UPU UNIVERSAL POSTAL UNION

Potential use cases of cryptocurrencies by Posts

A White Paper on Postal Financial Inclusion

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List of Abbreviations

AML	anti-money laundering
CBT	cash based transfer
DLT	distributed ledger technology (used interchangeably with blockchain for the purpose of this paper)
G2P	Government to Person (payments)
KYC	know your customer
PFCOIN	*(hypothetical)* Post Finance Coin, a postal cryptocurrency
Posts	generic term used to define postal service providers, or a Designated Postal Operator in a country
SDG	UN Sustainable Development Goals
UPU	Universal Postal Union

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POSTAL FINANCIAL INCLUSION

The Post has held a central and trusted role in society over the last few centuries. It has done so by leveraging one of the largest physical distribution networks in the world – with over 668,000 post office branches and employing nearly 5.2 million people[1] – offering unprecedented last-mile access to deliver postal, social, and financial solutions.

Building on their socially-oriented mission and universal service obligations, Posts are well positioned to address the three main challenges that impede financial inclusion: access, eligibility, and affordability. A 2016 study finds that most postal operators are already doing so. Nearly 90% of Posts around the world provide some form of financial service, either directly or in partnership with other financial institutions, targeting groups that are typically excluded from the formal financial system (Universal Postal Union (UPU) 2016).

Building on their socially-oriented mission and universal service obligations, Posts are well positioned to address the three main challenges that impede financial inclusion: **access**, **eligibility**, and **affordability**.

Studies have shown that Posts are comparatively better positioned than other financial institutions to provide financial services to segments of the population that tend to be excluded, such as women (Rao 2015), migrants, and the economically marginalized. An empirical study found that the Post can play a significant role in closing the financial inclusion gap (Ansón, et al. 2018), and that the poor, the less educated, and those in the informal economy are more likely to use and benefit from a postal financial account (Allen, et al. 2012).

[1] Postal statistics can be found at: http://www.upu.int/en/resources/postal-statistics/about-postal-statistics.html

POSSIBLE USE CASES OF CRYPTOCURRENCIES BY THE POST

In order to manage the currency circulation and prevent illegal transactions, La Poste Tunisienne has full control of the circulation and issuance of the eDinar

Keeping pace with recent innovations, the UPU is examining the role that distributed ledger technology (DLT), blockchain and cryptocurrencies can play in the postal industry, as well as the role of the UPU and its members in enabling efficient delivery of services. We find that there are already some examples of Posts around the world leveraging or experimenting with DLT to provide financial and logistics services.

A leading example is the **eDinar** from *La Poste Tunisienne*, which allows individuals to have a digital wallet, backed by a physical prepaid smart card, without the need to open a bank account. eDinar is pegged to the national currency and functions like a digital fiat currency. In order to manage the currency circulation and prevent illegal transactions, *La Poste Tunisienne* has full control of the circulation and issuance of the eDinar (La Poste Tunisienne 2019).

La Poste Tunisienne partnered with a Swiss FinTech company in 2015 to implement blockchain technology that moved the national digital currency, eDinar, to a new platform – eDinar Plus. However, given the current regulatory framework of the country, the underlying blockchain is used as a notary mechanism rather than a true cryptocurrency. The major innovation is that, unlike other virtual wallets, the use of a "blockchain-inspired transaction protocol" allows interoperability between various telecom providers though a single shared ledger system (Chakchouk 2017).

Based on our current experience, we find three potential use cases that leverage the core strength of the postal network and build upon work currently being done by Posts.

USE CASE 1
LOW-COST, INSTANTANEOUS INWARD REMITTANCE

A clear case is the use of cryptocurrencies to provide secure, low-cost, near-instantaneous transfer of monetary value thought cryptocurrencies. The speed and low cost of transferring monetary value through cryptocurrencies makes it an ideal choice for remittances.

The World Bank estimates that the current average cost of remittances is around 7%, which is much higher than the 3% target set in the SDGs for 2030. A recent pilot by Ripple, a FinTech company, facilitating cross-border remittances from the United States to Mexico, reduced foreign currency exchange costs by 40 to 70% and finalized the transfer in an average of two minutes (Mejia-Ricart, Tellez and Nicoli 2019). Offering improved transparency and traceability to help overcome KYC/AML requirements, the use of DLT and cryptocurrencies might be the future of remittances.

The UPU is focusing on remittances as a priority product as part of its financial inclusion programme, and as a part of its priority policy for postal services development. Currently, 124 of the 180 Posts that offer financial services have a remittance-related product (Universal Postal Union (UPU) 2016). As examples, the Burundi National Postal Service is providing a cost-efficient remittance service for the Burundian diaspora, supported by the UPU's international money transfer service (IFS[2]), in partnership with the International Organization for Migration and RIA Money Transfer (International Organization for Migration (IOM) 2018). From a digital currency perspective, La Poste Tunisienne allows inward remittances from Western Union to be transferred directly to individual pre-paid eDinar cards (La Poste Tunisienne 2019).

With the success and uptake of these products, the Post could explore alternatives such as cryptocurrency-based money transfers. The Post, leveraging its extensive network of physical outlets, can play the role of cash merchant by exchanging cryptocurrency for fiat currency for its customers.

As shown in Figure 1 below, a beneficiary (Person B) receives cryptocurrency (we use Ripple – XRP – as an example), from Person A nearly instantaneously. Person B then goes to the nearest post office, where he/she is given local fiat currency at the spot rate in cash, or as a transfer to their Post Bank account. This reduces transaction time and cost though the use of cryptocurrency, where transfers through the XRP network are near instantaneous (Kraken n.d.). The ability to transact at the nearest post office, often in rural locations, also reduces the opportunity cost for Person B.

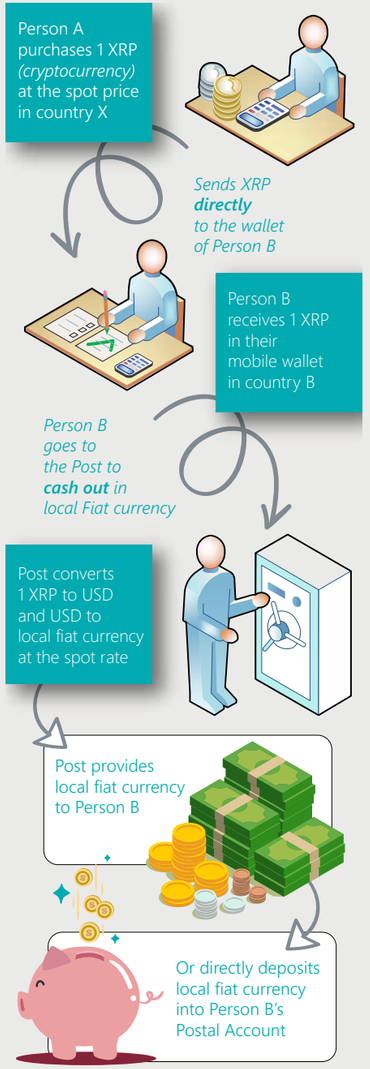


Figure 1: cross-border remittances using cryptocurrency to fiat currency transactions

[2] UPU's International Financial System (IFS) facilitates money orders between Posts: http://www.ptc.upu.int/ps/ifs.shtml

USE CASE 2
MANAGING DIRECT CASH TRANSFER PROJECTS

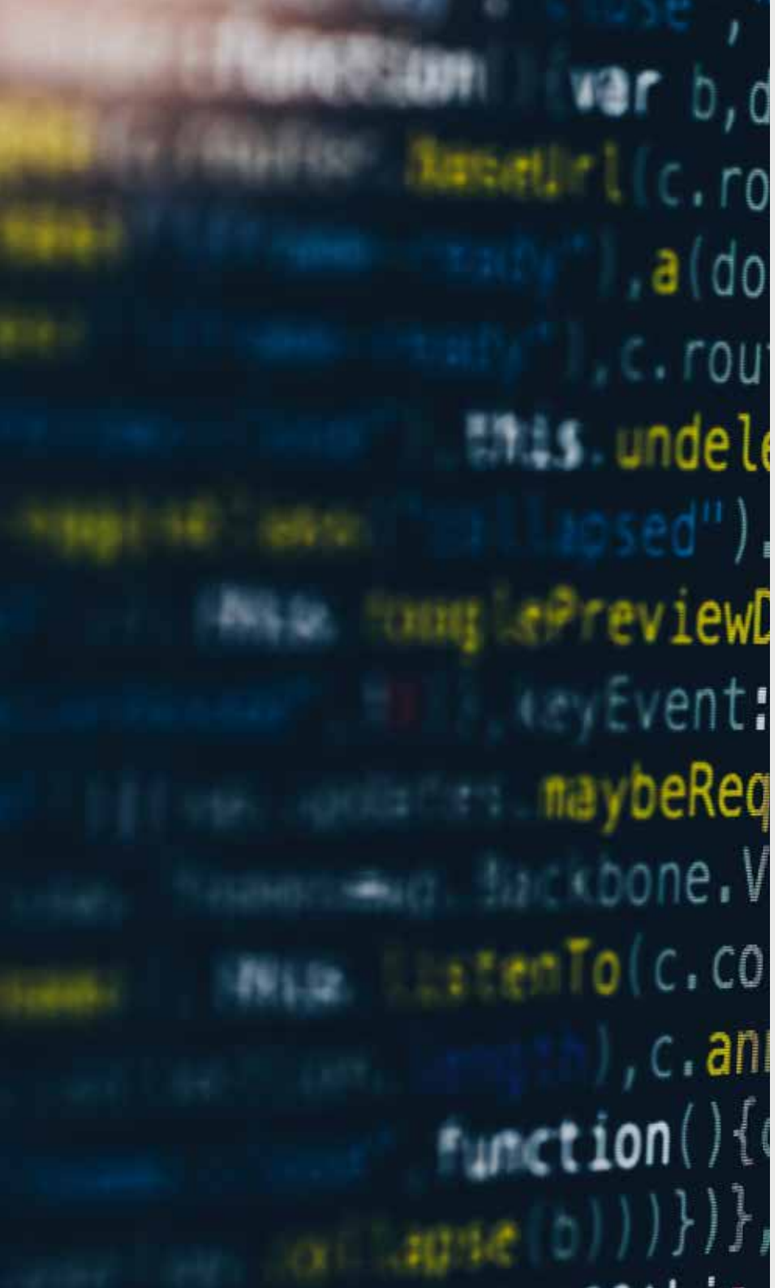
A recent report issued by the Better Than Cash Alliance (BTCA) states that direct cash transfer to beneficiaries serves predetermined objectives, but the choice of transfer methods should be flexible to meet the needs of beneficiaries. Three UN agencies – UNICEF, UNHCR, and WFP – delivered more than half of the world's humanitarian cash assistance programmes. These agencies have developed extensive mechanisms to improve transparency on the use of the assistance, and minimize the potential for fraud and corruption. The same report states that cash-based transfer (CBT) programmes are steadily increasing in the light of the humanitarian crisis around the world, and increasingly the transfers are made to mobile wallets or bank accounts with debit cards (Better Than Cash Alliance (BTCA) 2018).

Posts are the last mile service providers to the unbanked and people without identification.

The Post already plays a key role in responding to natural and man-made disasters. Posts are the last-mile service providers to the unbanked and people without identification. Given their extensive network, post offices and mail processing centres can act as distribution points for emergency supplies, and postal services can help coordinate emergency aid operations and provide much needed money transfers to victims in affected areas, as well as a basic means of communication[3]. Thanks to this network, augmented by on-the-ground staff presence, the Post can play a key role in facilitating the delivery of, and monitoring the effective use of, CBT programmes.

As a potential use case, outlined in Figure 2 below, we hypothesize the creation of a closed loop cryptocurrency – a Post Finance Coin or PFCOIN – a hypothetical stable coin tethered to the local fiat currency. Using these PFCOINs, the Post can play a financial intermediary and monitoring agent role for humanitarian assistance agencies in post-conflict or post-disaster scenarios.

[3] Role of the post in responding to disasters: http://www.upu.int/en/activities/disaster-risk-management-in-the-postal-sector/about-disaster-risk-management-in-the-postal-sector.html



The salient points are:

1. The Post plays a financial intermediary and monitoring agent role, where the donor transmits a beneficiary list and correspondent funds to the Post, which then issues an equivalent amount of PFCOIN to the beneficiary's mobile wallet.

2. The PFCOIN are exchanged for goods (food, clothing, supplies) or services (school fees, other fees) at designated businesses. The use of PFCOIN ensures that the funds are spent at designated businesses for humanitarian assistance purposes, preventing diversion to non-intended or illegal use, as can be the case for cash.

3. The PFCOIN are redeemed at the Post by the businesses, in exchange for fiat currency.

4. The entire transaction – from transfer of PFCOIN to purchase – is recorded on a DLT that the donor can monitor and verify, thereby reducing the risk of fraud or misuse of humanitarian assistance funds by diversion to non-intended purchases.

5. On the ground, postal staff can perform KYC/AML and identity verifications, as well as monitoring the use of PFCOIN transactions in approved businesses.

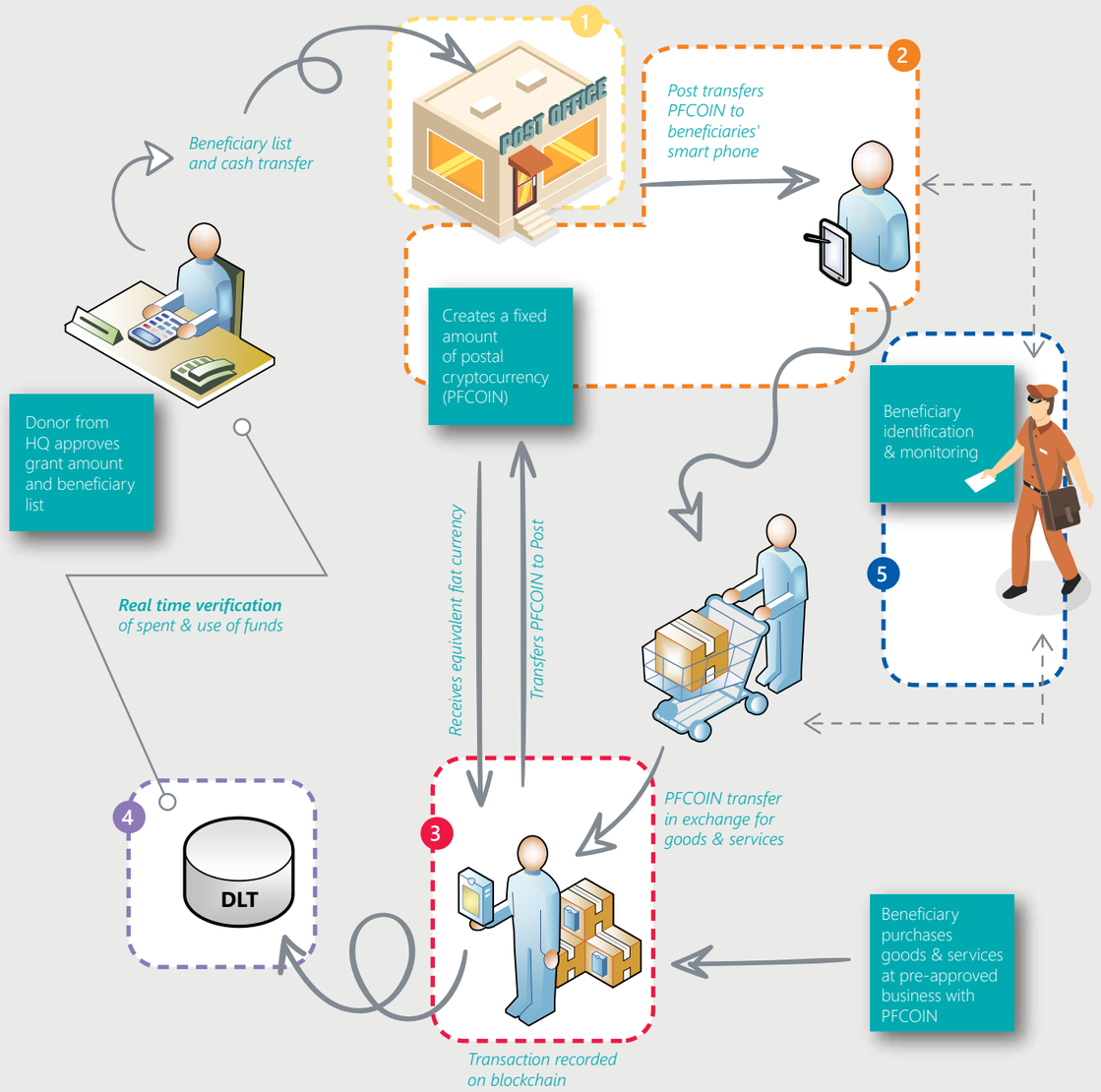


Figure 2: Closed-loop postal cryptocurrency solution

USE CASE 3
FACILITATING G2P PAYMENTS

UPU figures show that 87 postal operators worldwide provide checking or savings accounts to their clients. Together, these Posts hold 1.96 billion accounts for a total of about 1 billion customers (Universal Postal Union (UPU) 2016). These postal accounts are often held by the marginalized and vulnerable segments of the populations, and serve as an efficient route for government-to-person (G2P) payments such as salaries, benefits, pensions, and subsidies. The UPU's study shows that 108 out of the 180 Posts that offer financial services to their clients provide cash agent services for G2P payments (Universal Postal Union (UPU) 2016).

As examples, Egypt Post facilitates the payment of civil servant salaries and pensions through postal accounts. These accounts are operated though over-the-counter cash withdrawals, debit cards and ATM transactions, or though credit cards issued by the Post. Similarly, in Nigeria, to further the government's efforts to provide a social safety net, Nigeria Post (NIPOST) is the dedicated cash handling and transfer agent in three states for National Cash Transfer payments (The Nation 2019).

Around the world, governments are already using mobile money solutions as an efficient means to transfer G2P payments to beneficiaries. Enabling these G2P transactions through a DLT will allow an added layer of transparency and traceability for salaries, pensions and benefits. Cryptocurrency-based G2P payments could be made through any of the following channels:

- digital fiat currencies (which provide the safest protection against cross-currency fluctuation for economically vulnerable populations);
- stable cryptocurrencies, directly to the e-wallet of the beneficiaries; or
- local postal cryptocurrency (PFCOIN, as outlined above), providing a closed-loop benefit system for beneficiaries.

Some G2P payments, such as agro-subsidies that already rely on closed-loop systems, could be paid out though PFCOIN, redeemable at partner agro-dealers. Similarly, PFCOIN could be used to ensure that education allowances are only spent at approved bookstores. This could help prevent the potential misuse of funds, or purchasing sub-standard products.

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POTENTIAL CHALLENGES AND RISKS OF THE ADOPTION OF CRYPTOCURRENCIES BY POSTS

Since the inception of Bitcoin in 2009, and in the 10 years since, cryptocurrencies have attracted the attention of investors, consumers, tech adopters, and of course regulators. But, by their very definition, cryptocurrencies remain outside the purview of any single national financial regulator. In recent times they have spurred much debate on whether these new forms of currencies are a store of value, or a medium of exchange that is an alternative to physical currency and e-currency.

There are some inherent limitations to the use of cryptocurrencies as a medium for financial value exchange. There are numerous publications that outline the challenges and limitations of the most common cryptocurrencies, but we will focus on four key aspects that might directly impact their use by Posts:

Volatility: as a currency that can be exchanged for goods and services in the physical world, cryptocurrencies need to be readily and reliably exchanged against fiat currencies, which the most major economies rely on (USD, EUR, and so on). Because cryptocurrencies are not under the purview of any single regulator, and because there are no mechanisms to manage price volatilities versus other currencies, the value of cryptocurrencies against fiat currencies remains at the mercy of market forces, and is susceptible to external news and misinformation (Bank for International Settlements (BIS) 2018). Large intra-day movement in the exchange value against fiat currencies can translate to exchange rate risks being passed on to either party in a transaction, should they choose to store the cryptocurrency for any length of time.

While cross-currency devaluation is not unique to the cryptocurrency world, the large intra-day volatility typical of cryptocurrencies means that Posts would have to put in place and monitor effective hedges to manage their treasury operations.

Adoption / Acceptability: cryptocurrencies are starting to make an entry into mainstream financial discourse. Bitcoin, the most famous of all cryptocurrencies, is almost a household name now. The use of cryptocurrency as a medium of exchange, however, is still limited to early adopters. As the movement grows, the technology matures, and use cases develop, more merchants will be willing to accept cryptocurrencies in lieu of fiat. Until mass adoption happens, users are likely to immediately cash out into fiat currencies when receiving a cryptocurrency transfer, in order to have more flexible options of spending their funds. This might pose a liquidity issue for Posts that offer cryptocurrency-based services, calling for more mature treasury management.

Digital fiat currencies, however, should have a quicker acceptance curve with almost zero treasury risks for Posts. Uptake would be limited only by the capital investment needed for point-of-sale (POS) machines, and underlying IT infrastructure.

Through their presence in rural communities and peri-urban areas, and by leveraging their existing financial literacy programmes, Posts could help make communities and individuals aware of the uses of cryptocurrencies, mechanisms to do so, and the advantages of using digital currencies over paper-based currency, thereby increasing uptake and adoption across a wide segment of the population.

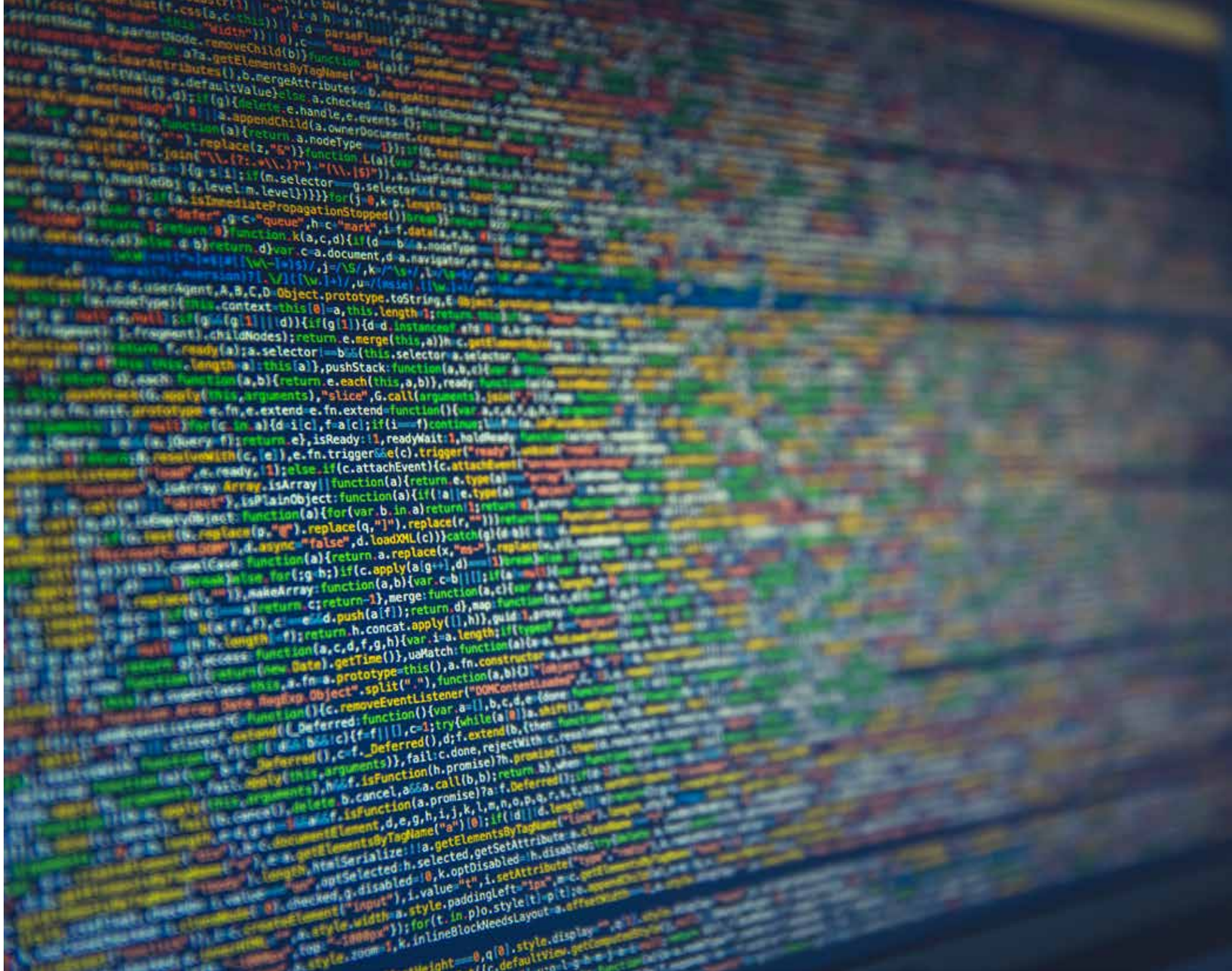
Regulatory framework: regulators are starting to put in place mechanisms to safeguard both individuals and monetary systems. A key risk in current cryptocurrency technology is the irreversibility of transactions, which do not offer client protection against fraud or theft. The absence of national or international regulatory oversight on cryptocurrencies, coupled with the absence of a central clearing house to monitor/restrict cross-border currency flow, is a challenge for economies that have non-convertible currencies, as well as those that have restrictive monetary policies.

Posts that wish to offer services in the digital currency and cryptocurrency space will need to pay attention to current and emerging regulatory guidance. Often, this might mean building in the agility to respond to regulatory requirements without incurring large capital investments. Posts should weigh the risks of regulatory guidance before offering these services.

Platforms & technology: cryptocurrencies and digital currencies offer a mobile-first approach towards managing finances and facilitating commerce. This allows client service providers, such as Posts, to leverage cloud-based software-as-a-service (SAAS) and platform-as-a-service (PAAS) offerings to minimize hardware and infrastructure investments. However, there are investments to be made in digitizing back office and treasury functions, training staff, and creating client interfaces to allow a seamless user experience.

Posts that are already providing digital financial services (DFS) to their clients will be able to capitalize on their investments to easily provide digital currency solutions to their clients. Others will have to continue on their path towards digital transformation, with the assistance of the UPU, which has already started to implement the Digital Transformation Agenda recognizing the potential of ICT for development[4].

[4] More about UPU's electronic services: http://www.upu.int/en/activities/electronic-services/about-electronic-services.html



CONCLUSIONS

There are potential use cases for Posts to leverage cryptocurrencies, digital currencies and fiat digital currencies to provide financial services to their clients. In most cases, these will augment and provide cost-effective alternatives to current products and services. In certain cases, using DLT and blockchain, the Post can provide an added layer of transparency, accountability and traceability to its services.

There is also a clear case for governments and development partners to leverage the core strengths of the Post to deliver cost-efficient, transparent, accountable social and financial services.

But Posts should not rush into these services and technologies for adoption's sake only. There needs to be a clear and sustainable business growth driver behind each new product or service offered.

The need for an evidence-driven business case becomes more compelling when one assesses the growing number of innovative initiatives that leverage the inherent strengths and merits of DLT and cryptocurrencies to address human development challenges, with limited evidence on the actual development impact of using such technologies (Burg, Murphy and Pétraud 2018).

To fulfil its mandate as a global, intergovernmental development organization, the UPU intends to strengthen its partnerships with key stakeholders in this emerging area, in order to better serve its member countries and constituents. The UPU will strengthen and build upon its current technical assistance and knowledge advisory programmes in financial inclusion and postal technology, to become a centre of excellence for financial service delivery by the postal industry.

Using DLT and blockchain, the Post can provide an added layer of **transparency**, **accountability**, and **traceability** to its services.

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DISCLAIMERS

This White Paper does not represent an endorsement of any specific cryptocurrency, technology, or product by the UPU, the UPU International Bureau, or any of the UPU's member countries. It is a draft, for discussion only, and represents hypothetical use cases of cryptocurrencies and digital fiat currencies by the postal network.

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