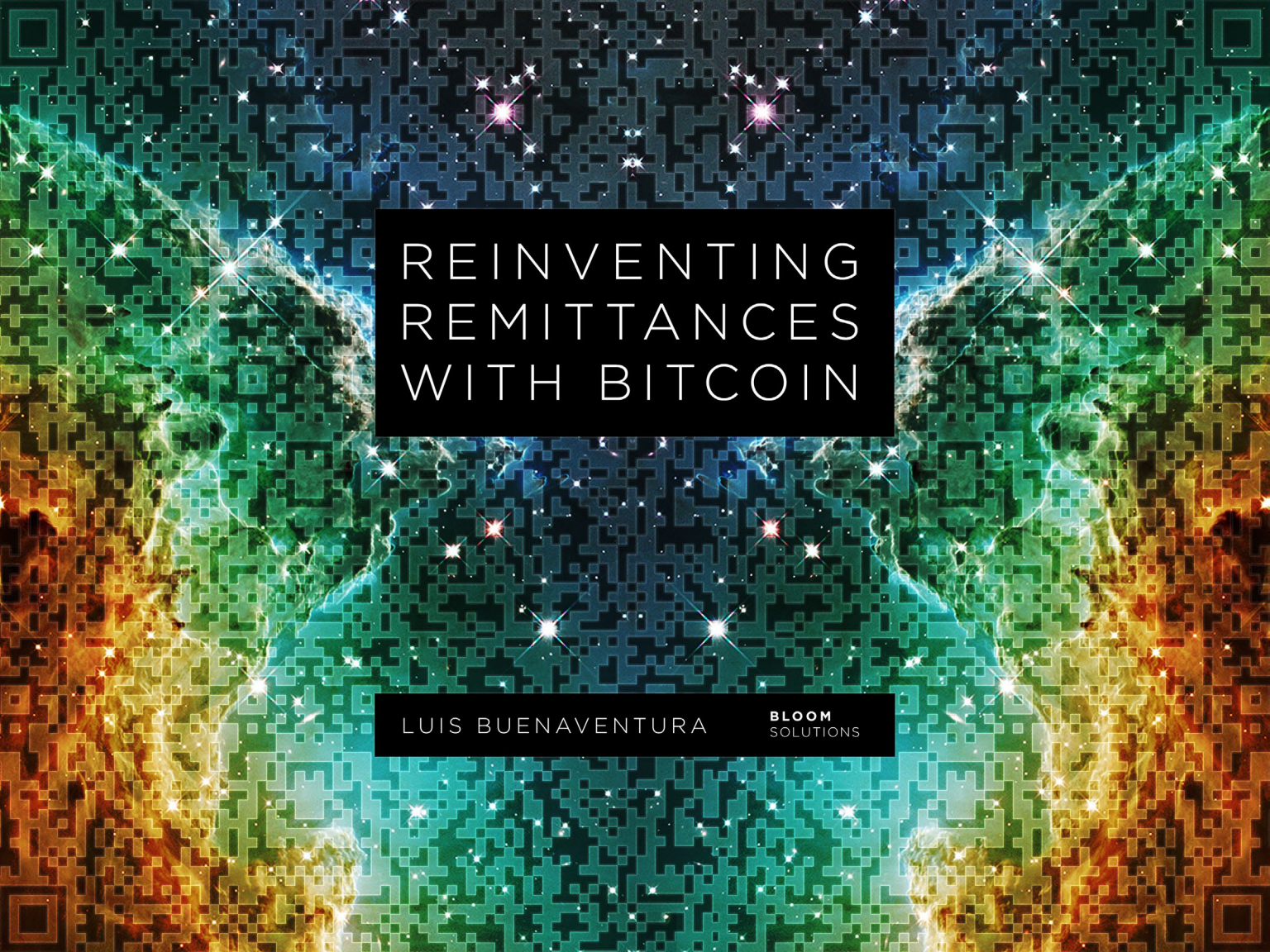
REINVENTING
REMITTANCES
WITH BITCOIN
LUIS BUENAVENTURA
BLOOM
SOLUTIONS

REINVENTING REMITTANCES WITH BITCOIN

First Edition

v0.1.201702

Preface

This book is for Bitcoin enthusiasts, entrepreneurs, and industry veterans who wish to fully understand the Bitcoin-powered remittance process that startups around the world have been working on since 2013. It's our hope that sharing these stories and data in a structured and well-packaged format will contribute to the rapid growth of the global crypto-money transfer network.

BloomSolutions, Inc. (https://www.bloom.solutions) is a Bitcoin remittance software company incorporated in the Philippines, Singapore, and Australia. It was founded by Israel Keys and Luis Buenaventura, and has offices in Makati City, Philippines.

Photo courtesy of Alosh Bennett
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Contents

CHAPTER ONE

The Bootstrapper's Guide to Bitcoin Remittances

There's a lot of rhetoric about Bitcoin and its impact on the US$430 billion international remittance industry. One of the cryptocurrency's most obvious uses is, after all, sending money across the planet with roughly the same effort as sending an email.

The potential effect on emerging markets — aggregate savings that are larger than most countries' education budgets — cannot be overstated. But beyond all the pontificating there is still the practical implementation that has yet to be sorted out.

The Numbers[1]

As is widely repeated in the money transfer industry, the Philippines is the third-largest receiver of remittances in the world. The numbers are compelling: US$26 billion received in 2013, an estimated US$27.5 billion in 2014, and consistent growth of about US$1 billion to US$2 billion annually. Mexico is right behind with US$23 billion received in 2013, although it has been declining in volume since the U.S. housing market crash several years ago.

Both Mexico and the Philippines have the United States as their single-largest source of remittances - but to widely varying degrees. The world's largest economy accounts for 98 percent of Mexico's remittance volume, whereas in the Philippines, it accounts for a little over 30 percent.

A closer inspection also seems to indicate that the nearly US$10 billion in volume from the Philippines being attributed to the U.S. isn't coming from the U.S. at all. In reality, a significant (although still unknown) amount is simply funds being routed via nostro bank accounts from the Middle East, which hosts over 2.5 million Filipinos. Additionally, there are 40 other countries currently hosting at least 10,000 Filipinos respectively, an international pageantry which also includes Canada, Malaysia, Australia, Japan, and the United Kingdom.

It's accurate to say then that Mexico relies on a singular remittance corridor with the United States, while the Philippines is dependent upon multiple corridors with multiple countries, a circumstance which more closely echoes the two largest remittance countries, India and China (US$71 billion and US$64 billion, respectively).

The Context

Let's preface the rest of this discussion with the statement that it is simply not possible for a small bitcoin startup to singlehandedly overthrow Western Union, MoneyGram or even, Remitly, at this stage. It is however possible to provide a very compelling alternative to a small subsection of their customers. "Narrow your focus to the smallest possible problem you can solve," as the oft-quoted startup saying goes.

Additionally, let's accept the fact that bitcoin as a currency is pretty terrible at the moment, and focus instead on what it's good at: instant settlement. Also, let's assume that your average startup doesn't have the resources to open overseas offices in multiple countries or to obtain all the necessary legal and regulatory requirements for operating in those countries.

1 This piece was originally published in Techcrunch in January 2015. It has since been edited for clarity and updated with new information.

Lastly, let's also make the very reasonable assumption that most migrant workers (i.e. the most consistent remitters) don't care about cryptocurrency or the blockchain or the coming financial revolution, but will naturally go to a service if it saves them money.

Given those parameters, what kind of bitcoin remittance business can we build?

The Recipe

We like to refer to services like Bloom in the Philippines or BitPesa in Kenya as "last mile" bitcoin remittance services. These services accept bitcoin from overseas, convert it into pesos, dinars or shillings, then deliver those funds to the final beneficiary via a variety of domestic transfer methods. The beneficiary doesn't need to know that those funds were ever transmitted via bitcoin, they only know that the sender had to spend a little less money while doing so. There's no volatility risk as the recipient never touches bitcoin; all risk is managed by the service.

By specializing on just the last mile, there's an invitation for other bitcoin entrepreneurs from other countries to form informal corridors. A customer in Hong Kong needs to convert their HKD into Bitcoin (BTC) before sending it to the last-mile service, and one could make a reasonably profitable business out of performing that service for them.

Indeed, this is already happening organically. The "on-ramp" company (Bitspark in Hong Kong and Align Commerce in the U.S. as early examples) accepts local fiat currency at the till, and converts that cash into bitcoin on the back-end before transmitting the funds to the off-ramps in the Philippines, Indonesia, or elsewhere.

On the surface, it doesn't seem like a very exciting premise for a "financial revolution," but let's think about what's actually happening here. Small businesses that have no formal partnerships, binding contracts, or even lines of credit between them, are settling cross-border payments in real time on behalf of their customers. This has never been possible before without a centralized intermediary (traditionally: SWIFT, or PayPal, sort of).

When you describe it that way, the process seems straightforward. Most traditional bankers immediately understand the concept of "HKD -> BTC -> PHP," because currently the standard workflow is "HKD -> USD -> PHP." On paper, we've really just replaced the dollar with its more nimble, modern counterpart.

In practice, however, there's a lot more to it than that.

The Mechanics

At their core, all bitcoin remittance startups are brokerages.

Operating as on-ramps, they must have access to large amounts of bitcoin that they can purchase in real time. Buying bitcoin on-demand is the only way to reduce volatility risk, as holding the cryptocurrency has not proven to be a financially sound strategy over these past 12 months.

Access to an exchange with locally available pay-in methods and low trading fees is key here. In the U.S., Coinbase and Circle are at the top of the list. In Europe, Bitstamp and Kraken. In Australia, Coinjar and Independent Reserve. In Singapore, Itbit. In the Middle East, BitOasis. The list goes on.

Operating as off-ramps, the startups need to have enough buyers for the bitcoin they receive to raise sufficient fiat to make payouts to their customers' beneficiaries. If bitcoin's price were trending upwards, this would be a simple game of buying low and selling high, but the movement over the past year has been in the other direction.

With a remittance volume in the low hundred BTCs daily, a single broker with good connections can often sell over-the-counter quickly enough to turn a small profit, or at least break even. As the service volume grows however, automation in the form of trading bots that interact with the international exchanges will be necessary to keep ahead of volatility.

It's a lot harder to be the off-ramp, in most cases. It's basic migration theory all over again: on-ramps tend to exist in countries with better banking infrastructure and deeper bitcoin liquidity, while off-ramps tend to be in countries where the bitcoin community is in its infancy. This isn't a problem so much as a massive opportunity, and if one has the stomach for it, operating as a last-mile remittance service is where the largest growth spurts will be observed. It's only natural. Between the two of them, the Philippines and Indonesia receive remittances from over 50 different jurisdictions. As each new inward corridor comes online, the incoming bitcoin volume spikes.

Additionally, the off-ramps need to be connected to the various domestic remittance methods in their respective countries. In the Philippines, there are more pawnshops than banks, hence, pawnshops are more frequently used as cash-out methods than banks. In Indonesia, a combination of banks and the post office appear to be the preferred strategy.

In India, the extremely popular (and completely informal) money transfer system of *hawala* implies that your cash

pickup point could be anything from a jewelry store to a travel agency.

It'll be interesting to observe whether fledgling bitcoin remittance businesses in India choose to model their approach after the *hawala* brokers or use the formal routes provided by the banks and the post office.

The Law

In most countries, a business engaging in remittance activities will be categorised as a "Money Transfer Operator" and required to obtain a license as such. The costs of these licenses tend to vary wildly from country to country. In the

The author gives a 20-minute presentation at Blockfin Asia 2016 in Vietnam on the growth of Bitcoin remittances around the world. See the entire video here at https://www.youtube.com/watch?v=r0f4VVoARik. (Video and image courtesy of Blockfin Asia.)

U.S., hardly any bitcoin companies have ever managed to obtain licensing that covers all 50 states; it's prohibitive enough (anecdotally, in the low millions of dollars) that startups like CoinX mention their license status very prominently on their website. Around the world, the range is from tens of thousands of dollars in some ASEAN countries, all the way up to US$1-2 million in the Middle East.

Every country has a slightly different approach to Anti-Money Laundering (AML) policies and Know-Your-Customer (KYC) requirements, and the costs of complying with these laws will have an impact on end-user pricing. A handful of companies provide KYC-as-a-service at fairly reasonable costs (IdentityMind is one that focuses on bitcoin startups), which alleviates that overhead somewhat. Some countries have stricter KYC requirements than others however, so it will be necessary to verify a startup's compliance with the local AML council.

The Dream

We're currently at the starting line of a marathon that tantalizingly includes US$42 billion in global savings at its end.

Imagine if every country had one of these loosely coupled but fully interoperable bitcoin remittance brokerages, each one acting as both an on-ramp and an off-ramp onto the global network.

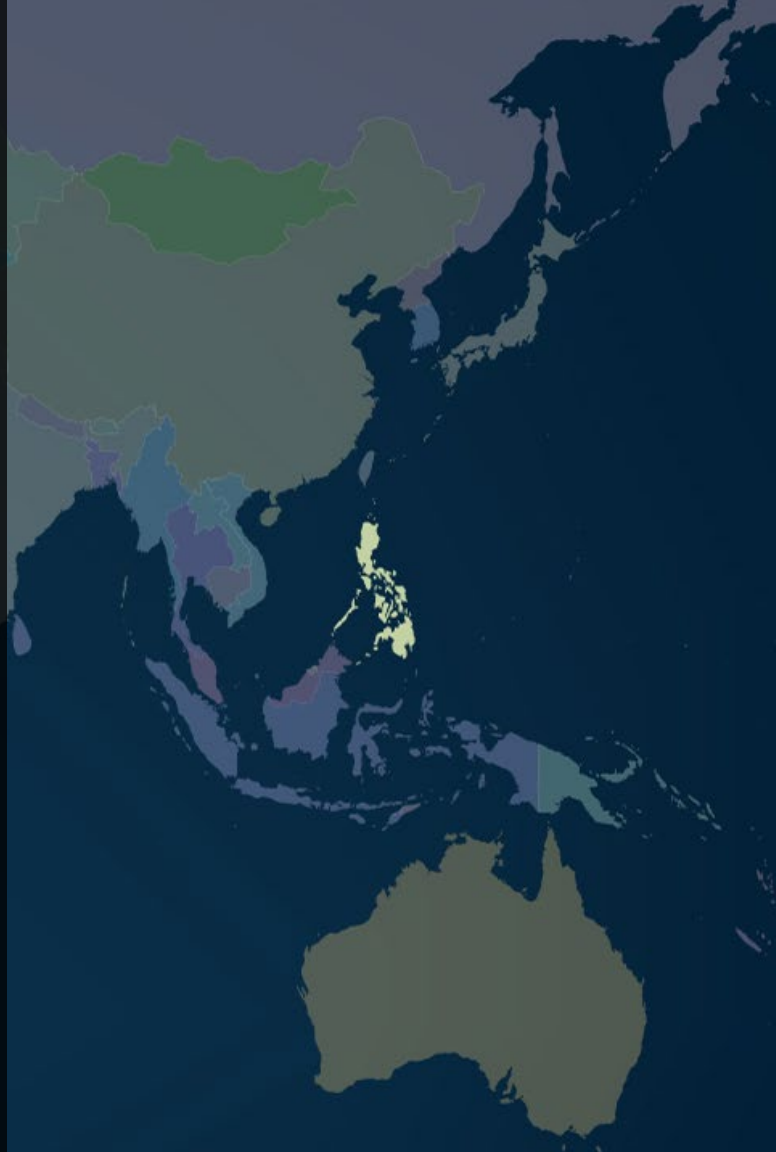
No centralized intermediary needs to exist in order to make this happen; each business is autonomous and settles all debts with Bitcoin in real time. It may not be enough to outdo Western Union, but I wager it'll be enough to get its attention.

CHAPTER TWO

The Invisible Bitcoin Solution

Bloom works primarily with established remittance businesses, which are already providing a traditional money transfer service, and teaches those businesses how to leverage Bitcoin to reduce their foreign exchange costs and speed up their settlement processes.

In most cases, these business savings are then passed on to the customers, drastically reducing their fees. The goal is to bring the benefits of Bitcoin to as many people as possible — even if they don't necessarily know that they are using Bitcoin.



Like most young technologies and processes, setting up a Bitcoin remittance corridor between two countries requires several components. In most cases, this means several remote companies working in concert. Each component plays a major role in the remittance chain and needs to be reliable in order for the chain to operate in a sustainable fashion.

The First Mile

The most common way that migrant workers send money is through remittance outlets or agents. Often this requires an actual physical visit to a shop. In more sophisticated locales (South Korea, for example), however, this “first mile” has been replaced by a Facebook chat followed by a domestic bank deposit.

Instead of taking a bus to the physical shop, migrant workers in Seoul chat with the agent over the phone, or through Facebook Messenger or KakaoTalk, and provide the details of their recipient there. The agent then replies with a quote in Korean Won (KRW), which the sender must pay within the day in order to initiate the transaction. South Korea’s banking system allows most of these small payments to be settled in a matter of seconds, and once the agent has received confirmation that the KRW has been deposited, they initiate the actual cross-border remittance.

The Payphil team in Seoul manages the First Mile for South Korea, and is the most successful Bitcoin remittance company to date. (Photo courtesy of Sanghyun Lee.)

It’s the First Mile partner’s job to manage KYC processes for their sending customers. They may set amount thresholds and daily or monthly limits, in compliance with the requirements of their own jurisdiction.

In South Korea, Payphil acts as the primary First Mile provider, handling all outbound Korean transactions. Through the Bloom platform and the Bitcoin blockchain, they can send to any participating Last Mile partner. It’s worth mentioning that, without the Bloom platform, any remittance business may still employ the blockchain to connect directly with other overseas Bitcoin businesses. However, they would need to

integrate with each new partner in turn, instead of plugging into the single API offered by Bloom.

Other First Mile providers that are connected to the Bloom network include Bitspark in Hong Kong and Malaysia, CoinPip in Singapore, Pay86 in China, and EasyPadala in Canada. Some First Milers can facilitate a two-way remittance channel, processing both inbound and outbound transactions.

The Last Mile

Once the remittance has been initiated, the "last mile" partner receives the instructions, reviews the beneficiary details, then forwards money to one of several possible channel providers.

In the Philippines, only about 25 percent of adults have bank accounts, so the most common way to accept overseas remittances is via cash pickup outlets. These outlets include pawnshop chains (Cebuana Lhuillier, for example) or logistics companies (LBC); in aggregate, there are over 11,000 such outlets around the country.

A Last Mile partner's role is to connect with as many payout channels as possible in its home country (the destination country), and in the Philippines this involves connecting to 35 banks and four major cash pickup networks. Each of these payout channels have drastically different service fees (some are less than US$1 and others cost over US$5), so being able to represent this price disparity in a consistent manner is key.

Once the payment has been successfully forwarded to either a bank or cash pickup channel, the Last Miler signals that the remittance was successful, informing the recipient via SMS and email that their money is now available. Meanwhile, the First Miler informs their sending customer on their side of the world.

Bloom acts as the primary Last Mile provider for the Philippines, and thus handles inbound remittances to Philippine recipients from a variety of different countries. (As of November 2016, this includes South Korea, Singapore, Hong Kong, China, Australia, and Canada.)

In practice, there may be any number of Last Milers in a given country, and indeed the Philippines is fortunate to be the home of three other Bitcoin-friendly players: Coins.ph, Rebit.ph, and Paylance.ph.

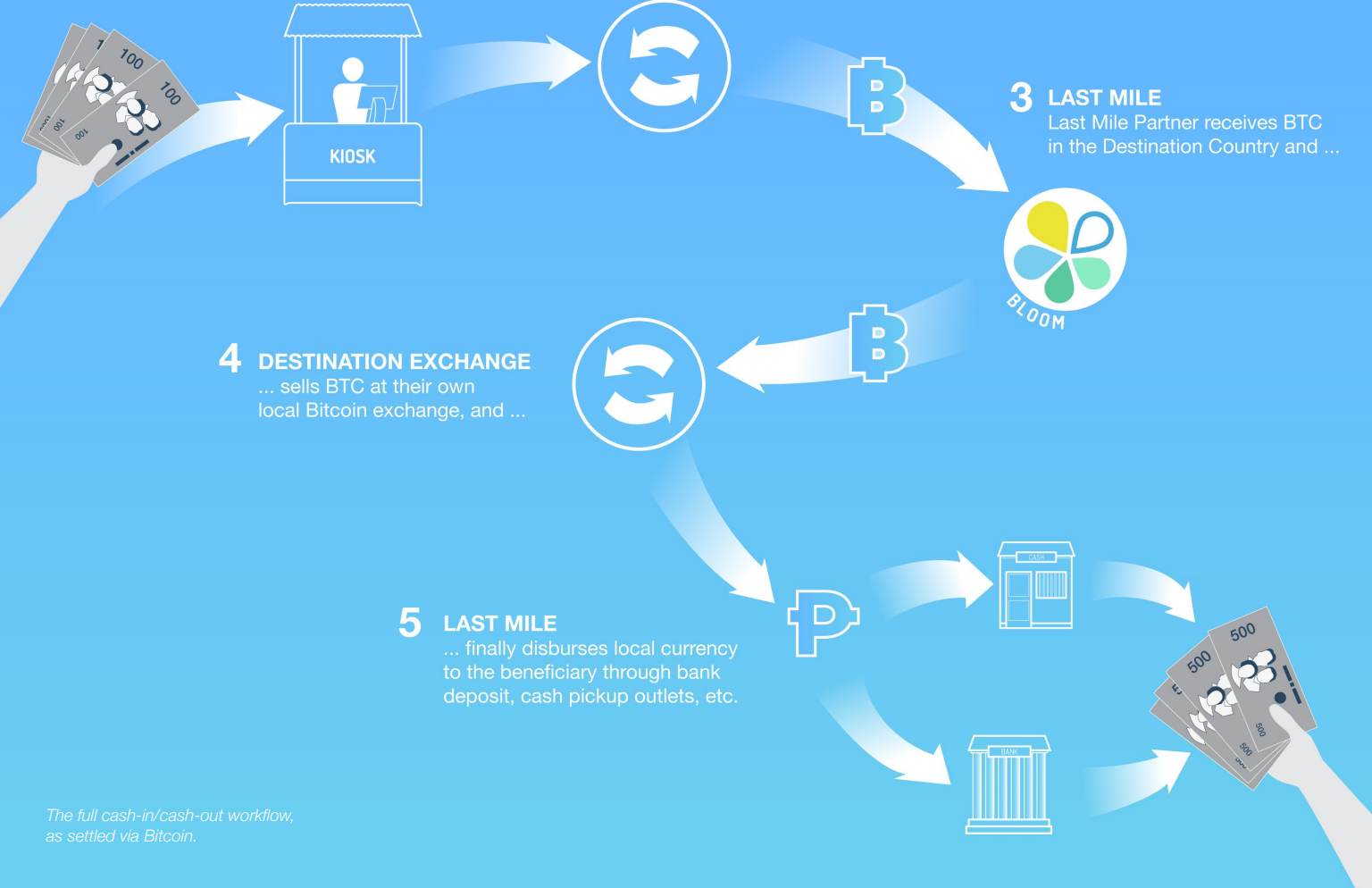
1 FIRST MILE
Sender pays in local currency at a Partner outlet or through other pay-in methods

2 ORIGIN EXCHANGE
First Mile Partner deposits currency at their local Bitcoin exchange and buys BTC

3 LAST MILE
Last Mile Partner receives BTC in the Destination Country and ...

4 DESTINATION EXCHANGE
... sells BTC at their own local Bitcoin exchange, and ...

5 LAST MILE
... finally disburses local currency to the beneficiary through bank deposit, cash pickup outlets, etc.



The full cash-in/cash-out workflow, as settled via Bitcoin.

The Origin Exchange

Using Bitcoin as a settlement medium can be initially challenging to set up, but is almost immediately beneficial as soon as it's functional. Being able to instantly settle a remittance through Bitcoin means that businesses can avoid having massive cash reserves sitting in a destination country. Instead, transactions can be paid for in real time, without even needing to go through international wire transfers.

Some well-known examples are listed in the table below.

Country	*Exchanges*	*Currencies*
Australia	BTCMarkets, IndependentReserve	AUD, USD
Canada	Kraken, QuadrigaCX	CAD, USD
China	BTC38, BTCC, Huobi, OKCoin	CNY, USD
European Union	Bitstamp, BTCE, CEX, HitBTC, Kraken	USD, EUR
Hong Kong	Bitfinex	USD
India	Unocoin	INR
Indonesia	Bitcoin.co.id	IDR
Japan	Bitflyer, CoinCheck, Quoine	JPY, USD
Mexico	Bitso	MXN
Nigeria	NairaEx	NGN
Singapore	Quoine	SGD, USD
South Korea	Bithumb, Korbit	KRW
Thailand	BitcoinExchange Thailand	THB
UAE	BitOasis	AED
United States	AllCoin, GDAX, Gemini, Poloniex	USD
Vietnam	VBTC	VND

The first step to using Bitcoin in this manner is to find an exchange (or in limited circumstances, a broker) where the First Mile provider can purchase BTC in exchange for their local currency. Most countries have local order book exchanges that enable this.

The First Miler buys Bitcoin from these exchanges, and either deposits it with the Last Miler on a pre-funding basis, or uses it to pay for a remittance after the fact (post-funding).

The Settlement Process

Because Bitcoin can be sent in a matter of seconds from one party to another (see zero-confirmation transaction), it's easy to pay for a remittance ad hoc. In practice, however, most high-volume remittance businesses would prefer to simply pre-fund their balances with Bitcoin, allowing them to only perform two to three large funding transactions per day, instead of 500 small ones.

This is still vastly superior to the old method of wiring US$1,000,000 to a destination country, waiting three banking days for it to arrive, and then being subjected to an unpredictable exchange rate when it gets converted to local currency.

As an example: the First Miler might choose to send 10 BTC to the Last Miler at the beginning of the work day. (At current rates, this is equivalent to US$9,000).

The Last Mile partner quotes them a local rate for the 10 BTC (e.g., 450,000 in Philippine Pesos), and as soon as it's confirmed by the blockchain, that local currency is added to the First Miler's spendable balance.

The First Mile partner now has PHP450,000 to draw down on as the remittances come in, and they can top up as it's consumed. In technical terms, the Last Mile partner has a liability of PHP450,000 and must secure this deposit on behalf of the First Miler.

The Destination Exchange

The Last Miler, amongst its other responsibilities, must also ensure that the bitcoins it receives can be sustainably converted into local currency as it's coming in. Liquidity varies drastically from country to country, and it is often difficult to ensure that a large sale of bitcoins won't cause the local price to drop precipitously.

In contrast with the First Miler, whose primary action is to buy BTC, the Last Miler is almost exclusively selling BTC on a daily basis. Ideally, there's a local exchange where the Last Miler can quickly liquidate its BTC, but not every country has one of these just yet.

Notably, the Philippines is a huge destination for bitcoins and yet does not have any significant exchanges. Due to the lack of liquidity in young markets like the Philippines, there is often no way to sell all of the incoming BTC without taking losses.

The current estimate is that the Philippines sees about 800 to 1,000 bitcoins entering its “borders” each day looking for buyers. At current rates, this is around US$700,000 daily, or US$21,000,000 every month. There simply isn’t enough local buy pressure to absorb that much Bitcoin, and this imbalance will continue to exist for as long as the Philippines continues to rely on migrant workers’ remittances for a large part of its GDP.

The Arbitrage Web

Without enough channels to liquidate locally, Last Milers must find other places to sell their incoming BTC. Typically this involves selling their coins on exchanges or brokerages in other countries, and receiving USD in payment.

This is a challenging solution, as it implies the presence of a large cash reserve to facilitate international trading, and is subject to all sorts of hurdles such as bank delays, regulatory issues, and FX volatility.

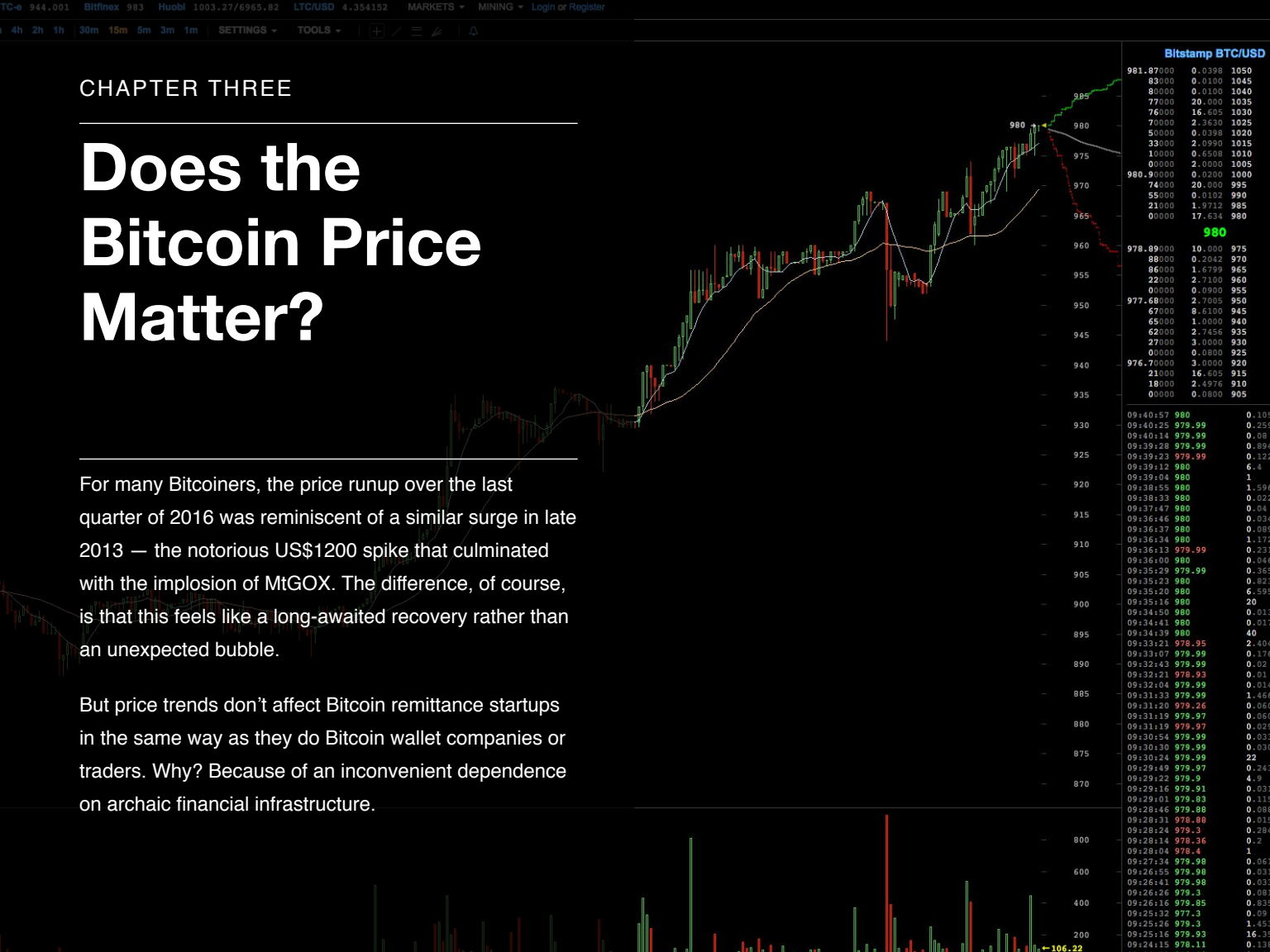
A Last Miler might liquidate their coins on an exchange at a small profit, but then still have to wait three banking days for the USD to be transferred to their bank account in their home country. This type of trading could be viewed as arbitrage trading, although that implies that one is prioritizing profit-seeking as opposed to speedy liquidation.

The perfect scenario, of course, is that a Last Miler also acts as a First Miler for a different corridor, as is the case with Bloom. Although Bloom receives hundreds of BTC each day, it may choose to use some of those coins to pre-fund Last Mile partners in China, Australia, or Vietnam, instead of selling it all.

With each new node in the network, it becomes less and less necessary to constantly liquidate BTC for local currency. Instead, Bitcoin could flow freely from country to country, dispersing and reforming all across the region in an ever-expanding web of real-time settlement.

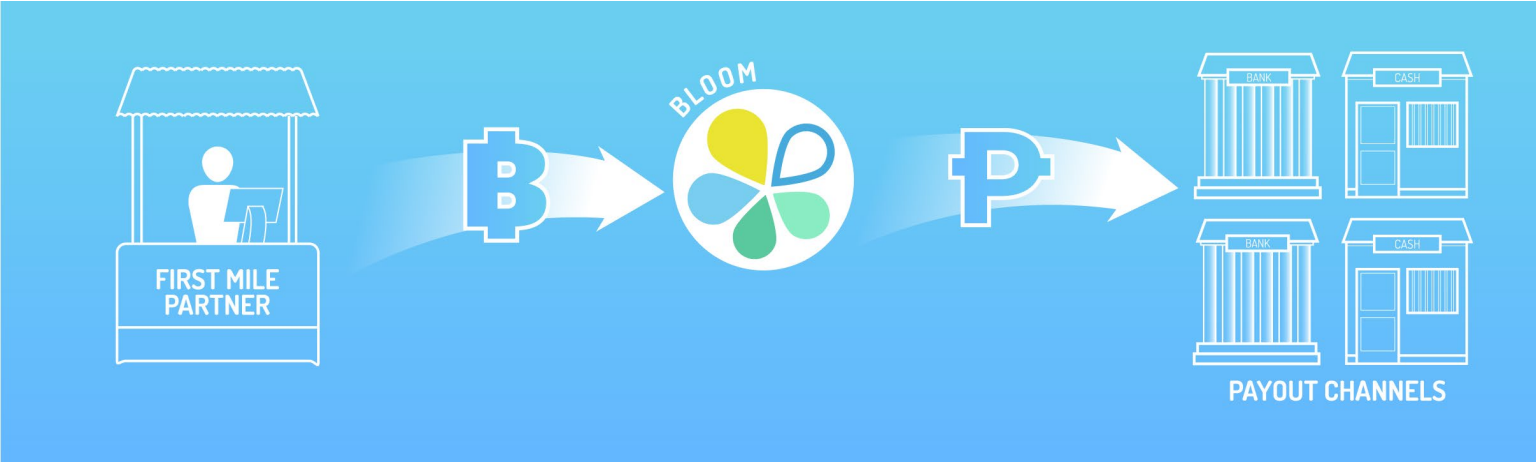
CHAPTER THREE

Does the Bitcoin Price Matter?



For many Bitcoiners, the price runup over the last quarter of 2016 was reminiscent of a similar surge in late 2013 — the notorious US$1200 spike that culminated with the implosion of MtGOX. The difference, of course, is that this feels like a long-awaited recovery rather than an unexpected bubble.

But price trends don't affect Bitcoin remittance startups in the same way as they do Bitcoin wallet companies or traders. Why? Because of an inconvenient dependence on archaic financial infrastructure.



The graphic above over-simplifies what is actually a fairly complex settlement process when building a Last Mile solution in the developing world. In it, we see that the First Mile Partner is sending BTC to Bloom, and Bloom is sending PHP through the various payout channels in the Philippines (banks, cash pickup chains, etc). Only through those channels can fiat actually make its way to the hands of the final beneficiary of each remittance.

What the graphic doesn't illustrate is the fact that Bloom actually has to pre-fund those payout channels in order to make disbursements more expeditious. In reality, PHP is never being forwarded to the payout channels in the singular neat workflow depicted above. The PHP is already there. In some cases, it's been sitting there for days or weeks, waiting to be used.

The reasons for this are esoteric and tedious, but the simplest way to encapsulate it all is that banking well and truly sucks in developing countries. Unable to make small, real-time transfers cheaply, businesses are forced to park funds with their partners in large, inefficient batches, and then draw down from these balances as the need arises.

It's inefficient because predicting how much to leave with a given channel is difficult, so one must always err on the side of overestimation.

This challenge is somewhat similar to what a traditional remittance business like Moneygram or Western Union faces everyday. They have capital sitting in over a hundred countries around the world, and within each of those countries, they have smaller caches of funds sitting with local payout channels, all waiting to be consumed by incoming

remittances. The difference is that Moneygram has the capital to throw around and can thus afford to build out their network this way, whereas your average crypto startup typically does not.

Bitcoin gives us a better solution to the international settlement challenge, but it can not change the situation locally, where fiat is the only game in town.

What does all this imply for a remittance startup receiving settlements in Bitcoin? It means that you rarely have a chance to benefit from price spikes.

Much of a Bitcoin remittance startup's capital is distributed across its payout channels, and there's a need to replenish those reserves on a regular basis. As soon as Bitcoin arrives at the start of the workday, there's often a mad rush to sell it off for local currency, then distribute those funds to the rapidly emptying balances at the various payout points.

The real-time Bitcoin price rarely makes an impact because the liquidation is so quick.

Of course, the other way to look at this process is that the liquidation *has* to be quick. Bitcoin trended upwards throughout nearly all of 2016, so holding coins instead of selling them immediately was the correct move over 90 percent of the time. However, this was most certainly not the case from 2014 to 2015, during which time you were often punished for holding Bitcoin for more than a few hours by the downward trending price.

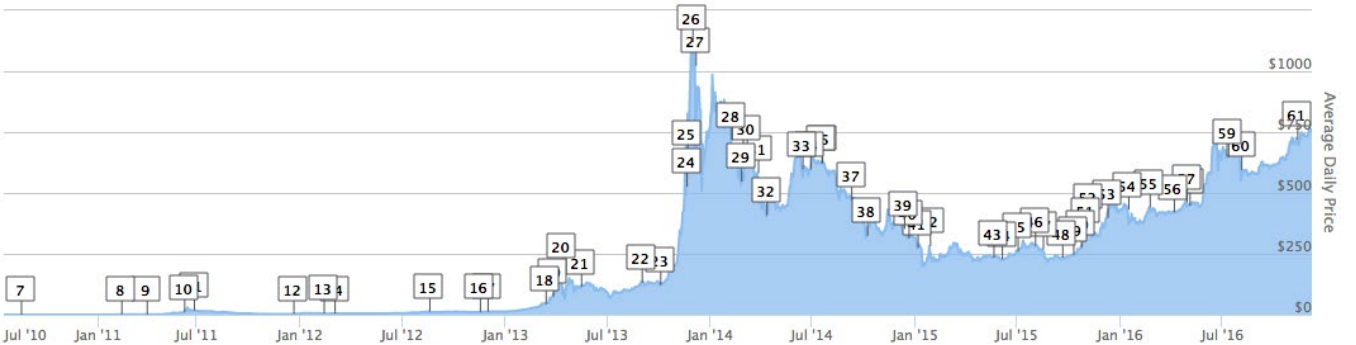
You could receive bitcoins from your first mile partners in the morning at US$300 and by the evening it was worth US$294, shrinking to 98 percent of its acquisition cost and erasing your profit margin along with it. Back then, BTC was like a hot potato that no one wanted to hold on to for very long, least of all a young Bitcoin remittance startup with massive working capital requirements.

The opening week of 2017 saw some fairly massive fluctuations as well, with the price skyrocketing to US$1,150 on the back of financial pundits lauding Bitcoin as the best-performing investment of 2016.

After a few days testing the US$1,200 all-time-high, the market began to lose its nerve and, as is typical for Bitcoin, it reconsolidated in the most violent manner possible. Over the next two days, the price thrashed about like a toddler on a sugar high, losing US$200 in a matter of hours, and triggering an investigation by the Chinese government.

Such is the life of a volatile asset.

The trial by fire that was 2014 (or brief instances of extreme volatility like January 2017) has done nothing to change our



Take a random walk down Bitcoin memory lane with this price chart from 99Bitcoins.com. Each numbered indicator is a historical event that had some effect on the price at the time. See the interactive chart and be enthralled at [https://99bitcoins.com/price-chart-history/.](https://99bitcoins.com/price-chart-history/)

minds about this business model, however. If anything, it has solidified our opinion that remittances settled via Bitcoin represent a very viable solution for the money transfer industry, because it worked even when the price was in a state of freefall.

At the start of this chapter we asked if the price matters to a Bitcoin remittance startup. By liquidating it as soon as you receive it, you've ensured that it doesn't.

CHAPTER FOUR

Bitcoin Regulation Around the World

Bitcoin's growth over the past seven years has not gone unnoticed by regulators and government institutions. Although no country has officially recognized the cryptocurrency as actual "money," there's some debate as to whether Bitcoin companies should be considered "money service businesses" (MSBs).

Photo courtesy of Carst van der Molen. Licensed via Creative Commons

De-risking MSBs

In 2013, the US Department of Justice unveiled a new initiative rather aggressively called Operation Chokepoint, through which the DOJ could conduct investigations into "high-risk" businesses via their bank accounts. Critics referred to it as a "thinly veiled ideological attack on industries that the Obama administration doesn't like."

But which industries were targeted? Categorized amongst the high-risk merchants like ammunition vendors, escort services, and online gambling businesses, were remittance companies or MSBs. Once identified, a bank could be pressured to shut down any of those businesses' access to financial services, sometimes even without due process.

Operation Chokepoint was officially terminated in early 2015, after the Federal Deposit Insurance Corporation (FDIC) readjusted its position on the matter, encouraging banks to "take a risk-based approach in assessing individual customer relationships, rather than declining to provide banking services to entire categories of customers."

However, reports of legitimate money service businesses losing their bank accounts continue to this day. Halfway across the world, its effects are still being felt. In the Philippines, Metrobank notably attempted to de-bank two MSBs in May 2016 even after both businesses had complied with its enhanced reporting requirements. And everywhere you look, there are anecdotes from decades-old remittance businesses losing their accounts simply because banks didn't want to risk working with them.

The prolific writer and remittance expert Faisal Khan refers to this as "strangulation by regulation," an overreaction from the banks for fear of being tapped as "accomplices to the crimes incurred on the MSBs' side."

The waters are especially murky for young Bitcoin businesses, whose very nature implies operating within a gray area of the law.

Bitcoin Regulation

Bitcoin's growth over the past seven years has not gone unnoticed by regulators and government institutions. Although no government has officially recognized the cryptocurrency as actual "money," there's some debate as to whether Bitcoin companies should be considered MSBs. The most likely outcome of all these discussions is "yes," although financial regulators worldwide seem to be maintaining a wait-and-see approach.

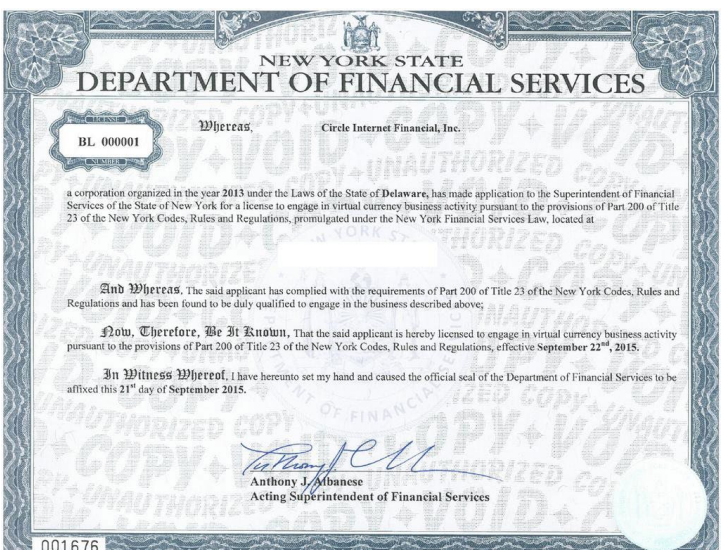
In May 2016, Japan issued its first set of regulations for Bitcoin exchanges, along with some clarifications regarding

how the law views cryptocurrencies. Amendments to Japan's Payment Services Act, promulgated in June, defined Bitcoin and other virtual currencies as "property value that can be used by unspecified persons for payment of equivalent value for purchased goods, rental fees, or services [...] and that is transferable via an electronic data processing system."

Importantly, the amendments create a compliance framework around which Bitcoin businesses can adjust their respective models. Other countries are not quite as lucky.

Although the US has led the world in terms of investments made in Bitcoin companies, its regulatory environment has proven too stringent for all but the hardiest and most well-funded of startups to withstand. It's a constant source of chagrin for many US-based Bitcoiners.

The US Treasury's FInancial Crimes Enforcement Network office (FinCEN) released the first advisory on Bitcoin as far back as 2013, and in August 2015, the "Bitlicense," a business license governing the operation of Bitcoin exchanges in New York, came into effect. By September, the first such



NEW YORK STATE
DEPARTMENT OF FINANCIAL SERVICES

BL 000001

Whereas, Circle Internet Financial, Inc.

a corporation organized in the year **2013** under the Laws of the State of **Delaware,** has made application to the Superintendent of Financial Services of the State of New York for a license to engage in virtual currency business activity pursuant to the provisions of Part 200 of Title 23 of the New York Codes, Rules and Regulations, promulgated under the New York Financial Services Law, located at

And Whereas, The said applicant has complied with the requirements of Part 200 of Title 23 of the New York Codes, Rules and Regulations and has been found to be duly qualified to engage in the business described above;

Now, Therefore, Be It Known, That the said applicant is hereby licensed to engage in virtual currency business activity pursuant to the provisions of Part 200 of Title 23 of the New York Codes, Rules and Regulations, effective **September 22nd, 2015.**

In Witness Whereof, I have hereunto set my hand and caused the official seal of the Department of Financial Services to be affixed this **21st** day of **September 2015.**

Anthony J. Albanese
Acting Superintendent of Financial Services

001676

The coveted BitLicense allows the bearer to participate in the business of crypto-money transmission, and is given out by the New York State Department of Financial Services. To date, Circle Internet Financial (Circle.com) is the only recipient of the license.

(Photo courtesy of Circle Internet Financial)

The Isle of Jersey in the English Channel may be one of the most unlikely places to register your Bitcoin startup, but it's probably more friendly than your home country. (Photo courtesy of bit.coin.je)

Bitlicense was issued to Circle Internet Financial, a startup that had at that point raised over US$50 million in funding. To date, Circle and Coinbase are the only two companies that have been granted the license, although some 27 other companies have applied.

While FinCEN monitors money transmitters at the federal level, there are also state-level affairs to worry about. Traditional remittance businesses are expected to apply for licenses in 48 states in order to legally offer nationwide coverage, and this same requirement applies to both Bitcoin and most fintech startups. The process of applying for each license is both tedious and expensive, and industry professionals have referred to it as the equivalent of "financial colonoscopy," as detailed in this series by Marco Santori.

Fortunately, there are some efforts being made to streamline this application process and open the doors for innovators.

The Office of the Comptroller of the Currency (OCC) announced in December 2016 that it would consider applications from fintech businesses as potentially being categorized as "special purpose national banks," which would eliminate the need for individual state licensing.

In Russia, Bitcoin narrowly avoided a law in proposal stages that would have made its use illegal in the country in September 2016. The country's finance ministry stated that it plans to take a more "proactive approach in reviewing the draft by involving experts in the field."

In Kenya, the central bank has maintained its position on Bitcoin as an unregulated currency, and cautions its citizens against using it. This type of missive is something of a boiler-plate announcement issued by many central banks

around the world, and doesn't really indicate what their formal policy will be.

The Nigerian response in contrast has been significantly more active. In December 2016, their central bank announced that a committee had been formed to further investigate this "phenomenal bitcoin," with the primary goal being to better understand its impact on "the payment system, safety and security of customer, money laundering."

Far north, the Isle of Jersey proclaimed its intent to become "Bitcoin Island", i.e., a hub for Bitcoin businesses looking for a home. For the geographically-challenged, the Isle of Jersey is a small tax haven just off the coast of France in the English Channel. The island nation recently announced its first regulated Bitcoin fund, and seems like a promising solution for startups who haven't had any luck within their own home country.

The Central Bank Perspective

In this eye-opening piece again from Faisal Khan, he argues that one of the reasons central banks around the world don't like Bitcoin is due to macroeconomics. If a sender pays USD in the States to buy BTC, and then someone in the Philippines exchanges that BTC for PHP, then Manila's foreign exchange reserves have not improved.

As described in "The Numbers," the Philippines relies heavily on remittances for its inbound USD, and although Bitcoin aids in injecting value into the economy, it's in *the wrong currency* ... at least in the eyes of the central bank.

Khan suggests that in order to make the Bitcoin remittance model compliant with central bank reporting requirements, the easiest way is to sell the received bitcoins *outside* of the Philippines and then wire the USD back in. This would allow the central bank to properly record the incoming value, in a currency that it recognizes.

What's perhaps most fascinating about this hypothetical solution is that it's happening organically in the Philippines right now, as described in "The Arbitrage Web."

Necessity is indeed the gender-neutral progenitor of invention, as the politically correct saying goes.

AML and KYC

Operating without specific regulations means that Bitcoin remittance companies must often guess what they must do in order to be compliant.

It's important to remember that AML, KYC, and CFT (Countering the Financing of Terrorism) measures are meant to deter criminal activity, and to aid in the investigation of suspicious activity. As explained by compliance expert Juan Llanos, the primary crime deterrent is forcing customers to "disclose their identity," which in theory makes bad actors "refrain from even attempting to penetrate the system." (The chilling effect it has on good actors is often not discussed and difficult to evaluate, however.)

Interestingly, the era of the public blockchain has ushered in a new style of monitoring, referred to as "KYT" or "Know Your Transaction." While KYC processes only allow for the identification of source and destination parties, the unprecedented transparency of the blockchain theoretically enables an equally unprecedented level of forensic analysis to be carried out on the transactions themselves.

This kind of granular data capture — basically tracing the path of a Bitcoin as it changes hands (say from one terrorist cell to another) — is still largely theoretical. The classic example is the FBI's famous seizure and forensic analysis of 144,000 BTC from the online black market Silk Road, which led them to one of the space's most high-profile convictions in 2013.

There's no reason that it couldn't happen again, with enough compute power and a large enough dataset. Llanos writes that his company Skry is working on exactly that, and it'll be interesting to see how quickly their analytics tools make it out into the wild.

In terms of AML and KYC requirements, every country will have a slightly different approach, and Bitcoin remittance companies should take care to comply with these guidelines whether they are deemed MSBs or not. Regulation is an inevitability, and it makes sense to implement these processes beforehand.

For the uninitiated, the global auditing firm Pricewaterhouse-Coopers helpfully prepares an annually updated "quick" reference guide for AML and KYC requirements in every country, available in a single gargantuan PDF.

It goes without saying that this chapter is not meant as legal advice and is simply a round-up of regulatory conditions around the world, and how Bitcoin remittance startups fit within them.

Consulting and retaining a qualified lawyer in your respective jurisdiction is of course still the wisest action.

CHAPTER FIVE

Bitpesa and the African Bitcoin Mirage

When Bitpesa launched in early 2014, they were the darling of the crypto community. Not only were they a Kenyan startup using Bitcoin for remittances, but they were plugging into M-Pesa, the poster child of the mobile money industry, and one of its few unequivocally successful implementations.

Photo courtesy of Ninara
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Bitpesa's initial strategy was to acquire sending customers in the UK with recipients in Kenya, using Bitcoin as a settlement mechanism between the two countries. Once the bitcoins had made their way to Kenya, they would then be converted into the local currency and routed through the M-Pesa mobile wallet system to any receiver in the country. It was a simple, straightforward model, and had the potential to change the way remittances entered Kenya's borders.

Although it's easily Africa's most well-known Bitcoin startup, BitPesa was actually preceded by another similar project called Kipochi in mid-2013, founded by technologist Pelle Braendgaard.

Kipochi built a wallet service that allowed people with M-Pesa wallets to buy or sell BTC through basic SMS, and was an easy way for customers to try out the cryptocurrency. Its straightforward and frictionless concept prompted Motherboard.com's now infamous proclamation that "33 percent of Kenyans now have a Bitcoin wallet."

Unsurprisingly, Kenyan regulators were not enthused with the possibility of 10 million citizens buying and selling an unregulated virtual currency, and Kipochi disappeared without a trace in 2014.

By then, the hype around the BitPesa solution was white-hot. Co-founded by Duncan Goldie-Scot, a prolific angel investor and a microfinance pioneer, their website promised 3 percent

The BitPesa team in Nairobi (Photo courtesy of BitPesa)

fees in a corridor that traditionally charged over triple that amount. Their initial raise of US$700,000 was followed up with an additional US$1.1 million a year later, as more interested investors began to pile on. Amongst them, crypto-specialists Blockchain Capital, Pantera Capital, Digital Currency Group, and the BitFury Group.

CEO Elizabeth Rosiello, a New York native, recalls the media coverage at the time. "We had an article in Bloomberg in November that went everywhere just as the price went up,

saying, 'Bitcoin in Africa for remittances—it's going to kill Western Union!"

By 2015, BitPesa had been joined by Beam, iGot, and BitStake — three other bitcoin remittance startups that had launched elsewhere on the continent in the hopes of leveraging on the growing excitement.

Of the four, only BitPesa remains operational in Africa to this day. Regarding their closure, the founders of Beam cited a "lack of uptake related to the cost of exchanging bitcoin into local currency, limited merchants accepting bitcoin as a means of payment, and price volatility."

In November 2015, BitPesa's dependence on M-Pesa for its last-mile disbursement proved to be somewhat of an Achilles' Heel. That month, Safaricom, owner of the M-Pesa platform and Kenya's largest telco, suspended Bitpesa's access to its mobile money service, citing AML fears.

Although the startup attempted to fight it out, a Kenyan court upheld Safaricom's stoppage and deemed the startup "strong enough as a company so that it does not require access to M-Pesa to survive," BitPesa later explained in a statement.

Today, BitPesa's service is distinctly less customer-facing, with a stronger focus on business payments and a broader menu of services that include e-commerce and speculative trading. It has also expanded its platform to include payouts in Tanzania, Nigeria, and Uganda.

"Now, we have certainly seen remittances as part of our customer segments, but it's not the only segment, and I don't think it can sustain an entire business," Rossiello explains.

The game-changing impact of Bitcoin in Africa, so thoroughly mythologized by Western media, has proven to still be elusive.

CHAPTER SIX

Bitspark vs. Hong Kong

Hong Kong's bustling population of 7 million only has about 350,000 migrant workers, but on Sundays, it feels like every single one of them has managed to cram into the same 12 square kilometers of the Central district. Their mission is always the same: to send money back home to the Philippines or Indonesia in the most affordable and secure way possible.

In the midst of this joyful chaos is Bitspark, a three-year old remittance startup founded by Australians George Harrap and Maxine Ryan.

Photo courtesy of Barbara Willi
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Bitspark began its life as a Bitcoin exchange in early 2014, but quickly refocused on the money transfer problem when they studied how big the market size in their own backyard was. Each year, Filipino and Indonesian migrants working in Hong Kong send a combined US$800 million back to their respective home countries[1].

With their market composed almost entirely of low-income domestic helpers, Bitspark was forced to keep the high-tech aspects of their service as far away from their customers as possible.

Their cash-in/cash-out model was one of the first in the world, and it correctly anticipated a model that other Bitcoin remittance startups would also later employ, i.e., using BTC purely as a back-end settlement mechanism, instead of a marketing gimmick.

The pre-funding strategy was also a minor innovation first piloted during Bitspark's early collaborative efforts with Rebit in the Philippines, a settlement strategy that (perhaps unintentionally) made the whole process more resilient against increasing blockchain network fees the following year. (Paying BTC for each individual remittance is untenable given the current recommended network fee of around US$0.15, as of early 2017. Pre-paying for remittances in bulk is a much better long-term solution.)

The Bitspark popup remittance kiosk in Worldwide House with some early-adopter Filipina customers. (Photo courtesy of Bitspark.io)

In its early days, Bitspark would set up a temporary kiosk in middle of Worldwide House, the busiest Filipino mall in the city, during the height of the Sunday chaos. From here, Harrap and Ryan would take down customers' names and transaction details, and then trigger a Bitcoin transaction on their laptops to their last-mile partner in the Philippines.

1 For more information on ASEAN remittance patterns, this study from the ADB is a bit old, but still very instructive.

Co-founder Maxine Ryan talks about their early experiences and her unexpected journey with Bitcoin. “I never thought that I would be interested in making it my mission to ensure cheaper remittances worldwide, but it just makes me excited.”

Having tested the waters with a physical remittance shop and learning how money is currently sent by the existing services, Bitspark set out to create an online platform for the remittance shops themselves in early 2015. With each new one business they signed up, they gained access to thousands of their customers who already used the shop, instead of trying to develop a market from scratch.

The Bitspark remittance platform currently services 5 countries. In August 2016, the startup announced a major partnership with Vitaxel Group, a publicly-traded multi-level marketing company out of Malaysia. The deal may prompt them to shift their headquarters from Hong Kong to Kuala Lumpur in 2017, a significant move for the two founders. Their startup was initially buoyed by the Cyberport incubation program, a government-sponsored support system that included funding and office space, as well as the Accenture Innovation Lab.

But Hong Kong is not the fintech paradise many entrepreneurs used to crow about, at least not in Harrap’s opinion. With Malaysia quickly becoming their main focus, he talked about how Hong Kong was becoming “increasingly less relevant with the government’s newly restrictive regulatory barriers to doing anything payments-related.”

Additionally, opening a bank account is a particularly challenging thing to do in Hong Kong. “Bitspark was rejected by 12 banks before finding an account and even then operates much of its banking outside of HK.”

It’s an opinion shared by some of the Bitcoin entrepreneurs and community members in the country, among them Leonhard Weese, president of the Bitcoin Association of Hong Kong.

“The Hong Kong government has classified Bitcion as a virtual commodity, and thanks to a [simple] regulatory and tax framework, Bitcoin can easily be used and accounted for by Hong Kong businesses,” he explains. However, the banks are considerably behind in terms of “competition, innovation, and risk appetite.”

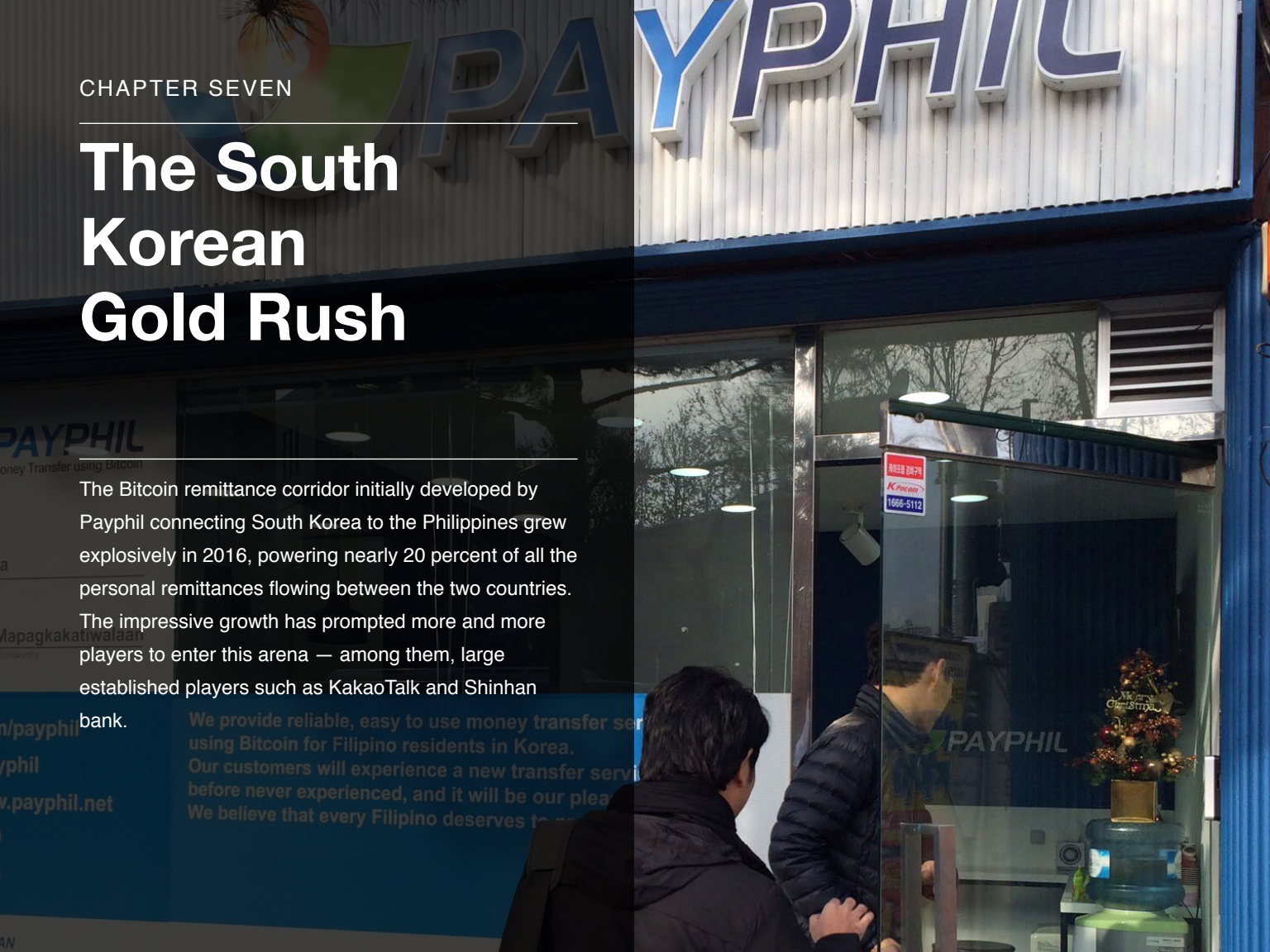
“Hong Kong is a great place for your Bitcoin startup, unless you need a bank account,” Weese concurs.

Harrap believes that Hong Kong sees itself as a financial hub, but “the truth of the matter is a digital business doesn’t need to ‘exist’ anywhere. The jurisdiction of choice will therefore be that which can offer the most incentives for new companies.”

CHAPTER SEVEN

The South Korean Gold Rush

The Bitcoin remittance corridor initially developed by Payphil connecting South Korea to the Philippines grew explosively in 2016, powering nearly 20 percent of all the personal remittances flowing between the two countries. The impressive growth has prompted more and more players to enter this arena — among them, large established players such as KakaoTalk and Shinhan bank.



In June, Kakaotalk announced that it had bought a 40 percent stake in the young Philippine startup Satoshi Citadel Industries (SCI). It was an uncharacteristic move for the South Korean chat giant, valued at US$2.9 billion, for a couple of reasons: (1) it was Kakao Venture Group's first-ever overseas investment, and (2) SCI is a Bitcoin startup.[1]

The decision is puzzling unless you know something about how money moves between the Philippines and South Korea. While there are only 60,000 Filipinos working in South Korea, far fewer than in neighboring Japan (280,000), they collectively send over US$230 million in personal funds back home each year. Even more importantly, the modest size of the diaspora brings with it some substantial implications, i.e., the cost of sending money back home to the Philippines, bereft of any local competition, is exceedingly expensive.

Over the past two years, several businesses operating out of both Seoul and Manila have arisen to solve the challenge of transferring personal funds between the two countries and, as the latecomer to the fray, the Korean conglomerate has some serious catching up to do.

A Bridge of Bitcoins

The embattled digital currency Bitcoin is most often talked about in the press for its extreme price volatility and fiery internal conflicts, but in the Korea-to-Philippines corridor, at least, it's purely an affordable way to transfer value across borders.

Startups on both ends of the corridor have been working since 2015 to build a Bitcoin alternative to traditional methods like Western Union or bank wire transfers. Bitcoin is a convoluted technology whose underpinnings run the gamut of concepts from cryptography to economics to libertarianism, so the most successful strategies often involve keeping its high-minded principles away from the average customers. Instead, it's used purely in the back-end as a digital bridge that connects the two ends of the transaction.

By late last year, the Bitcoin businesses operating in this corridor were collectively showing a cost savings of more than 50 percent for the average personal money transfer. US$200 transfers that used to cost US$12, now cost only US$5.

1 An earlier version of this piece was published in Quartz in September 2016. It has been edited and updated with new information.

A Revelatory Success

Over the last two years, the volume of Bitcoin-powered remittances between South Korea and the Philippines has quietly grown to one-fifth of the total flow between the two countries — nearly US$40 million of the total US$230 million annually. (This estimate is calculated from privately disclosed data from active players in the corridor, as well as Bloom's own first-hand customer volume from South Korea.)

The rapid growth of the KR-PH Bitcoin corridor has proven difficult to believe for many industry pundits, who have long operated under the notion that any changes in the remittance space would take a much longer time. But breaking the estimate down to a more granular level makes it far easier to understand and accept.

The average Filipino sends US$400 every month from South Korea, about double the global average. Multiplying that number over a relatively modest base of 10,000 active customers yields US$4 million monthly or US$48 million annually.

Acquiring 10,000 customers over a period of 24 months in a single country seems a reasonable task for any startup, and in the case of South Korea, there are multiple startups all acquiring customers in parallel. Indeed, Bloom's own database of transacting customers related to this corridor far exceeds 10,000 profiles, and it took only half that time to grow to that size.

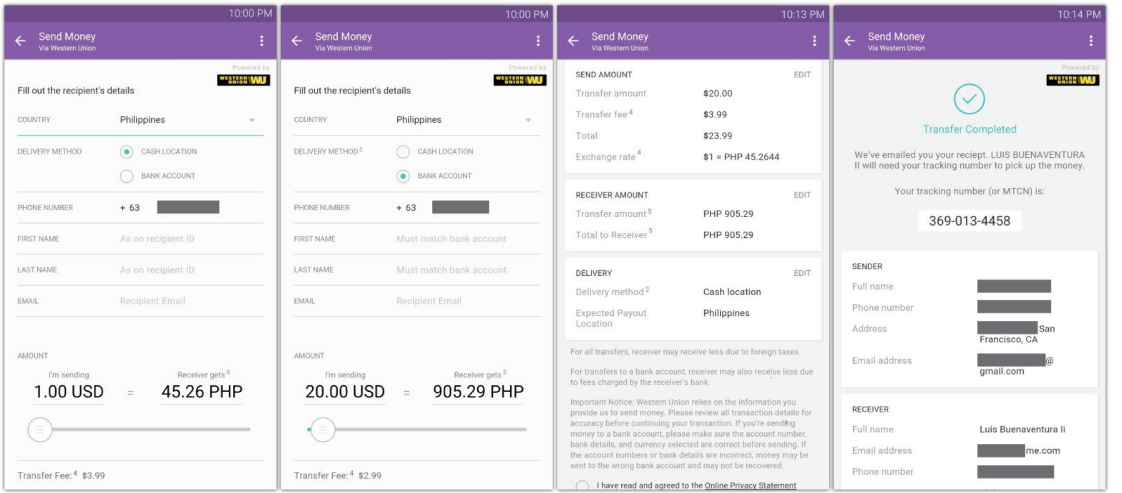
With those numbers in mind, it's easy to see how the KR-PH Bitcoin corridor could have grown to the calculated size. If anything, it's probably an underestimation.

A Most Expensive Proposition

In early 2016, both Viber and WeChat announced partnerships with Western Union, allowing US users to send money to non-US beneficiaries from within their respective apps.

The typical international money transfer requires loads of communication between the persons on either end of the transaction. The senders are often migrant workers — people who have temporarily relocated to find better paying jobs in other countries — and their beneficiaries are family members or friends back home. Together, they have to calculate exchange rates, synchronize amounts, collect personal details, agree on a transfer method, and then confirm when the cash has been sent and received.

Over 230 million people send about US$500 billion in remittances each year in this way, and chat platforms are naturally



The Viber/Western Union remittance process still costs a hefty amount of money

well-suited for enabling this kind of financial interaction. It's a shame then that some of these early entrants feel almost ... predatory.

When receiving US$20 from the US via the Western Union app hidden inside Viber's menus, there was both a US$4 service fee as well as a four percent cost hidden in the conversion to Philippine pesos. By the time the author had actually received the pesos from the local Western Union agent, US$24 had been reduced to less than US$19.15, a loss of nearly US$5.

A Modicum of Trust

The average migrant worker sends US$200 back home every month, which in many instances account for 20-40 percent of their monthly paycheck.

The vast majority of Asian migrants are domestic helpers, crewmen, and construction workers, so it's hard to imagine that paying US$12 or more per transaction is an acceptable proposition. And yet, migrants continue to patronize the old guard (Moneygram is another popular choice), presumably because of brand loyalty that has been built up over decades.

On the flip side, it's simply too hard to discover which of the plethora of new remittance startups they *can* trust, and they're in no position to experiment with their money.

Chat apps don't have the same challenges as these young startups, as Viber, WeChat, Kakaotalk, and the like are already the custodians of their users' most personal communications. For them, the trust barriers are significantly lowered.

Bitcoin's role in the money transfer revolution is promising, but its digital-only nature prevents it from having a much larger impact. It can't traverse countrysides and make its way into homes without Internet connections, and it can't magically turn itself into paper money when the need arises.

Contending with an offline population may prove the most confounding aspect of the remittance puzzle. But whatever the makeup of this new frontier in money transfers, an entire industry is betting on Bitcoin and mobile messaging as fundamental ingredients.

CHAPTER EIGHT

Abra: The Uber of Remittances?

When Bill Barhydt walked on stage at Launch Festival 2015, he was coming off the high of another money transfer company, Boom Financial, which had raised over US$30 million by the late 2000s.

Barhydt's six-minute pitch was succinct and sexy, and described a remittance concept that seemed like an unattainable dream to most industry veterans: true peer-to-peer international money transfer.

Abra went on to raise an impressive US$14 million later that year, with an equally impressive list of investors that included RRE Ventures and First Round Capital.

Photo courtesy of Benson Kua
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With the Abra app, a sender in the U.S. could locate an agent (or a “teller” in Abra parlance) within their vicinity who could accept their funds. Upon receiving the cash, the teller moves an agreed amount of currency to the sender’s wallet, essentially topping them up with the digital equivalent of the cash they had just paid.

Once the digital cash was available, the sender forwards it to a recipient in the Philippines (Abra’s main launch market), who must then find another teller in their area who can give them hard currency in exchange for the virtualized funds. The tellers on both ends would theoretically charge a small fee for their services, which in aggregate should still be lower than a traditional cash-in/cash-out remittance.

The idea is that the participating tellers can really be anyone who has peso liquidity, in the same way that Uber’s fleet can be made up of anyone with a reasonable vehicle. It theoretically allowed Abra to circumvent the need for remittance licenses, since they were simply a marketplace connecting merchants with customers ... only in this case the product being sold is a financial service.

In order to add money to their Abra app, Filipinos must make a bank deposit to one of four participating banks, and wait one to two business days for the funds to be credited. Once topped up, they can send money to any other Abra user in either the US or the Philippines. In turn, the receiving user

Bill Barhydt unveils the Abra app at Launch Festival. See the original video here.

can withdraw hard cash by sending it to their own bank account, or through another teller.

But just as any marketplace must be anchored to real-world processes, Abra also must have some form of settlement mechanism for their tellers who are ostensibly out in the field disbursing hard cash.

Once the tellers disburse funds to their customers, they need a way to be made whole. In the Philippines at least, the settlement strategy appears to involve using some of the existing local remittance businesses to pay the tellers back.

The irony is that it’s those same local remittance businesses that Abra initially set out to replace.

Suffice to say that the utility of the app is fairly limited given its current dependence on third parties that are, for all intents and purposes, its competitors. The current offering is a far cry

from the 2015 announcement that garnered so much interest, but things are sure to change rapidly as Abra continues to expand globally.

In person, Barhydt exudes the quiet confidence of a man who has already figured it all out. He explains that they'll be in 20 countries by November 2017.

"Once Abra is live everywhere, we have the first p2p payment app that will work across any two phone numbers," he says. "There's no other app on the planet that does that."

CHAPTER NINE

OKLink's US$100M Guarantee

The new remittance aggregator service from one of the world's largest Bitcoin exchanges, OKCoin, is as ambitious as it is flashy. Offering to subsidize the first US$100 million in service fees, it's garnered a lot of press and numerous early partners since its launch in October 2016.

Photo courtesy of Yiannis Theologos Michellis
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In an October interview with Bitcoin Magazine, OKLink CSO Jack Liu spoke effusively of the early buzz garnered by their young service. “We are thrilled with the reception OKLink has received from industry leading companies, and we hope to support their growth further with this incentive promotion.”

The promotion he’s referring to is the one making all of the headlines, both in the Bitcoin press and with traditional media outlets. OKLink is subsidizing the first US$100,000,000 in service fees that go through its platform. The numbers of zeroes at the end of that figure seem to have done their job: OKLink’s initial list of participating businesses is a who’s who of Bitcoin remittance companies.

But what exactly does OKLink do? In this early stage, it’s a switch similar to the traditional SWIFT network, acting as a bridge between one Bitcoin remittance startup and another. (Importantly, where SWIFT only works with financial institutions, OKLink does not have that limitation.)

Like the other startups profiled here, it uses BTC as a settlement medium between countries, but where the OKLink Network differs is in its positioning. Instead of being one of the businesses on either side of a remittance, it sits in the middle, acting as a hub that connects the spokes formed by various other companies around the world.

Here’s how it works in practice: A First Mile company (let’s say, the San Francisco startup ZipZap) has a customer who wants to send pesos to the Philippines. ZipZap has BTC to pay for the remittance, but it doesn’t have a formal last-mile partnership with, for example, Coins.ph.

So instead of sending the BTC directly to Coins.ph, ZipZap deposits the BTC in a custom multisig Bitcoin wallet generated specifically for this transaction by OKLink.

The multisig wallet is a 2-of-3, and the three parties (ZipZap, Coins, and OKLink) all have one private key each. If both ZipZap and Coins are satisfied that the remittance is valid, they can jointly use their private keys to unlock the wallet and allow Coins to withdraw the funds. If there’s a discrepancy or a disagreement, OKLink can act as an arbiter and use the third key to move the funds to either party.

It’s an interesting solution, and it’ll be instructive to see if it’s useful to have this kind of third-party arbitration in place between remote partners. OKLink doesn’t currently charge for this service — in fact it’s paying the costs on both ends of the transaction — and they haven’t mentioned how they plan to make money after the US$100 million subsidy has been consumed.

In November, OKLink announced that they had formed new partnerships with a number of South Korean fintech startups, connecting all of them with over 20 payout countries through the OKLink API.

CHAPTER TEN

Uphold, AirTM, and Latin America

If you're just joining the Bitcoin train, it's probably hard to imagine what the world of early 2014 was like. The largest Bitcoin exchange at the time, MTGox, had just imploded, and about US$450 million in customer coins had gone missing.

The market reaction to this catastrophic failure was both immediate and prolonged: Bitcoin would see its price tumble down a series of cliffs from a US$1200 peak to a US$180 floor over the next 12 months, shaking all but the hardiest of investors to their very core.

Photo courtesy of Blok 70
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Upholding Value

Preventing such a precipitous loss of value was one of the primary goals of Bitreserve, the startup launched by Halsey Minor in late 2013. Unlike most of the community, the founder of CNET wanted to emphasize Bitcoin's use as a mode of transmission rather than a store of value, which immediately put him at philosophical odds with purists and crypto-anarchists.

Bitreserve's product strategy was to mimic the function of a Bitcoin wallet, while actually storing your coins' value in your preferred fiat currency. Sending Bitcoin to a Bitreserve wallet would instantly peg it against, say, the US Dollar price at the time of transmission.

If the USD price for Bitcoin was US$350 and you deposited 1 BTC, your Bitreserve account balance would read "US$350" in perpetuity. When you wanted to spend some of those bitcoins, Bitreserve would look up the USD-BTC price at that point in time and dynamically convert your dollars to bitcoins as needed.

This meant that you avoided losses if the Bitcoin price happened to fall, but the converse was also true. When the price started to rise — as during the bullish markets of late 2016 — your money would be left behind, languishing in its fiat prison.

Bitreserve raised close to US$10 million before going through a major revamp in mid-2015. Anthony Watson, the former CIO of Nike, took over the CEO position, and rechristened the company "Uphold.com." It maintained the original vision of Bitreserve but did so with greater reach and a brighter color palette.

Importantly, they launched the Uphold Connect API, which allowed startups to build their own third-party financial products on top of their expanding network. Uphold was now essentially a wallet-as-a-service platform, allowing young entrepreneurs to build verticals without making large investments in the underlying infrastructure.

Two of those entrepreneurs were Antonio Garcia and Ruben Galindo Steckel, the founders of AirTM. "A year ago, [these] two young guys from Mexico City interned at Uphold's San Francisco office," writes Tim Parsa, Uphold's head of Global Strategy and Markets, in the company blog. "A few months later they presented an idea for an app built on top of Uphold's open API."

The LatAm Environment

Latin America's relationship with Bitcoin has always been rather spicy. The respected Internet entrepreneur Wences Casares founded one of the major Bitcoin wallets Xapo in Argentina in 2013. The company is noteworthy for being one of the first to issue Bitcoin-backed debit cards, as well as securing their customers' funds by storing them in the Earth's upper atmosphere. Perhaps as a direct result of Casares' influence, the country hosts the one of the largest Bitcoin community in Latin America.

In January 2017, another Argentinian Bitcoin company, Bitpagos (now Ripio), announced that it had raised US$1.9 million, proclaiming that the renewed excitement around Bitcoin had caused a 40 percent increase in their active user-base in a single month. The startup offers a concierge service for cross-border money transfer, as well as a straight-up Bitcoin wallet.

In Venezuela, it isn't the cryptocurrency's transmission capabilities that make it desirable so much as the fact that it's a currency that isn't a bolivar. With their own currency in a state of freefall — the VEF lost over 75 percent of its value against the USD in 2016 — Venezuelans had been forced to find creative ways to keep their heads above the water line.

Some have taken to Bitcoin mining as a clever (albeit potentially illegal) way to leverage their country's state-sponsored electricity and then using the generated BTC to buy food and other goods from Amazon.com. Others who work overseas have begun sending bitcoins to their families, who would then find local traders to give them cash.

AirTM's Cashier Network

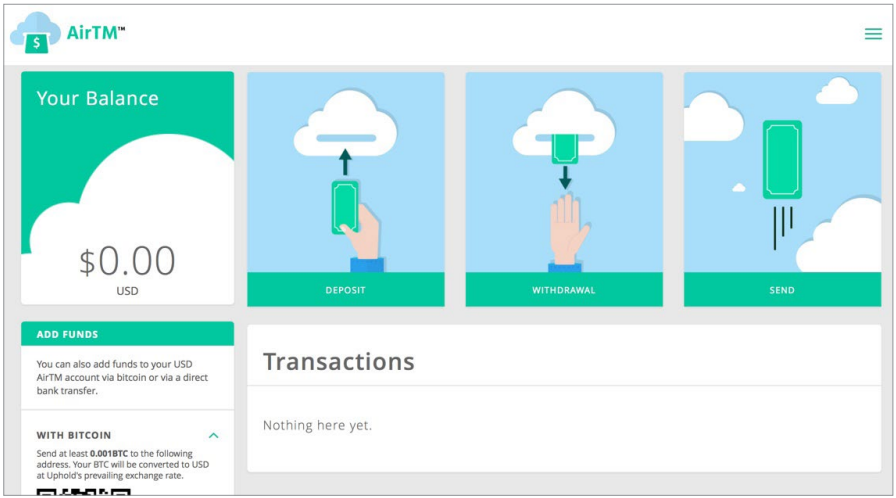
AirTM combines two ideas previously discussed in this book: Abra's human ATM concept and Uphold's pegged currency balances. It currently enables the flow of funds and exchange of currencies in multiple countries, including Mexico, Argentina, Venezuela, the US, and China.

AirTM works by first connecting its customers with local "cashiers" in their country who can accept their cash deposits. Once the customer hands over their cash, the cashiers will then send an equivalent amount of BTC to that customer's balance on AirTM/Uphold.

Once "in the cloud," the customer can manage their funds as they see fit. This strategy allows AirTM's users to maintain their money in any currency they desired, which in the case of Argentina and Venezuela, usually means anything other than their own.

Having cashiers that can focus on each of their supported countries allows AirTM to essentially facilitate self-service remittances. As long the sending customer has money in the cloud, they can forward it to any beneficiary anywhere in the world. That beneficiary will then coordinate with their own local cashier to receive cash in their desired currency.

Like Abra, one of the biggest questions with AirTM has to do with regulations, as regulators often tend to “duck-type” money transmitters instead of looking closer. In the eyes of a regulator, if it quacks like a duck, it’s probably a duck, and will be regulated as such. It’s unclear how they will eventually categorize the *ad hoc* peer-to-peer cash networks being enabled by startups Abra and AirTM.



The AirTM web interface uses simple cloud banking metaphors for common user actions.

CHAPTER ELEVEN

Why Doesn't Western Union Use Bitcoin?

One of the most common questions asked at industry conferences is why Western Union or Moneygram or any of the other incumbents don't just use Bitcoin themselves, thus eliminating the potential competition from young fintech startups.

The short answer is that Western Union doesn't *need* Bitcoin in its current infantile state. Conversely, if and when Bitcoin reaches adulthood, the world would no longer *need* Western Union.

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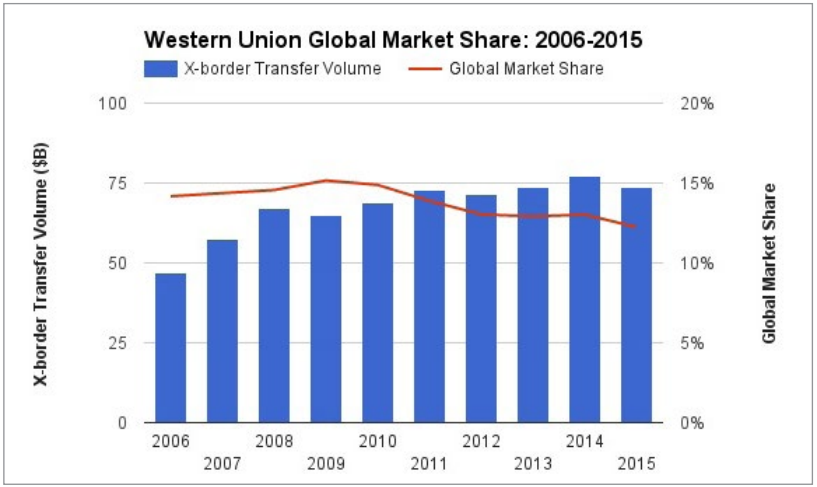
Western Union Market Share graph from research by SaveOnSend.com.
See the original article here.



The Colorado-based giant is often compared with prehistoric animals by the Bitcoin community, and although a little harsh, it's not an altogether unfair characterization when you consider how long it's been around. The Western Union empire is all of 165 years old, and has been transferring money domestically within the United States since the 1870s. Their early dominance involved leveraging their nationwide telegraph monopoly to send remittance instructions from city to city in much the same way we use payment APIs today.

Today their network includes over 500,000 physical outlets spread across 200 countries, which facilitated over 261 million consumer-to-consumer transactions in 2015. On the technology front, the US$10-billion company was the first to launch its own set of geostationary satellites, dubbed Westar, as far back as the mid-1970s to facilitate its own internal communications.

More recently, its newly-launched WUConnect platform allows social media and mobile messaging users to send money from within the user interfaces of their favorite apps, including Viber and WeChat. (See the user workflow here.)

Immobile Money Transfer

As discussed in previous chapters, the most practical way to use Bitcoin today is as a settlement mechanism between remote remittance companies. The companies on both ends of the transaction need to handle the BTC conversions on behalf of their customers.

In the case of Western Union, both the sending and receiving sides are owned by the same company, meaning that settlement doesn't need to take place over a transparent

public network like the blockchain. Western Union is massive enough that it can benefit from its own internal "network effect," balancing large cash reserves between all the countries that it has presence in.

When facilitating a remittance from San Francisco to London, the dollars paid by the sender never have to leave the US. Western Union only needs to draw down from its GBP reserves in the UK to pay the receiver, which can be done instantly and with no costs. Likewise, when a Londoner wants to send cash to the states, Western Union only needs to draw from its dollar reserves there; the pound sterling stays in country.

In this manner, money is not actually moving between one nation and another, Western Union only needs to adjust its balances in each territory. This "net-balancing" strategy is coincidentally what another well-known fintech startup Transferwise employs for its own remittance service, and can be even cheaper than Bitcoin.

The disadvantage is that it's tremendously capital-intensive, and difficult to pull off in corridors where cash flows are more uni-directional. For example, balancing between the UK and the Philippines would be a challenging proposition, since there are over 100,000 Filipinos sending cash home from the UK every month, but there are only a handful of British expats doing the same from Manila. Consequently, Transferwise's UK-to-PH remittance service takes two days and sports an unpredictable exchange rate. It would appear that even a remittance startup with over US$50 million in funding has difficulty making these types of corridors efficient.

Regulatory Uncertainty

Even if Western Union had any interest in employing Bitcoin (perhaps as a programmatic way to instantly fine-tune their cash reserves across their 200 territories), the current unregulated status of cryptocurrencies make it a risky proposition for a publicly-traded company.

With every customer transaction being scrutinized by multiple government agencies in multiple countries, it's hard to imagine that a money transfer business would want to add to their compliance headaches by using Bitcoin.

That doesn't stop them from keeping a close eye on the space however. In April 2016, prominent blockchain investor Digital Currency Group announced that Western Union had joined its latest round both as investors and advisors. For now at least, that seems to be the extent of their participation.

Postscript

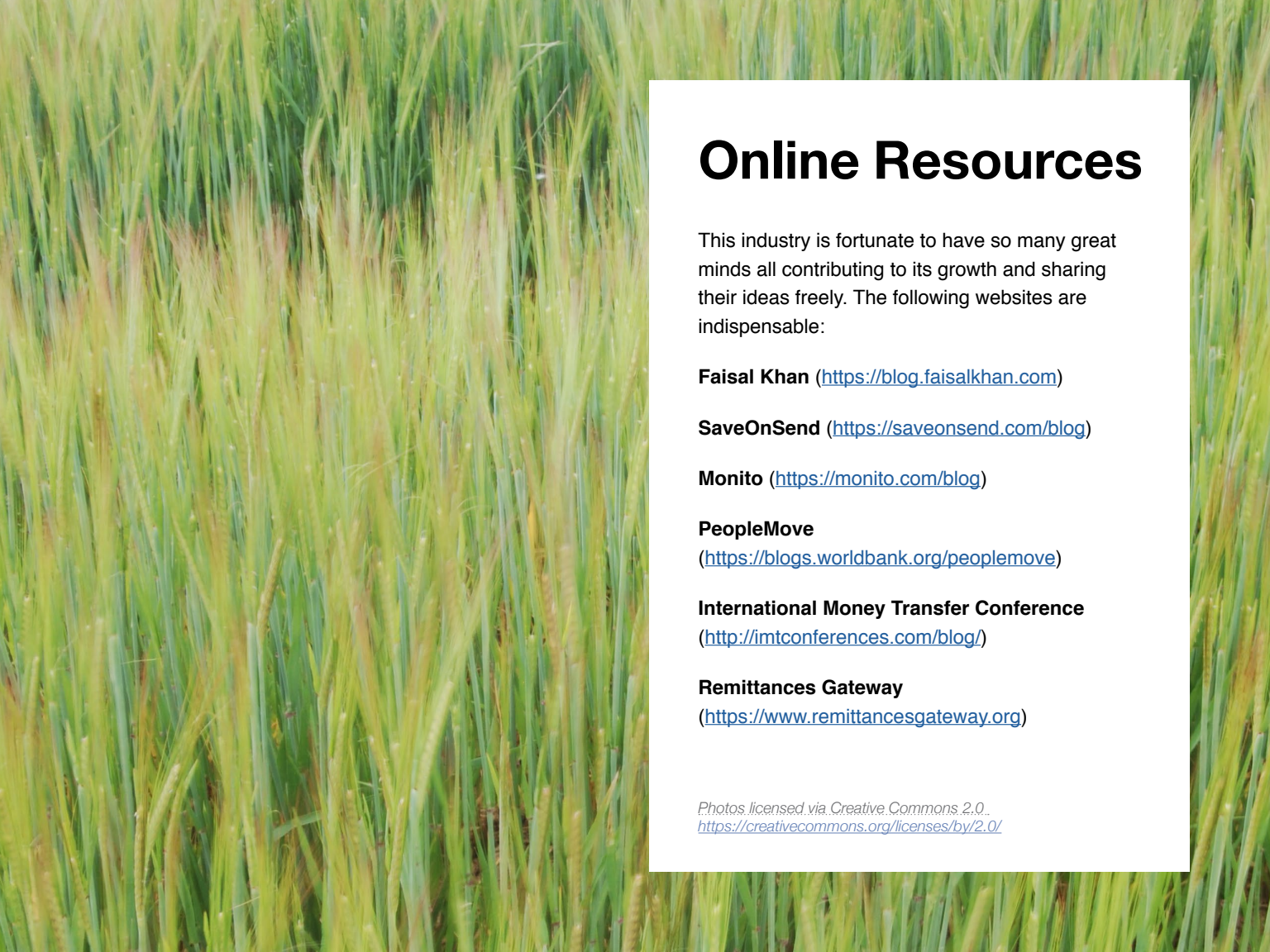
They say that there's nothing quite like an idea whose time has come, and I've found this to be true even for relatively modest ideas ... like, for example, writing a book about the Bitcoin remittance industry. The bones of *Reinventing Remittances* have existed in various forms for a couple of years now, but it was only during the tail-end of December 2016 that I finally found the momentum to put some real meat on it.

Like the rest of this young industry, this book is a work in progress, and should be viewed as a *perpetually incomplete* guide to an evolving subject. It'll continue to be revised with new information, new strategies, and new ideas as our collective knowledge grows.

In the preparation of these pages, the advice and suggestions received from the following experts was invaluable: Faisal Khan, Yakov Kofner, and Hugo Cuevas-Mohr.

Visit http://www.bloom.solutions/book for updates on new editions. (You may also wish to order a print version of the book through there ... unless of course, you're already reading this on the print version, in which case, thank you, you're awesome.)

If you would like to contribute a case study to this work, or god forbid, have spotted something erroneous in these pages, please send an email to luis@bloom.solutions, or call me out publicly on Twitter via @helloluis.



Online Resources

This industry is fortunate to have so many great minds all contributing to its growth and sharing their ideas freely. The following websites are indispensable:

Faisal Khan (https://blog.faisalkhan.com)

SaveOnSend (https://saveonsend.com/blog)

Monito (https://monito.com/blog)

PeopleMove
(https://blogs.worldbank.org/peoplemove)

International Money Transfer Conference
(http://imtconferences.com/blog/)

Remittances Gateway
(https://www.remittancesgateway.org)

APPENDIX

Joining the Bloom Network

Throughout this book, we've described the work that Bloom and many other Bitcoin startups have developed on top of the blockchain. Over the following pages, we discuss the mechanics of joining the Bloom Network itself.

It's worth mentioning that participants in the Bloom Network are always non-exclusive to the system. It's our goal to form a network of loosely coupled nodes, all of whom are free to join, leave, and rejoin the system as they see fit.

We've used the term "Eastern Union" to describe this concept in the past, but that's just a joke meant to highlight the difference with the old monopolistic way of building remittance networks.

We're not interested in building another union, we're trying to start a revolution.

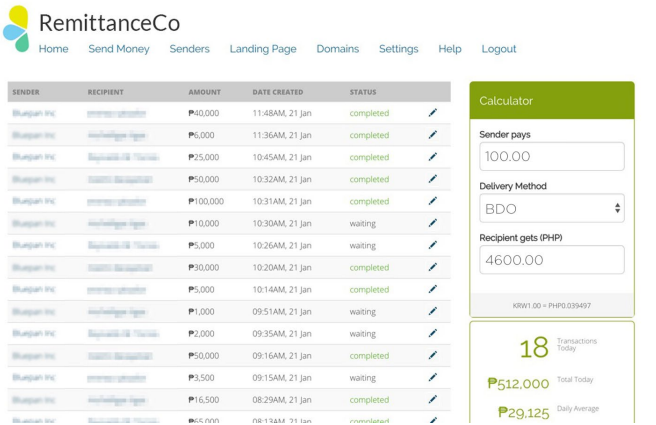
This is a guide for integrating with the Bloom remittance network, and is meant for new partners and institutions who want to work with Bloom directly. It is specific to Bloom's business methods, and should not be taken as a general primer for working with other similar networks.

The Bloom Web Application

Every organization that joins the Bloom remittance network is issued a Partner account that represents their business entity, as well as multiple child user accounts that represent their administrators and agents.

In most cases, a Partner account is assumed to be a First Mile entity. The Bloom platform in its current state is built as a global disbursement system, so the primary action performed by Partners using the system is for issuing pay-out instructions.

Bloom provides a simple Partner dashboard for monitoring remittance statuses and balances, pictured in the slideshow following. Using this dashboard, Partner users may create and edit transactions, calculate costs, and top up their balances via Bitcoin. However, Bloom does not require any of its partners to use the dashboard directly, as most established remittance businesses will already have their own systems for accomplishing most of these same tasks.

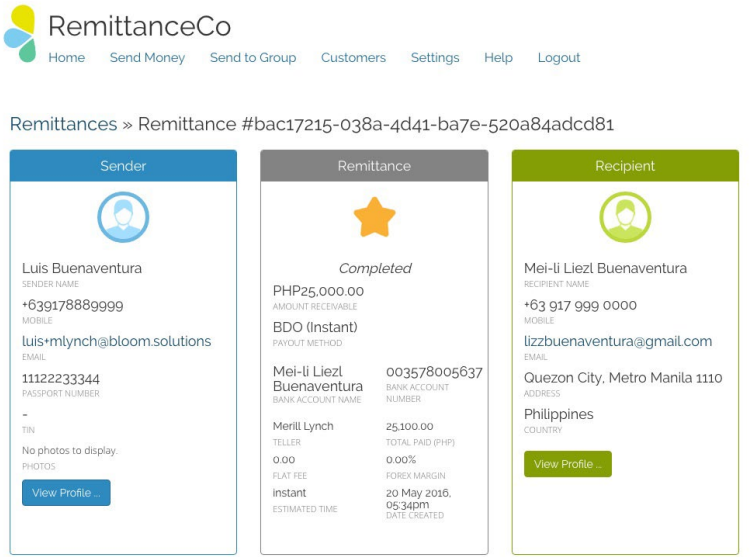


The main Partner Dashboard page, which provides a simple view of the most recent transactions made on a given day, as well as their respective statuses.

For those users, we recommend integrating directly with the Bloom API, which allows for seamless connectivity with existing infrastructure.

The Bloom API

Partners with in-house engineering resources may wish to integrate their current dashboards and processes directly with the Bloom API, which will reduce the cost of training and operational overhead.



The remittance details page, which indicates the status of a given transaction as well as any information provided about both the sender and the recipient. Pertinent information such as the tracking number (in the case of cash-pickup remittances) are also viewable here.

The Bloom JSON Web Service gives developers programmatic access to the core functionality of the platform. Using our RESTFUL API, a developer will be able to build applications that accomplish the following:

1. Create and manage Agents
2. Create and manage Senders
3. Create and manage Recipients
4. Create, manage, and monitor transactions
5. Calculate transaction fees
6. Retrieve lists of Payout providers and exchange rates

Each API request must be in JSON format. The API token and secret listed above is unique to each Bloom partner. If you regenerate your token, you will regain access to all

previously-created records once you update your application code to use the new token.

The base URL for the API is https://api.bloom.solutions/api/v1/, and the full API documentation is located at https://bloom.solutions/developers.

Bloom has also built open-source libraries to expedite third-party integration efforts with its API.

Ruby: https://github.com/imacchiato/bloom_remit_client-ruby

Rails: https://github.com/imacchiato/bloom_remit-rails

API Entities

Partner

The business entity or organization, usually named similarly to the actual registered business name.

Agent

A sub-group belonging to the Partner entity, which may represent a single outlet or physical location controlled by the Partner.

Admin

A user type belonging to the Agent entity, corresponding to a single employee working for the Partner. An admin can manage remittances as well as pre-fund deposit balances.

Teller

A user type belonging to the Agent entity, corresponding to a single employee working for the Partner. A teller can manage remittances but cannot manage deposit balances.

User

A user type belonging to the Agent entity, corresponding to a single customer of the business. The “user” is interchangeably referred to as the “sender” in the API documentation.

Recipient

An entity belonging to a User/Sender, corresponding to the person receiving the remittance in the destination country. A recipient must have a valid mobile number in order to receive notifications from the system.

Remittance

A transaction created by an Admin or Teller. It belongs to a User/Sender, must include a Recipient, a Country, and

a payout method. Importantly, it must indicate an amount greater than US$2, and unless otherwise agreed upon, must be less than US$4,000. Remittances may have service fees and FX costs embedded in them, depending on the chosen payout mechanism and amount to be sent.

Credit History

Before creating any remittances, a Partner must have a positive amount of credit on the system. Each subsequent remittance is then debited from this balance. Whenever a Partner tops up their account, a Credit History record will also be logged detailing the amount and balance after the top-up.

Remittance Workflow

The typical remittance workflow is as follows:

Create or select a Sender associated with an Agent

Each Partner has 1 or more agents, which represent the individual pay-in channels (kiosks, website, mobile app, etc) that the sender can interact with.

Create a Recipient

A Sender has 1 or more recipients associated with their account. Recipients are scoped to each sender, and cannot be shared from one sender to another.

Create a Transaction

A remittance is a transaction between a Sender and a Recipient, facilitated by an Agent.

Monitor Transaction Status

After a transaction is created, its status may change to any of the following: *bank_error*, *incomplete*, *paid*, *completed*, *rejected*, *refunded*, *cancelled*, *error*, *delayed*, *waiting*, *unpaid*, and *outstanding*.

Pre-funding Workflow

Each Partner must maintain a balance with Bloom before it can send remittances. Each balance is maintained in a separate destination currency (e.g., PHP, AUD, CNY, etc.), and is not interchangeable. The Partner may choose to top up any of these currencies as needed via BTC or USD.

To top-up with BTC, the Partner admin needs to go to the Account page for a given currency and look at the Invoice Address indicated there. The rate for a given currency pair (e.g., BTCPHP) is stated clearly, and is recalculated every 30 seconds.

Once the BTC is sent, an amount of currency is added to the credit balance equivalent to the quoted rate. Bloom does not wait for blockchain confirmations before adding the funds to a given Partner's balance. Typically, funds become available for use within 1-2 minutes of the Partner issuing the transaction from their Bitcoin wallet.

A Partner may use up the funds in their balance for an indefinite period of time. Bloom also extends a modest line of credit to allow Partners to continue facilitating remittances even after they have consumed all of their funds.

Post-funding Workflow

Although Bloom does not explicitly support or encourage the use of a post-funding workflow, the line of credit it extends to trusted Partners does make this option possible.

Every new Partner begins with zero currency in their account balance, and may send transactions through the API without topping up. Each subsequent remittance will deduct from their zero credits, until a negative threshold has been reached. By default, this bottom limit is -US$1,000, but it can be adjusted based on prior agreements.

With a low negative threshold, a Partner can send remittances and settle with BTC after the fact, bringing their overall account balance back to zero with each new topup.

API Support and Feedback

Support requests and feedback regarding the Bloom API should be directed to hello@bloom.solutions.

When Bitcoin was created in 2009, its most obvious use was as a way to send money across the planet as easily as sending an email.

The potential benefits for the 230 million migrants all over the world that send US$430 billion in remittances back home each year could be enormous. But beyond all the rhetoric, there is still the practical implementation that has yet to be sorted out.

This book collects stories about the pioneering startups who have been focusing on this exciting new space since 2013. From Nairobi to San Francisco to Manila, each new company brings us a little closer to the perfect solution: an affordable, safe, and universally accessible money transfer network unlike anything the world has ever seen.