In this second FIBR white paper, we consider the likely effects of an important new phenomenon that may accelerate the pull factor of digital ecosystems – the rise of superplatforms. At the time of the launch of FIBR, the potential force of this phenomenon was not yet fully in view. But the growth of superplatforms in China even since 2015 confirms that they are a factor to be taken seriously by a project like FIBR and by funders like Mastercard Foundation, which seeks to promote innovative and client-centric solutions that work for low-income people. This paper describes and explores the phenomenon from different angles in order to explore potential implications for Africa and the environment in which FIBR and its partners will operate over the coming years.

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<sup>1</sup> See <http://www.fibrproject.org/>

<sup>2</sup> Available via <http://bfa.works/EBP-DFS-TZ-GH>

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# Executive summary

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1. As mobile data communications have become more available, **digital ecosystems** have sprawled around the world. At the heart of a digital ecosystem is usually a platform – whether a physical device platform like the mobile phone with many different entities supplying parts and services around it, or an institutional framework of rules and standards like a payment card platform that links buyers and sellers and payers and payees. These digital ecosystems are enabled by a class of “**superplatforms,**” system **orchestrators** whose influence and control extends beyond only one sector. American companies like Google, Facebook and Amazon, and Chinese companies like Alibaba Group and Tencent Holdings are all examples of superplatforms, most of which were startups only 13 years ago.
2. To start, superplatforms are noteworthy **because they are very large**. Superplatforms made up seven of the ten most valuable companies worldwide in mid-2017, with active user bases in the hundreds of millions, displacing household names many times their age. In addition, **superplatforms are regularly rated among the most innovative and client-centric companies globally**. Finally, superplatform business models are **built on the continued growth** of customer bases, which allows them to accumulate and analyze multiple layers and sources of data about their users in ways that firms such as banks, which operate in a single sector, cannot. These characteristics will likely make superplatforms **one of the single most powerful forces shaping digital ecosystems** in the next 13 years to 2030.
3. While exceptions like Google and Facebook have offered cloud-based services in Africa for some time, superplatforms have yet to come “onshore” in Africa in a significant way. However, thanks to the spread of data connectivity, especially but not only through smartphones and the rise of mobile money as a means of digital payment, parts of **Africa are now ripe for their arrival** over the next 10 years.
4. While US-based superplatforms like Facebook have dabbled in financial services, especially payments, they have yet to develop compelling large-scale financial service offerings. Instead, we may see movement in financial services **from Chinese superplatforms**. These superplatforms are already squeezing the large and entrenched Chinese retail banking system, which is experiencing lower margins and depositor attrition as a result.
5. Superplatforms entering the African markets will have **significant implications** for consumers at all income levels, as well as for incumbent financial institutions and regulators.
  - a. **For consumers:** low- and medium-income consumers in Africa are exposed to and using a range of new technology innovations – from the internet of things to artificial intelligence. However, deployments today are often sub-scale and fragmented, risking slow development or even stasis in low-level equilibrium traps. The entry of superplatforms could integrate these innovations into a larger, more compelling and affordable offering. A key appeal of superplatforms for low-income customers is their generative potential; even low-income consumers may be able to buy and sell goods and services through superplatforms.
  - b. **For incumbent banks and other financial service providers:** incumbents risk disintermediation,



thanks to the superior ability of superplatforms to harness the power of data about clients. The days of high margin spreads may be over. Just as mobile operators risk becoming communication utilities (“dumb pipes”), so too do banks risk becoming financial utilities (“dumb reservoirs” of funds) unless they create a differentiated customer proposition.

c. **For financial regulators:** the growth of superplatforms will further challenge the authority and capacity of regulators because of their cross-border scale and sophistication. Not all the fruits of an algorithmic world will be customer friendly, so financial regulators will face pressure to either become, or cooperate with, data regulators.

6. Finally, the rise of superplatforms will **change the nature of financial inclusion and customer centricity**. Superplatforms tend to see financial inclusion not as an end goal but as an enabler of growth and monetization. Their e-commerce models require that users have access to frictionless digital payment options to which other financial services can easily be added, whether by partners in a marketplace or directly (where permitted). In this case, use of financial services is pulled by the appeal of participating in the superplatform, not pushed as a discrete offering. Similarly, common notions of client centricity have been focused at the individual firm level and how the firm treats its clients, whereas in the superplatform world, client centricity will become a question of the platform as a whole.



# 1. Introduction

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*“Customer centricity is defined as the ecosystem and operating model that enables an organization to design a unique and distinctive customer experience. This architecture enables the business to acquire, retain and develop targeted customers efficiently for the benefit of employees, customers and stakeholders.”*

– Doug Leather, Founder, REAP Consulting (2013)

Superplatform is a relatively new term that was first used by US law professors Ariel Ezrachi and Maurice Stucke in their 2016 book, *Virtual Competition*, to describe digital platforms dominant across more than one sector. As examples, think of Amazon, Google or Facebook in the US, and Alibaba in China.

Some call these superplatforms “internet giants,” given their size and online presence. However, we are interested in superplatforms not for their size alone, but for their role in building and maintaining digital ecosystems which will have far reaching consequences for digital financial inclusion and current notions of customer centricity. We are especially interested in digital ecosystems that are innovative and client centric, and also likely to promote developmental benefits for low-income people. In this respect, this paper builds on recent streams of work and thinking about client-centric financial inclusion such as [CGAP’s Customers at the Center](#) program, which has focused on defining customer centricity per the quotation at the top of the page, and measuring customer centricity at the micro level of the customer and provider.

Chinese superplatforms, in particular, have emerged in the past five years across sectors such as e-commerce, social networks and financial services. In the process, they have reshaped the financial landscape, broadening access to financial services well beyond the domain of banks. In contrast, US superplatforms, even as they have achieved cross-sectoral dominance, have yet to achieve significant traction in financial services. In Africa, Facebook and Google are widely used for social media and internet search respectively, but superplatforms have yet to come “onshore” with any scale in terms of local infrastructure or financial service offerings. In the competition for markets, Africa may represent some of the largest open space for digital financial plays and may now be ready for superplatforms to arrive.

When superplatforms arrive with compelling financial propositions, they will have profound consequences for incumbent financial providers and the environments in which they currently exist. Some incumbent financial providers will likely fail while others will see receding margins. The arrival of superplatforms in new markets will also challenge the authority and operating approaches of financial regulators. On the other hand, low-income consumers will likely benefit from new and more integrated digital ecosystems.

To understand the likely effects of superplatforms expanding across geographic and sectoral boundaries in the next decade to 2030, this paper proceeds as follows. Section 2 defines superplatforms and considers their rise in the Chinese financial system. Section 3 imagines these global developments in the context of Africa through the eyes of a representative African entrepreneur, Anna. Anna runs her own hair salon in a city in Nigeria, and considering her story illustrates the contrasts between current digital ecosystems and the feasible future world shaped by superplatforms. Section 4 discusses the implications of the shift toward digital ecosystems for financial service providers and national regulators, highlighting potential risks and unintended consequences.

We conclude that superplatform-dominated digital ecosystems will fundamentally transform the nature of digital financial inclusion and the meaning of customer centricity, thereby altering the paradigms within which policymakers and providers operate.



# 2. The rise of superplatforms

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## 2.1 The rapid growth of today's superplatforms

The word “ecosystem” has been widely and loosely used to describe a variety of complex systems in the world of finance. For example, a recent report on fintech hubs uses the term “regional innovation ecosystems” to describe the overall environment for innovation, from market players to regulation to demand conditions.<sup>3</sup> Similarly, a recent GPMI report discusses how governments could and should promote digital payments ecosystems<sup>4</sup> by supporting firms, creating enabling regulation and other measures, while a recent GSMA report<sup>5</sup> uses the term “mobile money ecosystem” to describe the range of players reliant on the mobile phone as their core hardware device and technology platform. An ecosystem is in the eye of its beholder, it seems.

Adding the adjective “digital” makes clear that a digital ecosystem is about the flow of digits – data – between parties. In such ecosystems, there is often an orchestrator or scheme operator that has a key role in designing, building and sustaining the relationships between a diverse range of parties that constitute the ecosystem.

The digital world as we know it today was built on the foundation of a number of digitally enabled platform-based business models such as eBay and Amazon. These two-sided e-commerce platforms attract buyers or users on the one side and sellers or providers on the other. Prior to these platforms, international card associations were perhaps the earliest large-scale international

platforms of the digital age. These associations designed and enforced trust frameworks that enabled card payments to be accepted globally. This model continues today with companies like US-based Uber, China's Didi and their many country-level competitors, which have built large-scale digital platforms that have disrupted the market for car transportation in many cities by attracting travelers and drivers in large numbers.

Successful two-sided platforms offer a seamless interface to navigate both sides, employing directory systems of various kinds (such as switches in the cases of card associations) or route transactions among parties who do not need to know one another directly. The internet has accelerated the emergence and scale of these platforms by adding a simple, interoperable communications layer so that any user with a browser can connect to the platform. The business models of these internet platforms depend on a low to zero marginal cost of transaction, creating a bias for scale and an underlying philosophy that more is better for everyone; more customers mean more revenue for merchants, more merchants mean more choice for customers, and more of both means more revenue for platform orchestrators that charge one or both sides for access. To further extend ease of transactions, many platforms welcome co-creation by partners through open application programming interfaces (APIs). This “open” mentality is very different from the typically siloed approach of traditional businesses and banks, which have jealously guarded access to their platforms as a matter of risk management and competitiveness.

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<sup>3</sup> Deloitte (2017)

<sup>4</sup> GPMI (2017)

<sup>5</sup> GSMA (2017)



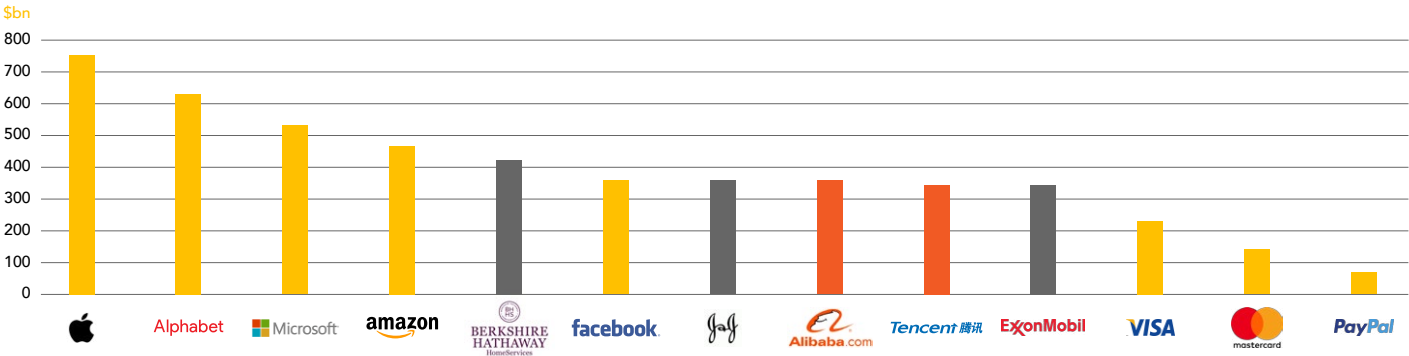
Today, among the range of two-sided platforms, a small number of global superplatforms have emerged that are characterized by their large size and reach, two-way exchange functionality, and use of technology and data. Superplatforms derive value by creating ecosystems that enable two-way exchange, whether of physical assets (as in the case of Amazon and Alibaba) or digital ones (as in the case of Facebook and Tencent). Superplatform exchanges are two way, meaning that buyers or consumers can also be producers and sellers; they are not restricted to one side of the platform. This makes these platforms “generative,” meaning that users may both generate income and spend it, while also accessing the financial tools to do so.

What really distinguishes these companies from simple platforms is how they grow. Their ability to deploy technology and leverage data sets them up for a type of growth that is fast, focused and fierce. As ecosystem orchestrators, superplatforms enroll the actors and resources that add value to the ecosystem as a whole, irrespective of superficial boundaries like business line, sector or even geography. They can do this because their business models reward the accumulation of more

and better data about all economic actors regardless of sector of activity, and consequently, they are able to cross-subsidize lines of business in the pursuit of data. As a result, these “platforms of platforms” disrupt and transcend each of these boundaries. Because these companies are born digital, superplatforms amass a significant amount of data on users which they exploit with remarkable effectiveness to fuel their own growth. In doing so, they put pressure on incumbents across a number of industries – financial services included – to digitize and eat into the margins of those competitors that are slow to respond.

The list of superplatforms today can be described in two acronyms: GAFA (US-based Google/Alphabet, Apple, Facebook and Amazon, sometimes with an “M” added for Microsoft, which now owns the platforms LinkedIn and Skype) and BAT-J, a group of Chinese companies (Baidu, Alibaba Group, Tencent Holdings and JD Group).<sup>6</sup> These seven superplatforms are among the top ten most valuable companies in the world, as chart 1 below shows. The chart also includes the large payment platforms Visa International, Mastercard Worldwide and PayPal (for reference), which are less valuable but still remain among the top hundred companies in the world.

**Chart 1. Largest companies by market capitalization, 2017**



Source: Market capitalization for ten largest companies in second quarter 2017 from [https://en.wikipedia.org/wiki/List\\_of\\_public\\_corporations\\_by\\_market\\_capitalization#2017](https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization#2017) extracted on 10 August 2017; Visa, Mastercard and PayPal added from Google finance data at that date. Note: yellow shading refers to US-based tech companies; orange to Chinese tech companies.

<sup>6</sup> See Annex B for a “translation” of BAT-J to Western counterparts.

Chart 1 also reflects the incredibly rapid rise of these superplatforms. Looking back 12 years to 2005, only one of these superplatforms (Microsoft) was in the Fortune Global 500 list of the world's largest companies by revenue. In 2005, two of the others were listed but struggling (Apple and Amazon), one had just been listed (Google, now Alphabet), two were young startups pre-listing (Alibaba and Tencent) and one barely existed (Facebook). The aggregate market capitalization of those that were listed on the New York Stock Exchange (NYSE) made up just 2.2 percent of the total NYSE market value, dominated by Microsoft's valuation. As of mid 2017, six of the seven<sup>7</sup> companies that are now listed on the NYSE constitute around 16 percent of the total value of the NYSE.

Although we focus on these seven superplatforms because of their scale and influence on digital ecosystems, this list is not exhaustive nor does it predict the superplatforms of the next 12 years. Just as three of today's seven were startups or did not exist 12 years ago, other unknown platforms may become superplatforms and join these ranks in the next 12 years.

## 2.2 Super-platforms are built for innovation and client centricity

Beyond the definitional characteristics of size, multi-sectoral reach and two-way flow, superplatforms are also rated among the most innovative<sup>8</sup> and client service-focused, or client-centric, companies<sup>9</sup> in the world.

In terms of innovation, all seven superplatforms are at the forefront of the most important new technologies – from augmented reality to cloud computing to drones. This predisposition to technological innovation can be explained by the superplatforms' inherent technological orientation as well as their extensive financial resources, which allows them to take and sustain longer-term bets on future technology.

Superplatforms also enable others to innovate at their fringes by exposing APIs, which ultimately embeds their own service offerings throughout the digital world and reinforces their presence. Since their success is in part predicated on growing their networks, ensuring their presence across the digital world helps provide a compelling proposition for retaining customers. Superplatforms not only drive technological innovation internally, but also enable innovation around them.

Innovation at these seven companies is not restricted to technology. Software companies like Microsoft have followed Apple into the hardware world (even as Apple makes increasingly more revenue from its software and other service platforms). Google is a leader in the development of autonomous vehicles and robotics,

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<sup>7</sup> Tencent is listed in Hong Kong so excluded from this measure.

<sup>8</sup> The seven global internet giants were all among the world's top 13 on Fast Company's 2017 annual list of the [most innovative companies](#).

<sup>9</sup> In the annual scoring of US Customer Satisfaction by ACSI, Amazon, Google, Microsoft and Apple all rank high in the top quintile of the more than 300 large consumer brands tracked in the USA, scoring over 80 points each (the top score is 87); Facebook is the laggard, in the middle with only 68 points: [see here](#).

and Facebook has launched Facebook Marketplace, a platform for the exchange of physical goods and services that is now live in three countries with 550 million monthly visitors. Facebook Marketplace will soon roll out in 17 European countries, thus cementing Facebook's physical presence.<sup>10</sup> Amazon recently purchased the US grocery chain Whole Foods in 2017, thereby removing any doubt about the increasing crossover between the digital and physical worlds known as O2O (online to offline).

Digital financial services are another area of significant innovation for superplatforms, although American superplatforms have not yet prioritized the financial sector the way Chinese superplatforms have. This hesitation reflects the higher regulatory barriers to entry in the US and also the fact that they have innovated around the existing payment infrastructure (as in Amazon 1-Click purchase or Apple Pay). That said, in September 2017, Facebook announced the launch of Facebook MessengerPay in the Philippines, indicating that the story is far from over.<sup>11</sup>

While size and financial muscle may explain their ability to experiment and innovate technology and other services, it does not account for their greater customer centricity. After all, size is often associated with a lack of focus on the individual customer. Customer centricity can be explained by superplatforms' access to and use of data. Each of these superplatforms is distinguished by its ability to amass, track and use data about its users through artificial intelligence. Superplatforms assign unique identifiers to users so that information about activities in different ecosystems can be meaningfully combined into comprehensive, useful profiles. Indeed, other online platforms and websites use the authentication protocols developed by Google or Facebook to authenticate their own customers.

In addition, these platforms all have a viral nature in that customers are rewarded extrinsically and intrinsically for signing on and using, and encouraging others to do so, which fuels their growth.

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<sup>10</sup> See <http://www.pymnts.com/facebook/2017/facebook-expands-ecommerce-marketplace-in-eu/>

<sup>11</sup> See Manila Times article, available at <https://technology.mb.com.ph/2017/09/23/gcash-and-facebook-launch-an-easy-way-for-people-in-the-philippines-to-access-their-money-on-messenger/>

## Case Study

# Amazon.com: “Earth’s most client-centric company”

Amazon regularly wins awards for being among the world’s most innovative companies<sup>12</sup> and for being the most customer centric.<sup>13</sup> In 2017, it had served more than 300 million users from 180 countries buying goods from over two million merchants on Amazon’s 11 different “global marketplaces.” Approximately 30 million customers return to buy on Amazon at least once a month.

Amazon has leveraged its core e-commerce business, which focuses on online to offline (O2O) purchases, to enter a range of adjacent sectors such as cloud computing, which it dominates globally through Amazon Web Services. The diagram below depicts the traditional relationship between customers and merchants on each side of the core e-commerce platform. It is worth noting that Amazon makes it easy to be on both sides of the platform; even buyers of individual books are encouraged to sell their books back through the platform to become merchants using Amazon’s ordering and fulfillment platforms.

Many books about the leadership style of Jeff Bezos and the culture at Amazon highlight its ruthless focus on the customer from “Day 1” (and it always remains “Day 1,” Bezos says).

In the context of this paper, several characteristics stand out:

- Amazon has pioneered a durable trust framework for e-commerce that develops trust by quickly and concretely settling customer and merchant disputes.
- Even in its core e-commerce business, Amazon encourages buyers to become sellers (“sell back those books you have read”) to support two-way commerce. In addition, Amazon hosts a range of other platforms such as Amazon Mechanical Turk, which encourages users to sell their services online.
- Amazon has leveraged its core competence in e-commerce to dominate other adjacent sectors such as cloud computing—where Amazon Web Services has the largest market share.
- Amazon is already a financial service provider although its offerings to date have been limited. It has innovated online payments with its “one-click” payment method for online purchases. It has also leveraged information about its merchants to make more than \$3 billion in loans to more than 115,000 businesses through its Working Capital program.<sup>14</sup>

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<sup>12</sup> Amazon has again topped Fast Company’s Annual [Most Innovative Companies](#) list for 2017.

<sup>13</sup> Amazon was joint third ranked for customer service in the US in 2016, and has maintained a position among the top ranked ever since it first entered the ACSI ratings in 2000.

<sup>14</sup> See <https://www.bloomberg.com/news/articles/2017-06-08/amazon-s-lending-business-for-online-merchants-gains-momentum>

## Amazon ecosystem

### Amazon Retail

#### Amazon Prime

Subscription model +  
2-day delivery service

#### Amazon Kindle

Kindle hardware  
3rd party content  
Self-publishing services

#### Amazon Fresh

Online grocery services  
Physical stores

#### Amazon Web Services (AWS)

Cloud Computing, Elastic Compute Cloud,  
Amazon Simple Storage, Analytics, Application  
Services, Service Delivery, + ~70 more

#### Amazon Studios

Media content  
Amazon storywriter



## 2.2 Chinese superplatforms drive expansion of digital financial services

The BAT-J group<sup>15</sup> of Chinese internet giants started off as replications of original internet business models developed mainly in the US: Baidu was modeled on Google, Alibaba on eBay, and Tencent's social networks WeChat and QQ are a cross between Facebook and WhatsApp. JD is Amazon's equivalent in China with its own massive logistical operation for delivering goods across the country.

Although they started as replications, as the title of a recent *Economist* magazine article suggests, "In Fintech, China shows the way,"<sup>16</sup> these companies have become significant innovators in their own right. For example, WeChat's financial ecosystem offers users significantly more access to goods and services than WhatsApp or Facebook offers today. The Chinese business models are also more monetized and diversified: Ant Financial (Alibaba) relies on fees from merchants and providers, while Tencent earns fee revenue from merchants on payments. In contrast, Facebook and Google depend almost entirely on advertising revenue to cross-subsidize their other activities.

With these innovations, it is not surprising that the 2017 EY FinTech Adoption Index found that China is the most active market in the world today for fintech adoption: 69 percent of the digitally active (online) population are active users of fintech services, meaning they use two or more non-bank digital services. One visible outcome of this trend has been the transition to a "cash lite" society as internet and mobile payments made up a fifth of total value in 2016. The share of cash in the total value of payments has dropped to below 40 percent today.<sup>17</sup>

The rise of digital financial services (DFS) in China is striking because of:

- **Its speed and scale:** in barely the time since M-Pesa launched in Kenya in 2007, new digital payment services like Alipay (originally launched in 2004 as part of the e-commerce site Taobao) and WeChat Pay (launched more recently in 2013) have attracted more than half a billion active users a month; and
- **Its breadth:** while payment applications like Alipay and WeChat Pay have anchored and led the expansion of digital financial services, the sector has rapidly expanded to include every category of financial service including credit, insurance and wealth management.

In our view, the rise of Chinese DFS can primarily be attributed to the timely convergence of four factors:<sup>18</sup>

- **Rapid growth of smartphone usage** driven by cheap smartphones and robust data coverage in much of urban China and beyond. Smartphones already account for over 70 percent of all mobile phones in China, a sevenfold increase in barely five years;<sup>19</sup> under the government's Broadband China strategy, mobile network providers have rolled out 4G to most cities in China already.<sup>20</sup>
- **Most Chinese adults already have a bank account.** According to the first FINDEX survey, almost two-thirds of the population already had a bank account in 2012, and coverage rose to 78 percent in 2015, driven by large state-owned banks, which have extensive branch and agency networks. For example, the Postal Savings Bank (PSB) of China alone has more than 40,000 branches and extensive agents networks through post offices. Although Chinese banks face

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<sup>15</sup> The acronym is formed by their initials: Baidu, Alibaba, Tencent and JD Group.

<sup>16</sup> *The Economist*, February 2017, available [here](#).

<sup>17</sup> Kapron & Meertens (2017), page 17.

<sup>18</sup> Based on insights developed and communicated more fully in DFI's course, "China's Golden Age of DFS," first offered online in April 2017.

<sup>19</sup> Kapron and Meertens (2017).

<sup>20</sup> Ma (2016), p.13.

high dormancy rates among low value accounts, the existence of a widespread bank-based cash handling network for receiving deposits and making salary and welfare payments means that new entrants do not have to worry about touchpoints. Most formal employees and G2P recipients are already paid digitally, which allows new entrants to work over the top (OTT) of this extensive bank account infrastructure.


















- **The emergence of aggressive, customer-focused private internet-based companies** like Ant Financial, Tencent (in every category of financial services), PingAn (insurance) and Creditease (P2P lending). Among the new players, Alibaba (Ant) and Tencent stand out for having benefitted from their other lucrative business lines and having leveraged data across their different ecosystems to great effect. Like the US superplatforms, these new players also adopted an approach to customer service and to building trust different from that prevailing among banks which were more likely to take these factors for granted.
- It was also important that **Chinese financial regulators did not intervene too early** and instead took a “wait and see” (rather than a “test and learn”)

approach. Digital payment services like Alipay initially fell through the cracks of the institution-based regulatory framework. As such, Alipay was able to offer a low-value payment service with very few onboarding restrictions since know-your-customer (KYC) laws were only extended to cover internet payments on a tiered basis in 2016. These early gaps encouraged experimentation and allowed for the rise of e-commerce platforms like Taobao or JD, which in turn supported a large group of smaller merchants not yet served by bank members of China UnionPay (China’s Visa or Mastercard domestic equivalent). Similarly, P2P lending mushroomed as an unregulated alternative to a financially repressed banking sector.

The digital financial sector is currently dominated by three groups, as illustrated in Chart 2 below. Two of these three are closely affiliated to a much larger group that dominates other spaces. For example, e-commerce giant Alibaba has shareholders in common with Ant Financial and will receive a share of profit if a future IPO proceeds. Similarly, JD Finance is connected to the JD Group, an e-commerce network.

Of these, the story of the Alibaba Group stands out as an example of a rising Chinese superplatform driving growth in financial services.

**Chart 2. Main Chinese fintech players across categories**

Fintech Player	Payment	Wealth Management	Financing	Insurance	Credit Rating / History
 蚂蚁金服 ANT FINANCIAL	 支付宝 ALIPAY 451MM Annual Act. Users	 余额宝 YUE BAO >300MM Cumulative Users	 >100MM Cumulative Consumer Finance Users >5MM Cumulative SME Borrowers	 蚂蚁保险服务 Ant Insurance Service 380MM Cumulative Users	 芝麻信用 ZHIMA CREDIT 130MM Cumulative Users
 腾讯 Tencent	 WeChat Pay >600MM MAU	 腾讯理财魔方 >80MM Cumulative Users	 >30MM Cumulative Users		 腾讯信用 Invite only for Tencent QQ users
 京东金融 JD Finance	 JD PAY 119MM Annual Active Users	 小金库 JD Golden Wallet >20MM Cumulative Users	 >30MM Cumulative Users 白条 Credit Pay 金条 Cash Loan 京保贝 JD Factoring & Microloan	 保险 京东金融 JD Finance Insurance 168MM Cumulative Users	 小白信用 JD credit >35MM Cumulative Users

Source: Mary Meeker, Internet Trends 2017



## Case Study

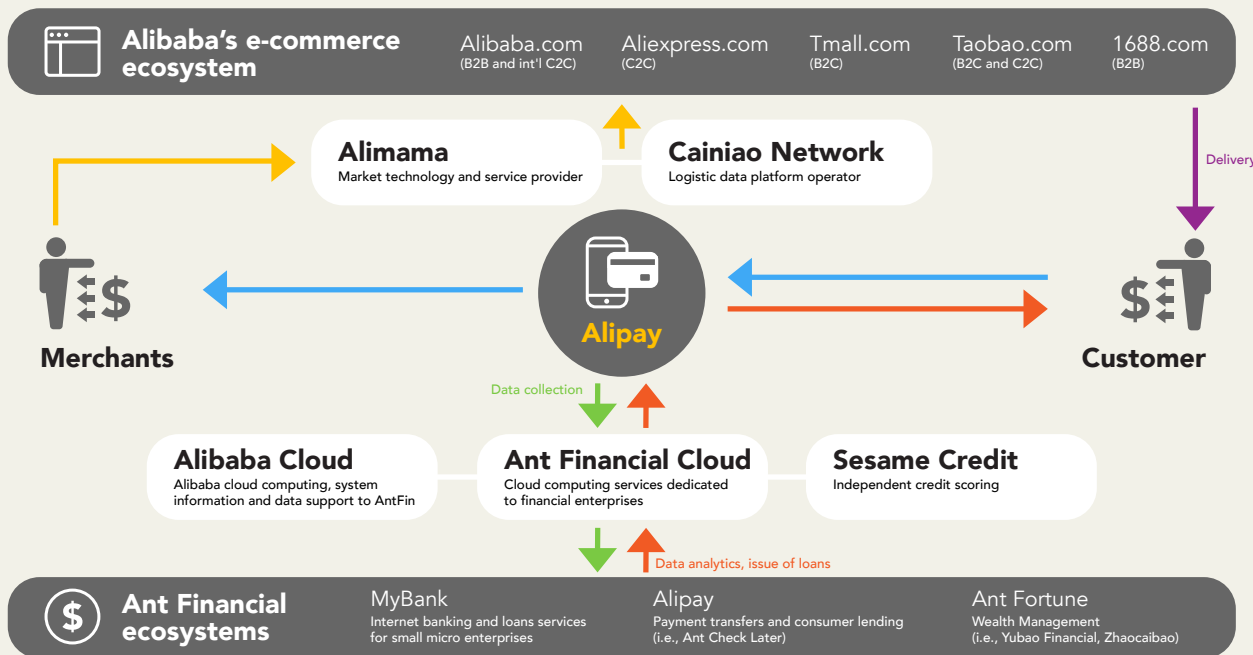
# The rise of the Alibaba Group

At the heart of the Alibaba Group are several large e-commerce platforms: Taobao (for B2C and C2C, i.e., smaller merchants), Tmall (B2C, for larger chains) and Alibaba.com (for international C2C). These platforms dominate e-commerce in China with a market share of 61 percent.<sup>21</sup> Alibaba's core platforms are closer to eBay than to Amazon in that Alibaba itself does not sell or hold its own goods, instead taking a commission for each sale on the platform. China became the world's single largest e-commerce market by value in 2013, with merchandise value traded across Ali's platforms exceeding \$485 billion, higher than Walmart's revenues and likely double those of Amazon.<sup>22</sup>

The Alibaba Group was founded in 1999 by a group of 18 people led by Jack Ma, a former English teacher.

Prior to starting Alibaba, Ma had launched two unsuccessful internet startups—a tale told fully in Duncan Clark's 2016 book, *Alibaba*. Initially funded by Japan's Softbank and later by US-based Yahoo, Alibaba beat the globally-dominant e-commerce trading platform eBay in part because it was able to innovate for local low-trust conditions. Alibaba launched Alipay in 2004 to provide escrow accounts for Alibaba sellers to manage pending sales in a low-trust environment, quite distinct from payment mechanisms in the US where payments are made in advance of delivery. Alipay specialized in managing digital wallets and was integrated into the systems of Chinese banks so that Alipay users could fund their wallets and cash out their proceeds quickly, easily and for free.

Although it attracted controversy from shareholders, Alipay was spun off in 2011 to meet local ownership requirements for licensing from the People's Bank of China. Alipay is now part of the Ant Financial Group, with which Alibaba has a service agreement and overlapping shareholders.



Source: Kapron and Meertens (2017)

<sup>21</sup> Winston Ma (2017), *China's Mobile Economy*, Wiley; Figure 4.1

<sup>22</sup> Amazon does not report gross merchandise volume (GMV), although it does report its own sales. Estimates of GMV were \$225 billion in 2015. See <http://www.nasdaq.com/article/amazon-vs-alibaba-gmv-revenue-ebitda-cm605342>



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*“The Alibaba culture is all about championing small businesses – we operate an ecosystem where all participants, consumers, merchants, third party service providers and others – have an opportunity to prosper.”<sup>25</sup>*

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Ant is an unlisted holding company<sup>23</sup> offering a range of financial services such as wealth/fund management through the Ant Fortune platform, which lists hundreds of mutual funds and investment offerings, a new private bank for small and medium-size enterprise (SME) lending called MyBank and a private credit bureau service called Sesame Credit.

In recent years, Ant Financial has followed Chinese tourists and expanded aggressively overseas to become an accepted issuer in Europe, South Africa and the US. Ant has also made a series of large acquisitions, including purchasing shares in India’s PayTM and Thailand’s HelloPay, culminating in the purchase of the second-largest remittance company in the US, MoneyGram, in 2017 for over \$1 billion.

As the chart in the case study above shows, Ant is just one part of the wider Alibaba set of interlinked companies, which includes cloud computing and logistics platforms, and a film production company producing its own label films, like Amazon Studios.

According to Jack Ma, this broad Alibaba ecosystem is only the beginning of a vision for Alibaba to become “the world’s fifth-largest ‘economy’ in the next 20 years, serving two billion customers, creating 100 million job opportunities, and enabling 10 million businesses to make profits.”<sup>24</sup>

At the heart of the ecosystem lies a generative vision based on small businesses buying and selling online.

This philosophical commitment underlines the generative nature of the Alibaba superplatform; it is not just about serving small businesses but helping them thrive.

The remarkable rise of superplatforms and DFS in China is relevant to the rest of the world for at least two reasons:

- **The growth has come from smartphone-based apps**, which are now the dominant channel for retail digital payments in China. As such, China provides a hypothetical picture of how digital financial services could evolve wherever else smartphones are proliferating.
- **The Chinese players are no longer focused domestically but are rapidly entering other markets.**<sup>26</sup> The biggest Chinese platforms have ambitious expansion plans for the rest of the world. Ant Financial, for example, has a declared objective of serving 2 billion customers globally by 2026<sup>27</sup> and has embarked on an ambitious expansion trail, investing in PayTM, the non-bank digital payment leader in India, and, in 2017, buying MoneyGram.<sup>28</sup> Alipay expanded to South Africa in June 2017 as an acquirer for Chinese tourists. In 2015 WeChat launched its first WeChat wallet outside of China in South Africa, in partnership with Standard Bank of South Africa<sup>29</sup> (which, perhaps not coincidentally, is itself 25 percent owned by ICBC, China’s largest bank).

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<sup>23</sup> Ant Financial’s announced intention is to have an IPO, probably in 2018; funding rounds in 2016 valued Ant Financial at \$60 billion, making it the most valuable fintech company and the most valuable tech unicorn after Uber at the time.

<sup>24</sup> Yillian Yue, 14 March 2017, available [here](#).

<sup>25</sup> Source: Alibaba Group website.

<sup>26</sup> What has led to the rapid emergence of Chinese DFS players, and what might this mean for African digital ecosystems? This paper does not cover the complete story end to end, but excellent sources such as the case study by Kapron and Meertens (2017) for BTCA provide more depth. Available here: [https://btca-prod.s3.amazonaws.com/documents/284/english\\_attachments/ChinaReportApril2017Highlights.pdf?1492606527](https://btca-prod.s3.amazonaws.com/documents/284/english_attachments/ChinaReportApril2017Highlights.pdf?1492606527)

<sup>27</sup> <http://www.alibabagroup.com/en/ir/pdf/160614/12.pdf>.

<sup>28</sup> The takeover for \$1.2 billion was approved by MoneyGram shareholders in April 2017 but is still subject to US regulatory clearance as of 3 August 2017.

<sup>29</sup> <http://blog.wechat.com/2015/11/25/south-africa-launches-wechat-wallet-the-first-country-officially-outside-china/>

# 3. “Coming soon to a market near you”: superplatforms in Africa

*“The future is already here—it is unevenly distributed.”*

– William Gibson, author (1992)



## 3.1 Africa’s expanding digital ecosystems

The expansion of digital ecosystems is closely linked to the expansion of reliable and affordable data connectivity, which is taking off in Africa. Chart 3 shows the growth in African mobile subscribers with mobile phones between 2016 and 2025. It illustrates that 20% of mobile subscribers accessing the internet in Sub-Saharan Africa had smartphones in 2016 and projects that 45 percent of subscribers will have them by 2020. An even higher proportion (33 percent in 2016, 60 percent in 2020) had or will have access to mobile broadband internet. Accessing the internet does not require a smartphone; a feature phone with a browser will do. Of course, these headline numbers mask wide variations in underlying groups. For example, access among urban youth (blue line) is far higher than among rural youth (green line) and is likely to remain so.

Although internet coverage and connectivity will almost certainly expand, several constraints remain:

- Access to higher speed connections for effective browsing (3G and upward) is not yet common outside

urban areas and the business models to roll these out profitably can be challenging in some markets;

- Reliable electricity to power base stations and recharge power hungry smartphones is increasingly more of a constraint in some markets than reliable communications; and
- Mobile data is often expensive and is charged based on consumption.

These limitations are being addressed in a variety of ways that make it very likely that the majority of African adults will have access to the internet via mobile phone by 2030. Superplatforms like Facebook and Google<sup>30</sup> are investing to extend internet coverage using balloons and drones. Chinese manufacturers have relentlessly lowered the cost of an entry-level smartphone to well below \$100, while in India, Reliance’s Jio network offers smartphones with free data at prices below \$70. Initiatives like Facebook’s Free Basics (formerly Internet.org) are tackling the relatively high cost of data services by bundling free access to a restricted set of internet sites with new phone service offerings. Already live in more than 61 Asian, African and Latin American countries,<sup>31</sup> Free Basics is one of the most widespread and controversial<sup>32</sup> internet on-ramp

<sup>30</sup> Google’s Project Loon first released high altitude balloons which provide high speed internet access to rural and remote areas in Kenya in July 2017. See full story [here](#).

<sup>31</sup> Source: <https://info.internet.org/en/story/where-weve-launched/>.

<sup>32</sup> See recent critique in Advox Global Voices (2017) in [here](#).

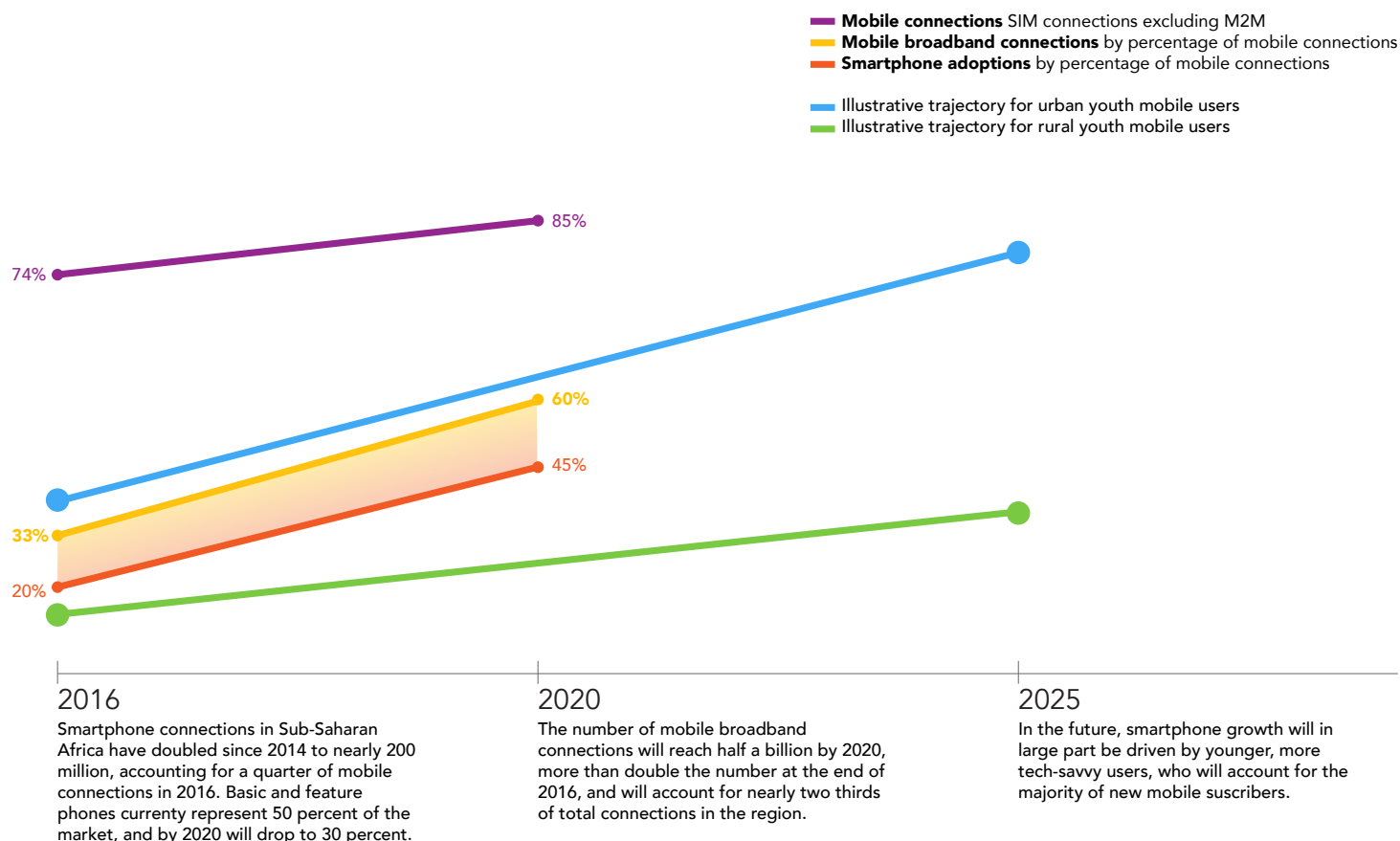
schemes today. However, Caribou Digital (2017) points out that there are a range of other business models being tested and promoted, including “zero rating”<sup>33</sup> certain internet sites and presenting ads in return for viewing time.

Furthermore, smartphones are not required to access the internet and Caribou Digital’s 2017 report documents how Facebook, in particular, is providing access to its core social network via a range of non-smartphone platforms. As many as a third of Facebook

users in Nigeria, Kenya and Tanzania access the site via a feature, not a smartphone. If one adds people with mobile web access (which requires a browser but not a smartphone) to this number, the proportion of people with some degree of internet access rises to almost half of current users in those countries.

In sum, it is clear that internet connectivity is rising in Africa and that digital ecosystems and digital financial services will likely soon follow.<sup>34</sup>

**Chart 3. Connectivity in Sub-Saharan Africa**



Sources: GSMA Report: [The Mobile Economy, Sub-Saharan Africa 2017](#)

<sup>33</sup> Zero rating a website is the practice of not charging data time for a user to access that website.

<sup>34</sup> See, for example, the April 2017 CFI paper by Leon Perlman entitled “Technology Inequality,” available [here](#).

## 3.2 The potential for superplatforms to enter DFS in Africa

The financial muscle that allows superplatforms to sustain longer-term bets, together with the growth “genes” that drive their expansion into relatively uncontested markets, make it increasingly likely that some superplatforms will enter African DFS markets in the next five years.

Some US-based superplatforms are already widely used across Africa. For example, a recent panel survey conducted by Caribou Digital found that 98 percent of the 51 percent of Kenyan adults with a data-enabled phone have a Facebook product installed – Facebook, WhatsApp or Instagram.<sup>35</sup> The US superplatforms, however, have yet to enter the sphere of financial services in Africa as they have in other emerging markets. Facebook will soon launch payment services to over 1 billion users in India through their WhatsApp messenger service,<sup>36</sup> and they also recently partnered with G-Cash in the Philippines to offer payments through their messenger app. It is likely a matter of time before Facebook offers financial services to their 170 million customers in Africa.<sup>37</sup>

Among the Chinese internet players, Ant Financial and WeChat have only recently and somewhat tentatively entered certain African markets. WeChat Pay launched in South Africa in 2015 through a partnership with a local bank, and Alipay is accepted in a few places frequented by Chinese tourists in South Africa and Kenya. Jack Ma of Alibaba visited Kenya and Rwanda in July 2017 and announced that Alibaba was actively seeking “investment opportunities, partners interested

in building logistics centers and those interested in supporting entrepreneurs.”<sup>38</sup> To enter Africa, Alibaba might buy up or partner with local providers like Nigeria’s Jumia, Africa’s largest e-commerce platform.<sup>39</sup> This scenario would update and transpose the premise of a 2016 article,<sup>40</sup> “*Waiting for Amazon*,” which described the struggles of African e-commerce companies in difficult and expensive markets like Nigeria.

Keeping in mind, of course, that African financial markets are not a single market and face regulations and restrictions that hinder cross-border scaling, let us consider Nigeria as a test case for superplatform expansion onshore. As Africa’s most populous country and largest economy, it is an obvious market to enter early, but it is also known to be a tough market for foreign companies in general, let alone new sectors like e-commerce.

On the surface, Nigeria and China share several characteristics that might make Chinese superplatforms feel somewhat “at home.” Nigeria is large and densely populated (at least by African standards), and communications coverage and connectivity is advancing steadily, although still at levels well below China’s. In addition, the trust environment for e-commerce is challenging in Nigeria, but Alibaba has successfully navigated a home market with relatively low initial levels of consumer trust as well as an uncertain legal environment. Nigeria, like China, has pursued a government policy of digitizing payments, but Nigeria has gone even further than China by penalizing the use of cash at banks under the Cashless Nigeria policy.

Beyond these broad characteristics, digital payments in Nigeria also share features with China’s. The digital

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<sup>35</sup> Will Croft, Caribou Digital Data. Letter to Olga Morawczynski. 2017. “Analysis of Facebook Installs in Kenya,” 20 November 2017.

<sup>36</sup> <http://indianexpress.com/article/technology/social/whatsapp-now-has-1-billion-daily-users-over-250-million-on-status-4768940/>

<sup>37</sup> <https://www.forbes.com/sites/tobyshapshak/2017/04/05/facebook-has-170m-african-users-mostly-on-mobile/#73f3178953dc>.

<sup>38</sup> See one account of Jack Ma’s East African trip [here](#).

<sup>39</sup> Even if valued at over \$1 billion, Jumia would cost Alibaba less than 0.4 percent of its current market cap to acquire.

<sup>40</sup> <https://qz.com/601690/waiting-for-amazon-the-great-nigerian-e-commerce-shake-up/>.

payments market is growing quickly, although from a low base. Nigeria's national payment system, like China's, has many infrastructural elements in place to connect banks with a wide range of payment instruments, including real-time payments at a low cost. Although the Central Bank of Nigeria has blocked mobile operators from issuing e-money, it has licensed a number of non-bank e-money operators. Alipay and WeChat Pay would likely satisfy all the technical requirements to be licensed as mobile money operators.

However, political obstacles may be a hurdle for Chinese superplatforms. Satisfying technical requirements is not the same as actually getting licensed. As Visa and Mastercard have found, even when international law in the form of World Trade Organization agreements and rulings require that Chinese regulators license them to process transactions in China, the process may nonetheless drag on for a long time. Political considerations could delay the direct licensing of foreign superplatforms as onshore payment providers. These obstacles may not stop superplatforms from entering since they could acquire or form a joint venture with a local or regional bank that is already licensed in the market. Such a change in ownership may also require regulatory approval, but this strategy would engage the interest of the local banking community and would create local pressure for approval.

A more significant obstacle than political hurdles for Alipay or WeChat Pay in Nigeria is probably the limited state of Nigeria's cash handling infrastructure due to the slow uptake of mobile money.<sup>41</sup> Compared with East African countries where cash-to-digital agent networks are pervasive, it is still not easy or cheap to make small cash deposits or withdrawals in Nigeria. Instead, the economy depends on cash for the bulk of livelihoods.<sup>42</sup>

Since both Alipay and WeChat Pay are OTT plays, this factor may delay their entry to Nigeria. Indeed, this may explain why they first entered South Africa where OTT plays are possible for a much larger proportion of the population.

If anything, the current lack of digital transactability today in Nigeria is more likely to delay the arrival of Chinese (or other) superplatforms rather than stop them altogether. Increasing digital transactability in the smaller markets in East or West Africa, such as Ghana, may make them a more appealing starting point for superplatforms in the region than the larger market.

Superplatforms' thrust to find new markets for extensive growth may subside if they face more aggressive competition at home, and it is possible that they would retrench their expansion abroad to allocate resources to defense. Such home market competition seems unlikely to come from superplatforms in other markets. Facebook and Google are unlikely to be willing or able to enter China and, while Apple and Microsoft already have large and lucrative businesses in China, they are in different sectors from Alibaba and Tencent. Similarly, it is unlikely (although not impossible) that Alibaba or Tencent will seriously challenge Amazon or Facebook in North America or even Europe. Competition for superplatforms at home will more likely come from entrants not yet known today. However, among the range of potential future competitors, it seems less likely to list e-commerce platforms which have grown up in smaller home markets. Local or regional players from smaller home markets would likely struggle to achieve and sustain profit margins which would give them deep enough pockets to fund superplatform-style growth across other sectors, at least while the current superplatforms stalk local markets.

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<sup>41</sup> While the biannual national A2F survey reported in 2016 that around half of Nigerian adults are already banked, barely 1 percent of adults reported using mobile money.

<sup>42</sup> See BTCA diagnostic on Nigeria, available [here](#).

### 3.3 Low-income African consumers: a hypothetical scenario

As digital ecosystems built by superplatforms expand and provide value to users, it will likely only be a matter of time before low-income clients in Africa and elsewhere also become users.

In this section we contrast the current actual state of digital ecosystems with a possible future hypothesized state through the eyes of a low-income client. Here we consider the case of Anna, who runs a micro business in an urban area of Nigeria.



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#### Anna The digital urban native

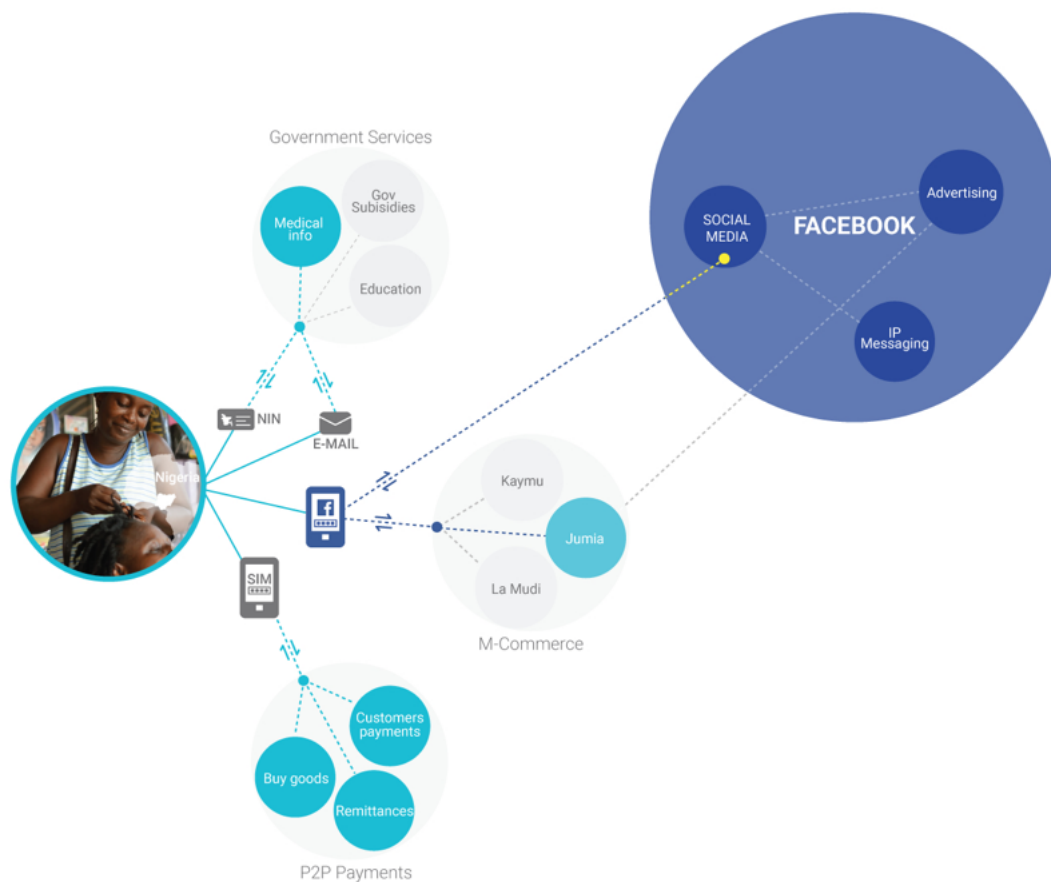
Anna is a young hairdresser who moved to Abuja, Nigeria, three years ago to live with her aunt. Anna worked part-time at a local restaurant and as a hairdresser for friends until a year ago when she started renting a small space in downtown Abuja from her uncle to start a hairdressing business.

Anna owns a low-end smartphone that cost her just over \$50, which she uses to connect to Facebook on a daily basis. She has recently started to use Facebook to advertise her services, uses WhatsApp to chat with friends and clients, and has a mobile money account to pay her rent. A few of her customers pay her using mobile money, which she is happy to accept until she accumulates enough for the rent (after which point she prefers cash).

Three months ago, Anna started using the e-commerce platform Jumia to order hair supplies. Jumia has saved Anna from taking time away from her shop to get supplies, thus allowing her to serve more customers. To pay for these purchases, Anna uses mobile money. If business keeps improving, Anna will try to expand in a year or so by renting a bigger space and eventually hiring an additional employee.

As Chart 4 shows, Anna already engages in a variety of digital ecosystems available to her today: e-mail through Google's Gmail, m-commerce through Jumia, m-payments through a local mobile money operator and certain government services. Her deepening engagement with Facebook provides her with more than just instant messaging and social media, she is also using it to advertise her services to and through her online friends.

**Chart 4. Anna's engagement in digital ecosystems today: 2017**

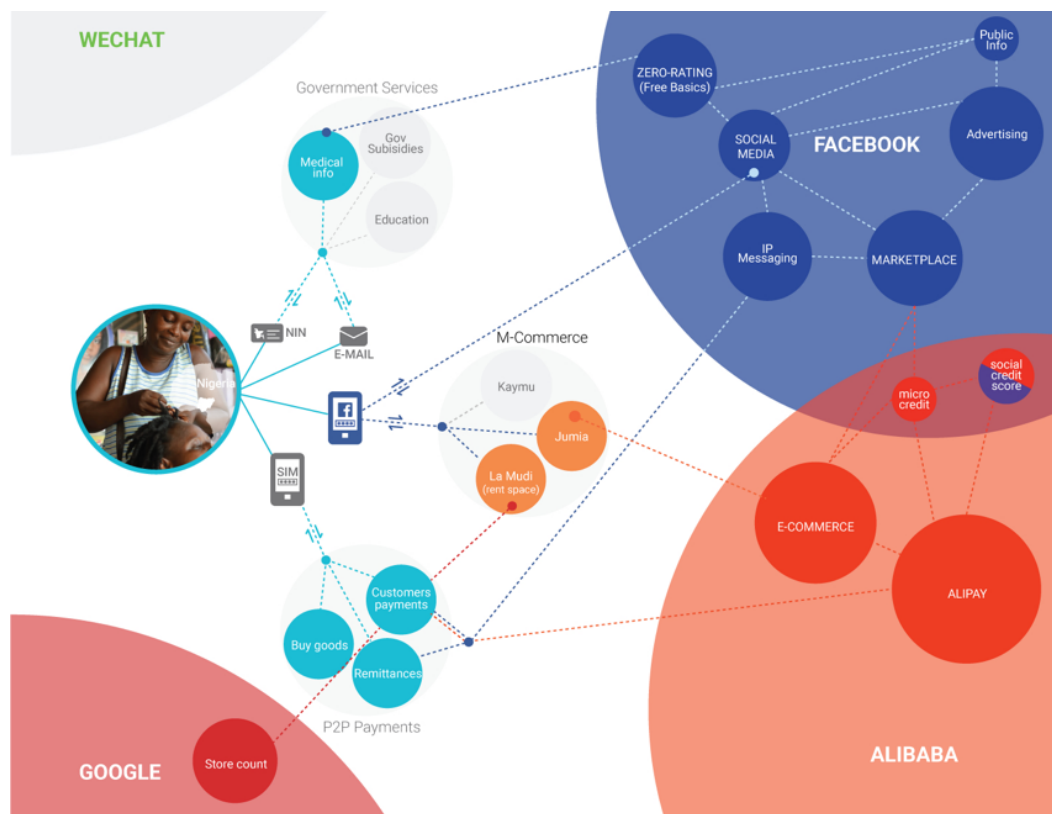


If we imagine her life in 2030 (Chart 5), Anna's participation in and across a variety of digital ecosystems will have multiplied as more opportunities have appeared. In particular, the arrival of Alibaba and its affiliate Ant Financial in Nigeria will have increased her usage of mobile payments to buy supplies and household items. The presence of a large, reputable player like Alipay means that her clients use Alipay to pay for her services, even taking advantage of the discounts she offers for advance bookings through her Facebook page. Anna's employees get paid through Alipay as well. Since Anna was an early Facebook and e-commerce user in 2017, she has been able to leverage her accumulated data footprint to qualify for a microloan through Ant Financial's channels.

In 2030, Anna has also started to explore the wealth management options she found on Ant's Nigerian Wealth marketplace, which features a range of interest-earning investment funds into which she can transfer and withdraw money using her Alipay account. Anna has experimented holding digital coins – eRMB – offered via the Alipay app to manage her foreign exchange risk. Since some of her input supplies come from China, it is useful to hold other currencies to ensure she can afford purchases even if her own country's currency depreciates.

While most of Anna's new customers find her via Facebook, she also keeps a local adclick presence on Google. She also uses Google business freeware to create weekly charts to understand the progress of her business, using downloads from her Alipay account.

Chart 5. Anna's ecosystem of the future: 2030



This scenario is in many ways a positive one: the entry of superplatforms accelerates the process of digitization, enabling Anna and her community to escape the low-level equilibrium trap of fragmented offerings. Superplatforms also accelerate the deployment of new technology, some of which is already present by changing the business models of deployment.

### 3.4 Technology development and deployment in Africa

Anna's story in future digital ecosystems may sound slightly far-fetched given the diffused, limited digital ecosystems in Africa today, especially in rural areas. However, many of the technologies that will power the emergence of the digital world are already deployed in Africa and touching the lives of many low-income people.

Consider these new technologies:

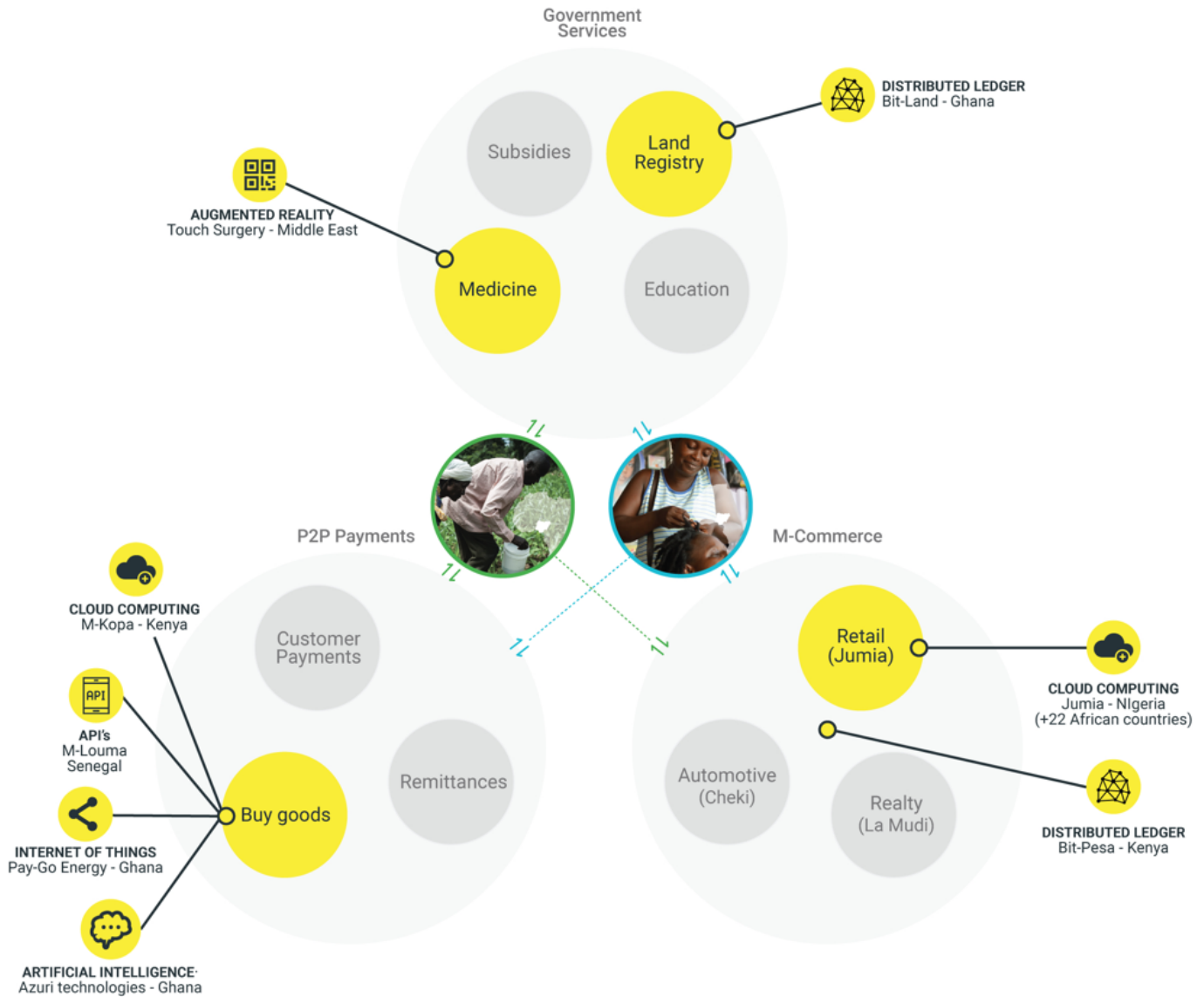
- Although they are not yet widely available from banks, **APIs** will seamlessly connect software within **ecosystems** so that users experience little friction navigating within the ecosystem;

- **Cloud computing** provides the capacity to support transactions;
- Thousands of solar panels are connected to the internet and collect data on weather patterns as well as energy usage, enabling an **internet of things (IoT)** assessment of the electronic devices in each household;
- **Artificial intelligence (AI)** is already present in Facebook's news feeds and is also being used in digital credit scoring; and
- **Distributed ledgers (DLT)** enable new asset registries and allow virtual currencies to circumvent the limits of thinly traded national currencies.

Further examples in Annex A of this paper extend the examples of applications in Africa. Chart 6 links each of these technologies to a named provider already active in Africa today.



**Chart 6. Technology enablers already deployed in Africa**



These technologies are vital drivers of expansion and change within and across digital ecosystems because they distribute (APIs and DLT), create (IoT), store (cloud computing) or analyze (AI) data about consumers. Superplatforms have the resources and competence not only to experiment with new technologies like these, but also to roll out the existing ones on a large scale. Today's superplatforms are all aggressive investors

at the forefront of developing and deploying these technologies, which may consolidate and extend their dominance. The deployment of new technologies may also enable the rise of new superplatforms. For example, will Uber, today a ridesharing platform, be able to leverage its cloud-based consumer data to offer services in other sectors through APIs?

# 4. Implications for other stakeholders

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*“Within a decade, companies will define their business models not by how they play against traditional industry players but by how effective they are in competing within rapidly emerging ‘ecosystems’ comprising a variety of businesses from dimensionally different sectors.”*

– Venkat Atluri et al. (McKinsey, 2017)

## 4.1 Challenges for policymakers and regulators

There are numerous enabling policies that a nation state or a region can pursue to create an environment for growth of digital ecosystems. These enabling factors may affect the pace and breadth of this growth even more than the availability of the technology itself. Five developed nations are pursuing an active policy of enabling digitization through a new coalition – “D-5” group.<sup>43</sup> This group shares experiences and collects good practice pointers for the roles government can play in digital ecosystems, including facilitating, coordinating and building digital infrastructure such as secure digital ID systems.

In contrast to its possible role in enablement, a state may find it difficult to prohibit or stop expansion in the purely digital world, although it can create barriers. For example, Uber services are being used even in cities that have banned the platform. When the digital world intersects with the physical world (as in the case of O2O e-commerce), a national government may try to impose binding constraints, such as requiring data to be localized, i.e., held in servers onshore, thereby limiting the reach of globalized cloud computing services.

National legislation may also require licensing of onshore players in certain sectors – such as financial services – which may limit the desire and ability of offshore providers, including superplatforms, to come onshore. These barriers may slow, but are unlikely to stop, the emergence of digital ecosystems.

In the future, financial regulators may need less emphasis on prudential oversight (besides oversight of entities failing as a result of superplatform competition) since the platforms themselves may monitor and police solvency in their ecosystems.<sup>44</sup> In addition, there may be less need for oversight of market conduct since superplatforms generally have a strong interest in protecting their brands by enforcing their own trust frameworks; they also have the legal and compliance muscle to do so. However, there will likely be an even greater need for regulators to monitor anti-competitive behavior and assess the evolution of market structure across financial markets, which will be discussed in Section 4.3 on emerging risks. This will require greater coordination between financial regulators, identity agencies, data protection authorities and competition commissions – where they exist. Even without superplatforms, financial regulators will need to adapt their mindsets and retool their skills for the era of big data. The rise of superplatforms may accelerate that need.

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<sup>43</sup> The D5 is a self-formed group comprising UK, New Zealand, South Korea, Israel and Estonia, which meets at least annually to share good practices. See a description of their launch forum in 2014 [here](#).

<sup>44</sup> Consider the actions of Ant Fortune, where in 2016, bondholders in a fund which it had listed lost their money following its bankruptcy. While denying legal liability for its role as marketplace, Ant nonetheless paid the legal costs of bondholders in enforcing their rights and securing return of their money – overcoming coordination failure which is a big risk with retail investors enforcing rights.

## 4.2 Incumbent financial providers

Today's financial institutions have two choices as they face an incoming tide of superplatforms with vast stores of data and massive financial resources: join them or fight them. Some banks have faced these choices before when their financial markets were first opened to entry by foreign financial institutions. The difference now is that superplatform entrants can draw upon deep financial resources accumulated from other sectors to fund forays into the financial sector. This degree of potential cross-subsidy enables them to operate at lower margins than incumbents while building powerful brands and market positions.

There may be compelling reasons for incumbents to "join them" as Standard Bank of South Africa has done with WeChat. In the short term, local banks may unlock new international revenue sources (such as transactions by Chinese tourists), and they may also capture new data about their clients and benefit from the analytic capabilities of the superplatform.

Such partnerships are also appealing to superplatforms, which may even wish to buy into ownership of the local player. Although Alipay has not yet bought a bank (rather, it has focused on payment providers and processors of different types and sizes) outside of China, local regulations may require it to do so to come onshore in some countries. Also, the funding needs of a superplatform's local financial business may compel it to take an ownership stake in a local deposit-taking institution, just as Ant has done with MyBank in China.

In contrast, banks probably do not have the financial wherewithal to "fight" superplatforms. In countries like China where superplatforms dominate, banks are seeing a rapid erosion of margins. Superplatforms are able to cross-subsidize their product lines, thereby undercutting market prices. BFA's GAFIS has shown that offering financial services to low-income clients can be a tough

business<sup>45</sup> and products like low balance savings may only have a viable business case when offered alongside more lucrative product lines. When superplatforms enter African markets they will likely see finance as a means to a bigger end and, as such, will be willing to absorb losses if financial service offerings can add value to the ecosystem as a whole. This ability to take a loss on financial products, even in the longer term, puts banks in a weak position to fight superplatforms.

Niche financial players with distinct propositions and brands will likely survive as they always have. However, larger retail banks that do not have a clearly differentiated strategy or brand will likely be more vulnerable. Banks risk becoming dumb reservoirs of funds, much as some telcos have turned into dumb pipes for data in the face of superplatforms. Banks might still accumulate wholesale deposits, such as floats for e-money issuers, but they will not be able to intermediate them competitively at the retail level. Some banks will likely survive as dumb reservoirs but they will need to retool their skills and capital structure to become wholesale fund managers rather than the high market banks of today. In Europe, legislative action is increasing the likelihood of this scenario: the Access to Account provision of the Payments Services Directive (PSD2) requires that banks allow (or at least not deny) third party service providers (PSPs) access to their customer's accounts. Alipay, WeChat Pay or Facebook MessengerPay could be among these PSPs in the future.

Individual local banks are unlikely to have the muscle to fight superplatforms, but they could work together. Collectively, banks may have the power to develop and control some of the essential infrastructure of digital ecosystems such as digital identities. Banks have to satisfy KYC requirements to open accounts and could leverage their knowledge of customers into forms of identity that could be used beyond banking alone. Forums like WEF have argued<sup>46</sup> that banks have an existing advantage in the digital ID space.

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<sup>45</sup> See <http://bfaglobal.com/projects/gafis/>

<sup>46</sup> See WEF (2016) A Blueprint for Digital Identity: The Role of Financial Institutions in Building Digital Identity, available [here](#).

Few banks have leveraged this advantage, although in Africa Nigeria may be an exception. Each banked client in Nigeria must have a unique bank verification number (BVN), which enables individuals to be traced as they open accounts across banks. There are more BVNs in issue (30 million in 2017) than national IDs or Facebook IDs. These BVNs could become the keys to the “digital kingdom” if banks promote their numbers as the basis for digital identification, much as Aadhaar numbers are the key to authentication for payment systems in the “India stack” of digital technologies.

The reality is that an individual bank will probably never have more data about its customers than a superplatform, given the range of superplatform offerings. Rather than compulsively holding onto their own client data, local banks would benefit from leading efforts to open and share access to data through credit bureaus or rating agencies so when competitors do enter, they would be required to join these institutions and forced to share their data.

### 4.3 Unknown but rising risks

At least some of the present superplatforms have a long track record of enabling (Amazon) and a stated mission (Alibaba) to enable small businesses to access wider markets for buying and selling goods and services – what we call “generativity.” While the effect of superplatforms on market structure is still unknown, especially in developing countries, by commoditizing and atomizing services, they may “hollow out” the middle between themselves and the “army” of small businesses. This has already been seen in some developed markets, but may be less problematic in Africa where the “middle market” is already missing. The real question is whether superplatforms can enable small businesses in Africa to become medium or even large businesses by expanding their market reach.

In addition to the possible effects on market structure, a rash of recent books has called attention to the harm created by some tech tools and behaviors in the digital world. These tools and behaviors are not specific to superplatforms although their scale may amplify the potential for harm. For example, in her 2016 book, *Weapons of Math Destruction*, mathematician Cathy O’Neill demonstrates how the use of algorithms in sectors such as the justice, educational and financial systems in the US can generate destructive outcomes. She does not dismiss the use of algorithms per se but rather calls attention to algorithms that are opaque, scalable and unfair. Her book is a call for greater transparency and oversight of algorithms that have large-scale effects like those at the heart of superplatforms, which screen search results and news feeds.

Law professors Ariel Ezrachi and Maurice Stucke take this concern further in their 2016 book, *Virtual Competition*, by demonstrating scenarios in which algorithms, which are expected to bring greater efficiency and liquidity into trading markets, instead undermine competition. For example, pricing algorithms trained on the same data flows may “collude” in setting similar pricing strategies unless human intervention prevents this outcome. The book explains how collusive or abusive outcomes are possible without any intention to collude and asks whether competition laws are adequate to protect consumers. Ezrachi and Stucke also ask how competition laws can be enforced in the digital world since an algorithm itself cannot be fined or jailed.

While the use of algorithms is widespread and not limited to superplatforms, Ezrachi and Stucke take particular aim at the rise of superplatforms because of their substantial and increasing market power. This power rests in large part on their ability to collect large quantities of data about consumers, which they can use directly or sell to others. Most African countries lack data protection laws and where they exist, they

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<sup>47</sup> According to Graham Greenleaf’s database of protection and privacy laws, only four African countries – Ghana, South Africa, Zimbabwe and Mauritius – were known to have laws in place in 2016. See [here](#).

are inadequate.<sup>47</sup> Under “frenemy” scenarios, Ezrachi and Stucke show how competing superplatforms have an incentive to collaborate in collecting data about new customers, just as lions cooperate when hunting gazelles (customers).

This behavior is not necessarily illegal but it may have consequences by locking out other future players in the usage of information.

Frenemy behavior is also manifest in interlocking directorships and alliances among US superplatforms. For example, the chair of Google’s board sat on Apple’s board for a long time. Similarly, although Chinese superplatforms compete in retail payments at present, they have common interests and investments in other areas of financial services and next generation technology such as ridesharing platforms.

These webs of overlapping interest raise the possibility that, having acquired all possible customers, superplatforms introduce friction to retain customers – thereby exerting quasi-monopoly power. As long as superplatforms have to compete to retain customers this scenario seems unlikely, but, especially in smaller markets, the risk of a local information monopoly may be significant. At this stage, the customer-centric philosophies of superplatforms may be put to the real test: when you have the informational and market power to lock in a customer, will you do so, however subtly? In these circumstances, the very definition of client centricity must evolve to accommodate the need to offer customers choice or at least not restrict their ability to port their data and digital identity. Of course, banks are not immune from the temptation to lock customers in either. The stickiness of a bank account number has been used to explain the low number of retail bank account switches. This risk has led to laws in EU markets, such as the UK, that require a bank to help clients switch to another bank when asked.

For policymakers, the question becomes how to prevent the lock-in outcome without stifling innovation. As *Virtual Competition* explains, actions taken to prevent or reverse natural market dominance can have a chilling effect on innovation as they cause players to underestimate future profits.



# 5. Conclusions

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*“We need to cultivate a single, essential instinct. A new temperament which I have called the Seventh Sense... We’ll be torn apart by those new network dynamics and placed on topologies we hardly understand. Our future fight is not about whether we are going to be enmeshed. It is about the terms of enmeshment.”*

– Joshua Ramo, *The Seventh Sense* (2016)

The majority of people in Africa will likely be engaged in digital ecosystems of some form by 2030. It is likely that a number of these ecosystems will be orchestrated and also dominated by superplatforms. It is also likely that superplatforms will offer financial services in a number of countries in Sub-Saharan Africa within this timeframe.

We have also argued that the arrival of superplatforms will likely have benefits for low-income users by accelerating the development of digital services, which will expand income generation opportunities. But we have also described the risks: certain destructive behaviors might emerge as a result of the wide-scale application of algorithms, and superplatforms may be able to restrict competition by forcing users to remain within their ecosystem. Since superplatforms are not yet dominant across Africa, at least in the financial sector, policymakers have an opportunity to shape how these risks play out.

For financial institutions that do not have a clear differentiated proposition, prospects are bleak since the emerging digital ecosystems are unlikely to be bank-centric. In this scenario, banks risk becoming dumb reservoirs disintermediated from being active users of deposit funds by the over-the-top players.

Digital finance is no longer about simply adding a new channel to an existing business; rather the emergent effects of digitization at scale will fundamentally change,

even disrupt, the entire existing financial ecosystem. Whether policymaker or banker, we all need to develop what McKinsey consultant Venkat Atluri has called an – ecosystem mindset –, the ability to “read” an ecosystem – or author Joshua Ramo calls a “seventh sense.”<sup>48</sup> By this term, Ramo means the ability to understand the effects of connectivity, which follows the five physical senses and the sixth sense of understanding history attributed to philosopher Nietzsche. Understanding digital ecosystems is no longer an interesting sideline; it is essential to navigating the turbulent floodwaters of the digital age.

The entry of superplatforms will also transform the nature of financial inclusion. Instead of a narrow transactional approach offered by financial institutions that have a limited view of their customers, a functional digital wallet will serve as an entry point to an entire digital world. Inclusion as a discrete goal will fade into the background as financial transactions become just one part of a much larger set of transactions and communications, creating rich, two-way customer-producer relationships. Fundamentally, the tone of the discussion about financial inclusion will change from one based on being “pushed” to being “pulled” as described in the first FIBR white paper. Why wouldn’t people want to buy and sell through platforms that “know” them and treat them fairly? This may arrive sooner than we expect.

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<sup>48</sup> Ramo’s seventh sense – knowing what connectivity does – is on top of the five senses, plus the sixth (a sense of the flow of history).

# Annex A: Tech megatrends list

A recent report by PWC (2017), [Tech breakthroughs: megatrends](#), identifies ten tech megatrends that CEOs around the world reported as most affecting their business.

We list each megatrend below, together with an explanation and an example of where that technology is already deployed in Africa today.

Technology	Description	Example
Artificial Intelligence (AI)	The application of science and computational engineering to develop computer systems that can complete tasks/goals in the world in a “smart way” (based on human intelligence).	<a href="#">Azuri Technologies</a> uses AI to monitor customer usage patterns and the weather to ensure that customers have light throughout the night by adjusting the brightness of light accordingly.
Augmented Reality (AR)	Immersive technology where graphics, along with audio and other sensory enhancements, are placed onto a real-world environment in real time (source).	<a href="#">Touch Surgery</a> is using AV in telemedicine to allow surgeons to practice procedures that range from heart surgery to carpal tunnel operations with the help of AR technology. Is currently used in the Middle East (source).
Virtual Reality (VR)	Computer generated simulations of three-dimensional images, 360° videos or immersive environments that a user can interact with.	<a href="#">Naledi3d Factory</a> is a media company in Pretoria, South Africa, that uses VR to create 3D training programs in a wide range of disciplines, including industrial training and safety awareness, health and sanitation, and new technology, among others.
Robotics	The design and application of physical devices (robots) that can move things or perform tasks by reacting to inputs/signals from the environment.	<a href="#">Armtrac</a> is a British company that designs, manufactures and sell robots (unmanned ground vehicles) for clearing minefield operations. In 2016, Armtrac equipped the Nigerian army with four robots to address the heightened risk of landmines in communal attacks from Boko Haram.

Technology	Description	Example
Drones	<p>A drone is a type of unmanned aerial vehicle that can fly either autonomously (GPS-guided autopilot mode) or via a remote control, making use of robotics and sensors in their design.</p>	<p><a href="#">Zipline</a> is partnering with the government of Rwanda, UPS and GAVI to serve 21 hospitals nationwide to provide fast access to life-saving medicines and other medical products. They have completed over 350 delivery flights to real hospitals. (sources: <a href="#">1</a>, <a href="#">2</a>)</p> <p>In July 2016, Facebook successfully tested their solar drone, Aquila. The ultimate goal is to launch 10,000 drones like Aquila, moving them around the globe to create hotspots wherever they're needed.</p>
<p>Distributed Ledger Technology (DLT)</p> <p>Blockchain Technology</p>	<p>DLT is a database (ledger) of transactional data, shared between all participants (nodes) of a network. Instead of sharing it back to a central authority, each node processes each transaction and makes up a conclusion that is shared among the network. Once the network reaches an agreement, the transaction is updated and everyone keeps a copy.</p> <p>Blockchains in particular use a DLT approach but focus on storing transactional data in chronological order within blocks (files) that are added at the end of the chain (ledger) and can't be changed once accepted by the network.</p>	<p><a href="#">BitPesa</a> enables trade business through foreign exchange (FX) and B2B payments using bitcoins. BitPesa is present in +85 countries, with 6,000 customers, and accounts for more than +17,000 bitcoin transactions (<a href="#">source</a>).</p>
Internet of Things (IoT)	<p>Technology that enables the connection of any physical device that can potentially have an on/off switch to connect to the internet (i.e., washing machines, headphones, lamps, wearables, etc.). Thus, improving interactions between people-people, people-things and things-things.</p>	<p><a href="#">PayGo Energy</a> offers a smart metering technology that enables customers to access modern fuels (LPG) on a pay-as-you-go basis, and allows customers to monitor their fuel usage through a smart metering system.</p> <p><b>How it works:</b> Customers purchase the amount of gas they want with mobile money. When gas is running low, the smart meter contacts PayGo to arrange a replacement before they run out of gas, and a PayGo agent brings a full cylinder to the customer.</p>



Technology	Description	Example
3D Printing	<p>3D printing is a manufacturing process that uses additive layers of material (resin) to create tridimensional objects from a CAD design (Computer Aided Designs/ Rhino, Solidworks, etc.).</p> <p>This technology makes possible the massive replication of existing objects in our environment through the use of 3D scanners.</p>	e-NABLE is a community of 7,000 makers in dozens of countries, access to 2,000 printers, that create 3D printed prosthetic arms for people in Uganda, Kenya and other regions on a volunteer basis.









## Glossary of other technology terms used

Cloud Computing	<p>Technology that allows people to store/access data and run programs (software) over the internet on one or more computers without the need for a physical device (hard drive) for storage.</p> <p>It can be done regardless of the user's location, as long as they can connect to the internet.</p>	M-KOPA Solar, a startup that provides affordable pay-as-you-go solar energy to over 500,000 homes in Kenya, is using Microsoft cloud computing services to power their operations.
Application Programming Interfaces (APIs)	<p>An API is a set of protocols and definitions for a particular digital system (software) that specifies how its components should interact between themselves, and with other external platforms.</p> <p>For example, a mobile operator's API would allow an external organization (i.e., startup) to access and use their messaging, billing, location and transactional data to provide additional services to customers.</p>	<p>In July 2015, Orange opened their SMS/USSD and billing APIs to developers and startups in seven markets (Cameroon, Côte d'Ivoire, DRC, Egypt, Guinea, Niger and Senegal).</p> <p>MLouma is a startup/web portal in Senegal that connects buyers and sellers of agricultural products. In 2015, it integrated Orange APIs to build a USSD version, which allows users without smartphones and internet connectivity to access the service. It also adopted the Orange billing API to give wholesale buyers an alternative payment solution.<sup>49</sup></p>
Trust Framework	<p>A generic term used to describe a legally enforceable set of specifications, rules and agreements that govern a multi-party system established for a common purpose, designed for conducting specific types of transactions among a community of participants and bound by a common set of requirements.</p>	Verve card is an African card scheme operated by Nigerian payment system operator Interswitch, which claims to be one of the most used payment cards in Nigeria with more than 17 million cards in issue. Since 2015, it has also been issued in Kenya.

<sup>49</sup> Case study from the Mobile Economy Africa 2016. Chapter 2: Mobile delivering growth and innovation across Africa.

## Annex B: Mapping the Chinese internet giants

The table below roughly maps the BAT-J Chinese internet giants to their Western equivalents, which are known better outside China. However, note that a recent *Economist* article entitled "[Trailblazers—China's world class internet players](#)" makes clear that while some of the Chinese companies started as explicit copies, many have emerged as innovators in their own right. The social networks and payments platforms have gone well beyond the capabilities offered by their Western equivalents.

Western internet giant	Chinese equivalent
	
	 WeChat Pay
	
	
	

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