Smartphone and Internet Usage in Sub-Saharan Africa

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Intro

The focus of this paper is an exploration of technology products and services designed for the African market, with the aim of answering a single question - what common factors have caused some of these projects to succeed beyond all expectations, and what factors have led others to collapse? To answer this question, this paper will conduct an in-depth exploration of two subjects. One, it will explore the founding and initial expansion of the Chinese phone company Transsion, which has in recent years become the overwhelmingly dominant phone manufacturer for the entire African continent. Two, it will explore the start of mobile money markets in Africa by exploring the initial design and release of M-Pesa, the first such mobile money market service.

The Start of Transsion

The Founding of Transsion

The story of Transsion starts with Zhu Zhaojiang, it's founder. Before founding Transsion in 2016, Zhaojiang had been working as a senior executive in a major Chinese mobile phone provider, during which time he'd visited nearly 90 foriegn countries. Competition within the Chinese domestic market between mobile phone providers for market share was fierce, and while his employer currently had a healthy position in said market, they were interested in any extra sales they could get to help bolster their position. Not hoping for any major advances but simply some extra revenue, the company Zhaojiang worked for began expanding internationally, for which Zhaojiang was routinely sent on international trips. But while on these trips, he

realized something - he routinely saw a massive presence from Korean and Japanese phone brands internationally, but saw almost nothing from Chinese phone brands. While this would have made sense just a few decades previously, when China's manufacturing abilities were laughably dwarfed by these other nations, it seemingly made no sense at the time. After all, China had not just developed these manufacturing capabilities, but had developed an experience and expertise in mobile phone development to rival any other nation in the course of its domestic fighting for market share. So, why didn't any Chinese mobile phone providers have a major international presence?

The answer was a simple one - none had tried it. His current employer was one of the few to even be looking at international sales, and they saw this as a decidedly secondary market to the domestic one in China. So, recognizing a potential opportunity, Zhaojiang set out to found a new Chinese mobile phone provider, but this time one that would primarily manufacture phones for the international market, rather than for the domestic market. He would begin his pursuit of this goal with the founding of Transsion in 2006, which while having an international focus, decided to retain a small presence in the domestic Chinese market as well. But by 2008, Transsion decided to exit the Chinese market, and to instead focus almost all of its effort on the most promising market it had found - Africa.

How Transsion Adapted to Africa

> *"A full understanding of the local market is the key to success"* [3]
> - Arif Chowdhury, Co-founder of Transsion

The core idea of Actor Network Theory is that everything in the world can be modeled as a relationship between actors, and that in essence, nothing exists outside of these relationships. Actors can be humans, objects, ideas, tangible or intangible, and almost anything else that one can think of. In this sense, every decision that a human makes is the result of the network of relationships with actors that exist behind them, and that every decision can therefore be modelled and understood as such. But for our current purposes, we can simplify this down to a simple statement - when choosing between which phone brand to buy, people make their decision for a good, tangible reason.

While no one within Transsion appears to have thought about their actions through the framework of Actor Network Theory, they regardless used a very similar thought process when they planned their expansion into Africa. African consumers have tangible needs - actors - that drive their decisions, and understanding these needs can help Transsion take market share from its competitors in Africa, and perhaps to even convince currently non-mobile phone owning Africans to buy in. So, what where those needs?

As Transsion made it's initial forays into the African continent, one of these needs that they immediately determined was battery life. While Africa has surprisingly robust network coverage in even it's most isolated regions, it's electrification status leaves much to be desired. For instance, when Zhou Dewen, a president of a large chinese business federation, had a meeting with the foreign minister of Nigeria, the largest economy in Africa, Zhou was shocked to find that even the foreign ministers own office suffered periodic blackouts [1]. Later, Zhou is quoted as saying that if access to electricity was so bad for even the highest levels of government in Nigeria, he can't imagine how bad it must be elsewhere. Transsion found the same trend,

finding many regions that had mobile network coverage but that lacked electricity, such that the people living there would often have to travel somewhere else and pay to charge their phones. In response, Transsion doubled down on the battery life of their devices, with some of their devices having a battery standby time of up to a month [3]. For wireless devices, "standby time" has a specific technical definition of the amount of time a device can be connected to a network and so capable of receiving messages, but not in the more power-intensive state of sending or receiving calls.

Transsion found another need in SIM cards. While Transsion found that cellular network coverage existed in almost every part of Africa, they found that this coverage was much more patchy then it might appear. African cellular networks often had periodic downtimes, individual networks often had gaps in their coverage or may not cover a nearby region at all, and out-of-network calls typically had extra charges or fees applied to them [2]. Cellular network providers in Africa also typically work differently than they do in the United States or similar regions. Whereas in the United States consumers sign up for a contract and pay a large amount up-front, in Africa most networks work via a pay-as-you-go system, with consumers stopping by at airtime resellers to stock up on airtime minutes only as needed. Finally, African mobile networks typically give out SIM cards to connect to their networks for very low prices, and sometimes even give them out for free.

We can look at these factors and easily visualize a network from Actor Network Theory acting on the average African consumer: various actors render any one network unreliable, it's cheap or even free to belong to multiple cellular networks, and it's no more expensive to get 50 minutes of airtime spread across two networks then it is to get those same 50 minutes of airtime

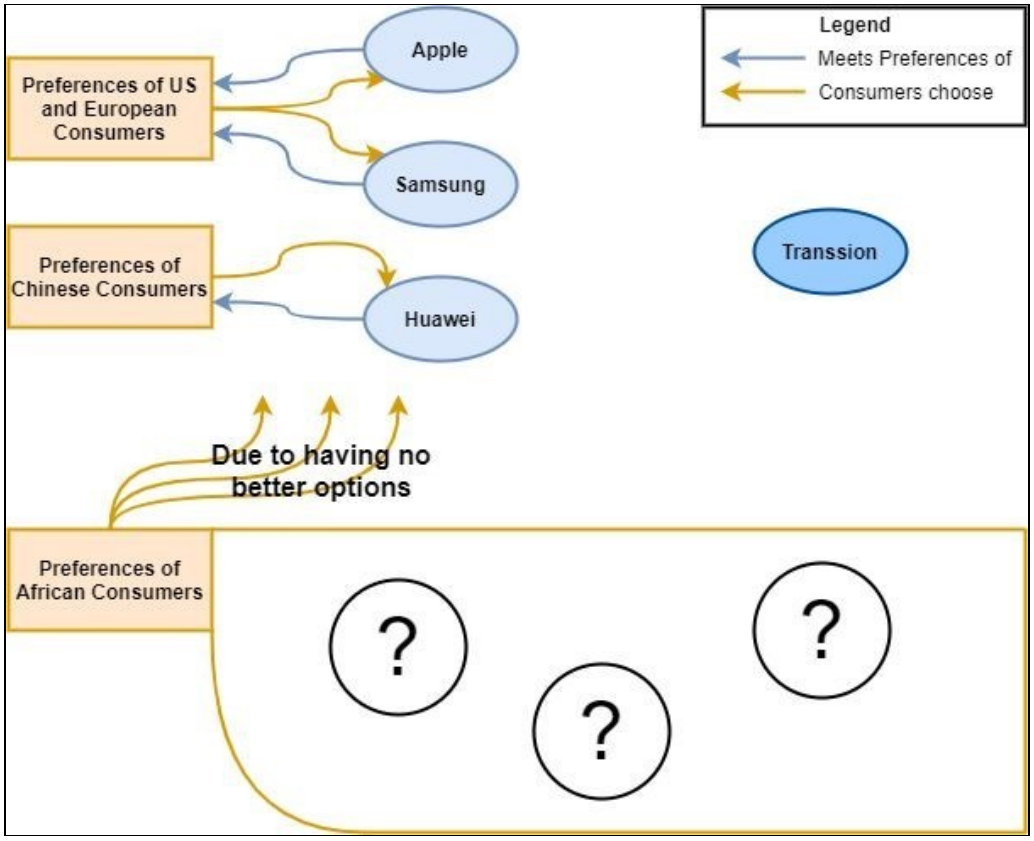
on just one network. It should therefore come as little surprise that most Africans carried multiple SIM cards around with them, and would swap between them throughout the day depending on which network had the best coverage in the area or was up at the time. But as much as this system worked for African consumers, you can imagine how carrying around multiple incredibly small electronic devices along with you, and periodically swapping them in and out of your phone while trying to not lose track of them or accidentally drop one, could be annoying to deal with. This created a great deal of demand from African consumers for mobile devices with multiple SIM cards, and Transsion was one of the first mobile phone companies to recognize this. Today, most Transsion mobile devices support at least two SIM cards, and some support three or even four sim cards [3].

Another factor Transsion found is one that may come as a surprise: Selfies. When camera's on mobile devices take a picture, they aren't truly taking a completely unbiased image of what they're pointed at. At the most simple, the camera automatically adjusts the aperture of the camera lens to decide which parts of the image to focus on to make clear and which parts to leave blurry. But most mobile phone cameras also do a vast amount of additional calculations, such as accounting for the lighting level of the picture, automatically focusing in on faces, and more. Predictably, these calculations are biased towards the pictures the typical users of these devices take - pictures of much lighter-skinned non-africans. Transsion found that this issue was particularly problematic in poor lighting conditions or when there was both a light-skinned and dark-skinned person in the image [1], as the cameras would 'optimize' the image in a way that blurs away almost all of the features of the darker-skinned person. To fix this problem, Transsion devoted a significant amount of effort to redesign the software in their phone's

cameras, allowing their cameras to take far better photos of darker-skinned Africans then their competitors' devices can.

Another factor in Transsions expansion to Africa can be put like this - Transsion was the only mobile phone manufacturer that considered Africa their primary market. For most other manufacturers, Africa was simply an “also here” destination, a point where phones manufactured and designed for other regions would also be sent to get some additional sales. This can be seen most clearly in the shocking fact that Transsion was the first major phone brand in Ethiopia to add a keyboard for the Amharic language [1], the official language of Ethiopia. Another factor is that Transsion was the first foreign mobile phone company to set up an after-sales support network in Africa [1], doing so almost immediately after entering the market. While it’s not clear just how much demand there was from Africans for an after-sales support network from Trannsion, it does go to show the degree to which Transsion operated differently from its competitors when it came to Africa - Transsion saw Africans as it’s primary consumers, and went to every length to see to and accommodate their needs. This is in contrast to other companies, which failed to take even the most basic steps, such as language support, to cater to this market.

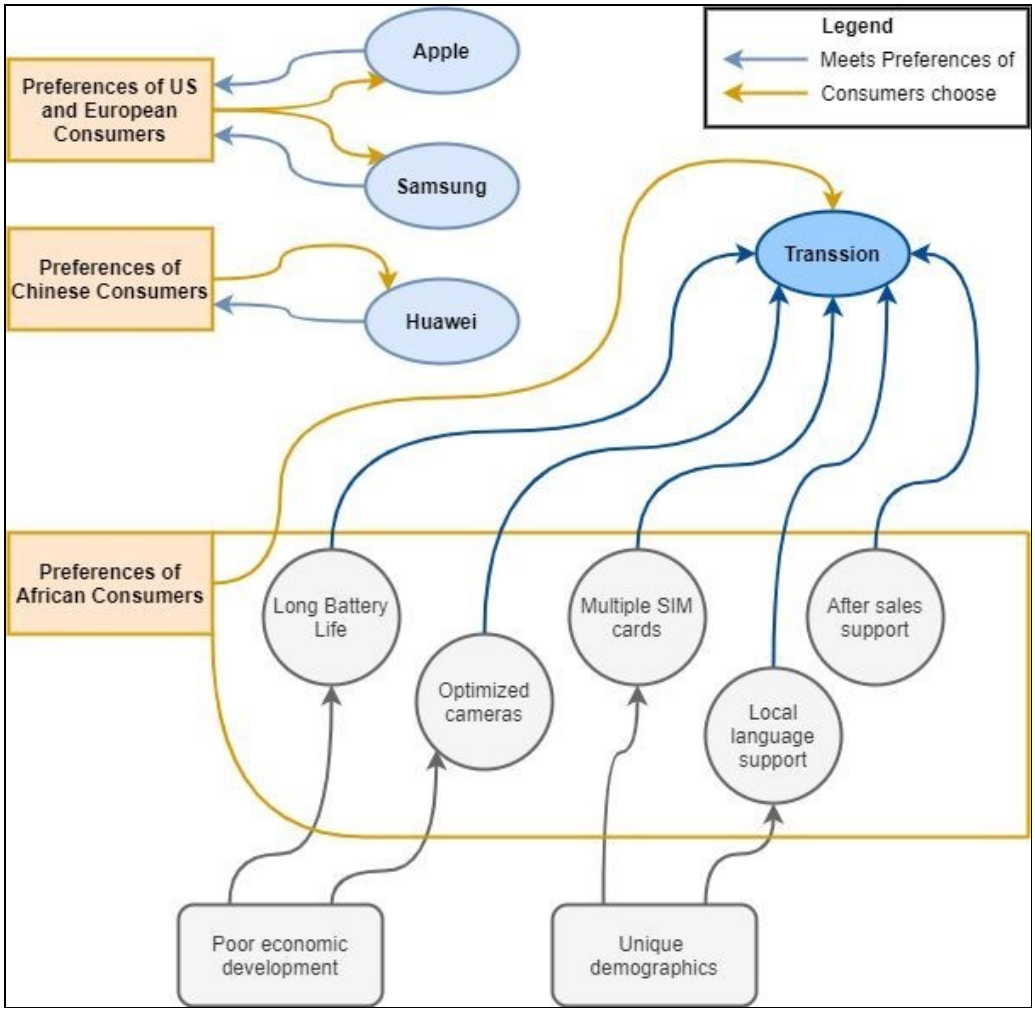
Figure 1



To return to Actor Network Theory, we can summarize Trannsion's plan and actions in Africa as such. Figure 1 shows Transsion's initial understanding of the situation when they were founded. That currently, other mobile phone manufacturers design their devices almost solely for non-African markets, and control the market in Africa solely due to a lack of competition that better meets the needs and preferences of the African consumer. However, at this point, the preferences of the African consumers are also unknown to Transsion. As Transsion began exploring the market both before and after it's entry, we shift to figure 2. As Transsion determined the needs and preferences of African consumers, they steadily changed the design of

their phones to better meet those needs, over time causing African consumers to switch from Transsion's competitors to Trannsion.

Figure 2



Transsions Success in Africa

Today, Transsion is the uncontested hegemon of the mobile phone market in Africa. While Samsung had long held this position, in 2017 Transsion took the lead, taking 28% market

share in the feature phone market in Africa compared to Samsung's 27% [8]. This lead has only grown since then, since as of the third quarter of 2019, a full 64% of all feature phones sold in the African market are produced by Transsion, compared to a mere 36.2% for Samsung [9].

Transsion doesn't just have impressive market share. As the numbers above would indicate, Transsion has been expanding its operation massively. In 2007, it's first full year of operation, Transsion produced 3 million mobile phones. But by 2010, Transsion was producing 20 million a year, and by 2014, they were producing 46 million a year [10]. While still growing rapidly in Africa, Transsion has started expanding its operations beyond Africa into south-east Asia and India, but has retained their consistent consideration of the needs of local consumers - in the case of India, Transsion realized that Indians often had trouble using fingerprint scanners on their phones after eating a famously oily indian meal and getting greasy fingers, so they improved their fingerprint scanners to be able to work even with oily fingers [1]. Transsion is also extremely profitable, making a profit of over 92 million US dollars in 2018 with a global revenue of 3.3 billion [11], and went public in 2019, raising 400 million dollars within short order [12].

Transsion has, as we discussed, massively modified it's devices and operations to meet the needs of local African consumers. But many in Western companies may, after only reading the previous two sections, have been questioning the wisdom of doing so. After all, Africa is an incredibly poor market which would have poor returns on any investment, especially an investment on selling in the African market rather than just producing there. But as the data and sources discussed in this section show, nothing could be farther from the truth. While Transsion is perhaps still eclipsed by giants like Apple or Huawei, servicing the African market has still

proven extraordinarily successful for them, and by following in their footsteps other companies can succeed as wildly beyond expectations in Africa as Transsion has.

The Start of Mobile Money Markets

The Birth of M-Pesa

The first foray of the world into mobile money markets, which refers to a means of transferring money between individuals solely via the use of mobile devices, came from a surprising source - the release of M-Pesa in Kenya in 2007. This initial application succeeded far beyond it's developers' wildest hopes, and ushered in the massive expansion of mobile money markets across all of Africa and even beyond that we see today. While M-Pesa was the first application of this type, it's far more than just a basic prototype - it managed to get all of the fundamental features and design decisions that would go on to define mobile money markets in Africa right the first time, and so later applications of this type are largely just copies of M-Pesa, with few to no innovations on top of it. Therefore, to explain why and how mobile money markets came to be so well suited to the African market, we must explore how M-Pesa came to be created this way.

Before moving onto the specific innovations and adaptations M-Pesa settled on during its development, and how it came to those decisions, there's actually a very interesting story about how M-Pesa came to be developed in the first place. Initially, the planning for what would become M-Pesa started with a simple aim, to try and improve access to financial resources in the world's most isolated regions [6], at first with a particular focus on microfinance institutions. With that idea, they then made a surprising choice - at least, surprising if you look at the history

of failed attempts to help Africans from Western companies. Rather than simply sitting in a comfy office in Europe and creating whatever they thought would be most helpful, they held a series of focus meetings with local microfinance institutes, telephone companies, banks, and more in Kenya, to learn what they considered their most pressing problems. Ultimately, they settled on a more solidified idea - that to enable access to financial resources, they should make accessing financial resources as simple as possible. To do so, they initially developed the idea of allowing people to repay loans from microfinance institutions via their phones, rather than having to travel long distances and attend often long group meetings to make payments on their loan.

The team that developed M-Pesa didn't stop staying in contact with local actors there. They partnered with a local company, Safaricom, to release M-Pesa in Kenya. To allow them to reach the most isolated regions not currently serviced by banks, their decision to partner with Safaricom's pre-existing network of airtime dealers was key, and they put major work into retaining and improving their partnership with those dealers. As the team finished development, they proceeded to run a small scale pilot with their local partners to practice for a full release and iron out any further issues. Finally, rather than trying to make an end-run around any possible regulations like many western technology companies do, they went through the proper channels to coordinate with Kenya's relevant government authorities and ensure the smooth release of M-Pesa. The primary point of this paper is to make more solid connections between these relationships with local actors and the final success of the service, which we'll proceed to do in the next section, but it's hard to imagine that even with the work we'll explore in the following section, that M-Pesa could have succeeded without the partnerships and work we discussed here.

The Adaptations of M-Pesa

The basic idea of Actor Network Theory, that everything can be modeled as a network of relationships between actors, and that these networks can explain all social phenomena including which services people choose to use, was explained in the section “How Transsion Adapted to Africa”. This section will jump straight into the discussion of what actors were present and how the team behind M-Pesa recognized and worked with them.

One question the team behind M-Pesa had as they began work was a very specific one: what, precisely, is the problem that they’re trying to solve? In the words of Nick Hughes, one of the senior leaders on the team to develop M-Pesa, “the mobile commerce market is strewn with technical solutions looking for a problem”[6]. While the team had the basic concept of using a mobile device to transfer money without requiring a bank account, they wanted to avoid the mistake of developing a solution in search of a problem by finding a much more ironclad use case. To answer this question, this team of europe-based individuals didn’t just sit back and think about what they might need, but instead went to Kenya to hold first-hand focus groups with microfinance institutes, telephone companies, banks, and more. Eventually, they found a troubled relationship between actors that they believed their solution could solve.

Microfinance institutes are companies that primarily service low income groups with micro loans, typically around the range of $100 dollars. While loans that small wouldn’t be useful in much of the world, in many of the world's poorest regions they can be life changing, allowing for low income individuals to gain access to basic tools such as farming instruments or sowing machines that revolutionize their productivity, but are so expensive that they’d otherwise

be completely unable to access them. These people almost always lack bank accounts or any financial history, and merely reaching them can sometimes be a long, hazardous journey on it's own. However, microfinance institutes have still found lending to these groups in small amounts to be a profitable enterprise. There is a problem - microfinance institutes prefer to have large group meetings, where every person they've lended to comes and meets up with one of their lenders every few weeks, so the lender can provide them any additional assistance they might need and so the loaner can repay some of their interest for this period. But when the lender goes to leave, this presents a problem - they must now travel a long distance through an isolated region with poor police protection with a large amount of cash, while quite a lot of people know where they are and they they're carrying a lot of cash, before they can reach a bank and deposit this money. This is on top of the requirement for both the lender and loaner to take hours out of their day to travel this distance. Here, the M-Pesa team found a solid problem.

The problem is the relationship between the two actors of the microfinance loaners and lenders, where for them to exchange money requires a long and dangerous trip to be made repeatedly. The M-Pesa team felt this was an obvious case where their service would be useful. They could supply both the loaner and lender with an M-Pesa enabled device, and rather than requiring these long trips where both sides need to carry significant amounts of cash at risk of robbery, they could exchange money remotely. For the pilot program, this was the dedicated use case they tested.

After the pilot, the M-Pesa team had a significant amount of real usage data to look over, and confirmed that the pilot group had consistently used M-Pesa for purposes outside of the one, specific task of repaying microfinance loans. For the full release of M-Pesa the team therefore

wanted to move away from this single very specific, customized use case, but still wanted a clear cut use case that they could use to explain the value of M-Pesa to new customers. The new use case they decided on, again through regular contact with Kenyans throughout the development process, was the sending of remittances to family. In Kenya, it was common practice for one of the main breadwinners of a family to live far away from the rest of their family, where there were more and better job opportunities, and to send money back home to their family. In the words of Susie Lonie, another senior team member on the M-Pesa team, "Practically every Kenyan I worked with sends money up country to some family members". While this was common practice in Kenya, it still wasn't easy to do. The regions people were sending money back to rarely had banks, which meant that simply transferring the money over wasn't an option. They could travel home with a significant amount of money in cash to give to their family, but that runs the risk of being robbed on the way. But there is another factor - while these isolated regions rarely had banks, they did have cell network coverage and so airtime dealers. Since M-Pesa allows money to be deposited and withdrawn through airtime dealers, they could safely use them to 'send' money along this route. Through identifying this problem and it's actors, M-Pesa found the much wider use case which it would launch with.

Another important adaptation M-Pesa made was their relationship with airtime dealers. As mentioned previously, one of the major problems faced in the more isolated regions M-Pesa wanted to service was the lack of banks. This lack of physical banks posed an intrinsic problem for M-Pesa, of how to enable the easy transfer of money without any actual physical system to transfer said money. But as they explored Kenya and its environment, they came up with an easy solution - airtime dealers. Cell network coverage was available in almost every region of

Kenya, and in order for people to access those cell networks they needed to purchase airtime, and so even the most isolated regions tended to have airtime dealers who would accept cash and exchange it for airtime. Therefore, M-Pesa intended to approach the airtime dealers with a simple offer - allow people to also approach you with a balance in their M-Pesa account, transfer it to you, and get real money in exchange. Then, once the dealer returns to a bank, they can exchange their M-Pesa balance for real money. When M-Pesa started approaching airtime dealers to try and recruit them into their project, they found a surprising welcome from these groups - cell networks had only appeared in Kenya over the last few years, and so most of these dealers were entrepreneurs who had made their business by being at the forefront of new technology [6]. They eagerly bought into M-Pesa and adopted the new systems they'd need to use with it.

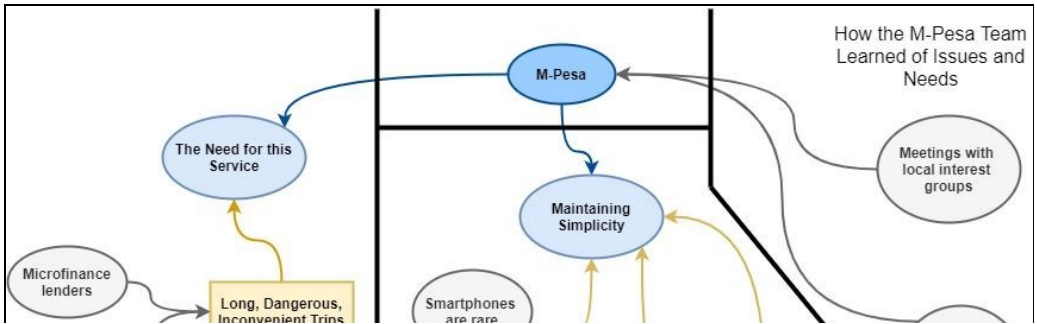
Another important decision M-Pesa needed to make was how to work with these airtime dealers. For the pilot, they had initially considered issuing all of their consumers basic magnetic cards and all of their dealers POS (Point of Sale) devices to read the cards [6]. But inorder to continue working with the dealers, they rejected this approach. For one, there was the problem of getting this equipment. Even just to equip the pilot, acquiring this many devices would be expensive, and for the full release they'd almost certainly require consumers and dealers to purchase their own cards and POS devices. This would drastically raise the barrier of entry for both groups, and could possibly ring the death bell of M-Pesa before it even got off the ground. Instead, the M-Pesa team settled on a much simpler device for adding airtime dealers into the system - feature phones. The airtime dealers would simply install a slightly different version of the M-Pesa application then the consumers did. When the consumers went to deposit or

withdraw money, they would do the same thing they usually do and text someone to transfer the money, except now they'll be texting the dealer and he'll take in or give out physical cash. The dealer version of M-Pesa would also include some additional features to allow the dealer to more easily handle their money. Since most airtime dealers would presumably already have their own phone and the consumers needed a phone to use M-Pesa anyway, this allowed consumers and dealers to enter the system without any upfront cost other than downloading the application. While this significantly reduced costs for the pilot, it was also undoubtedly key to the quick adoption of M-Pesa by both the Kenyan public and the airtime dealers, who were key to the systems success.

The final major adaptation M-Pesa made was the nature of the application. When development on M-Pesa started, it may have seemed intuitive to try and build it as a conventional smartphone app, but doing so would have been a dangerously flawed approach as the M-Pesa team was aware. Not even as a result of their constant outreach to their Kenyan partners, but as a product of their basic research before starting the project, the M-Pesa team was aware that smartphones are incredibly rare in the economically isolated regions they're trying to reach. Instead, people possessed feature phones, capable of only simple voice calls and text messages. In order to create M-Pesa, the team would have to work with these limitations. The solution they came up with was to use text messages as the basis of their entire system, so that to transfer money to another individual you simply had to send them a text message with a few keyphrases and a specified amount to transfer. While the M-Pesa team was aware of this even before they began reaching out to their Kenyan partners for their views and problems, this adaptation was still key to the final success of this service.

We've mentioned multiple different actors, relationships, and networks that were key to M-Pesas development and later success, but let's tie them all back together. The first task the M-Pesa team faced was coming up with a solid product, something beyond 'help isolated regions access financial resources'. To properly identify a problem that actors from these regions needed solved, they initially held multiple focus meetings with local interest groups, to determine what their needs and problems are. They would then continue these meetings and interactions with local interest groups throughout the project, and also run a small scale pilot program to identify any issues that would come from release in practice, rather than just in theory. From these meetings they identified two key areas that the M-Pesa team would spend most of their time working on: identifying what core need this application solves, and seeking to keep the application as simple as possible. On the need for the project, their meetings with local interest groups led them to recognize the common issue of needing to transport cash long distances through poorly policed areas in Kenya. Initially, they limited this problem and their solution to assisting microfinance groups, but later expanded it to remittances sent by Kenyans to their families living elsewhere in the country. To keep the project as simple as possible, so as to allow as easy use of and buy in to it as possible, they made 3 major innovations: the use of text messages as the base of the application, the usage of airtime dealers as their distribution network, and the use of a special dealers-only version of the M-Pesa application to eliminate the need for specialized point of sale equipment. All of these are detailed in figure 3.

Figure 3



The Success of Mobile Money Markets

Since their emergence in 2007 with M-Pesa, mobile money markets have exploded across Africa and the world. As of 2018, there were 272 different mobile money services live on the planet [13], half of which were based in Africa [14]. In 2013, there were 13 mobile money services with over 1 million active users [13]. By 2017, there were 54 such services, and by 2018, 62 such services. Africa isn't just home to a large number of these services, but also makes massive use of them. In 2018, 45.6% of the total value of all transactions sent via mobile money services occurred in Sub-Saharan Africa. This isn't just 45.6% of the raw number of transactions - this is 45.6% of the total value of all such transactions. The total value of mobile money transactions, on the world's poorest continent, very nearly matches that of the rest of the world combined. This feat also isn't just due to a low total value of transactions on such services, in fact it's quite the opposite - in 2018, 1.3 billion US dollars worth of transactions occurred over mobile money markets each day [13].

Mobile money services, to an even greater degree then Transsion, stress how there aren't just desirable humanitarian goals to be gained from servicing the African market, but also stunning financial success when handled correctly. When the average mobile money market charges a 0.5% to 3% fee on all transactions that occur over its service, and the total value of daily transactions across all such services is 1.3 billion US dollars as of 2018, it doesn't take a spreadsheet to recognize the financial success of this for those that spearheaded the effort or quickly followed up on it. Of course, mobile money services are also an absolutely massive humanitarian success - while not doing anything to directly alleviate poverty, they've massively

assisted the world's most impoverished in gaining access to financial resources, undoubtedly improving the quality of life for these individuals and providing them essential tools that might help them advance out of poverty. While this would be a sufficient enough achievement for many people, it can also stress an important message to Western companies looking at operating in Africa - achieving humanitarian goals, and long-term success in Africa, are not at all mutually exclusive.

Conclusion

As stated in the introduction, the purpose of this paper was to try and identify the common themes that have caused some technology products and services designed for Africa to succeed, and what has caused others to fail. The answer, in this author's opinion, is to properly consider the needs and desires of African consumers throughout all stages of product development.

The example of Transsion shows a company founded on the tail end of the initial explosion of mobile devices, looking outside of China for a market due to the saturation of said market, and seemingly deciding to move back in time towards feature phones rather than the clear future of smartphones. Yet, in less than a decade, Transsion would achieve overwhelming success throughout Africa, easily beating back far larger and more experienced companies like Samsung to take the spot of Africa's most common mobile device provider. Transsion managed to achieve this by truly searching for and adapting to the peculiarities of the African market, servicing the needs of Africans when selling to Africa rather than selling devices designed for

other markets to Africa. By doing so, they created a far superior product for the average African consumer then what their far older and more experienced competitors were able to provide.

Mobile money markets have seen success for similar reasons as those that led to Transsion's success. Starting with M-Pesa in 2007, mobile money markets have closely worked with and considered the needs of their African users, going to extreme lengths to adapt themselves away from the western-centric model of how a phone app might work to accommodate those differences. They've cooperated with an ad hoc collection of airtime dealers, gone to extreme lengths to work on feature phones, and considered at every turn how to keep the services as simple and easy to use as possible. This created not only one of the most successful software products ever designed for the African market, but has created one of the only ways in which the average African consumer is more technologically advanced than their American, European, or Chinese counterparts.

One problem with this paper is it's failure to explore the opposite of success, projects designed for the African market that had great promise but ultimately failed. However, the projects that this paper has explored have painted an undeniable picture of how key considering the voices and needs of African consumers was to the success of these projects. The success of Transsion was far from inevitable, and in contrast Transsion succeeded where previous mobile phone providers had failed due to one, specific change - the massive importance they gave to recognizing and adapting for the needs of African consumers. While the development of something akin to mobile money markets was likely inevitable, seeing as how on forethought it fulfills an obvious market niche for the safe transport of money in Africa, the utterly stunning success of these services wasn't nearly as inevitable. Equally, it was far from inevitable that the

first serious attempt at such a service, M-Pesa, would get almost everything about it right, and continue to be a market leader in this category even today.

In the case of both M-Pesa and Transsion, it's undeniable that a company with the exact same business plan, at the exact same time and place, but without the same single-minded focus on identifying and meeting the needs of African consumers, would have failed where these companies succeeded. The key to the success of these projects was not a precognitive realization of an unfilled market niche, but rather was the incredible amount of hands-on time spent learning the needs of African consumers and innovating to meet those needs. Any future projects designed for the African market should take these lessons to heart, and be sure to focus as much of their time and resources on meeting with African consumers to learn and adapt to their needs as possible, if they wish to succeed anywhere near as far as Transsion and M-Pesa have.

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