



VENTURES

PILOT INSIGHTS REPORT



The potential of cryptocurrency for Kenya's youth: Pilot insights on stablecoin micropayments for digital workers



VENTURES

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Ripple, Rippleworks, and Celo provided funding support to this pilot.

Disclaimer. All names and identifying details in this report have been changed to protect the privacy of individuals.

PARTNERS



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EXECUTIVE SUMMARY

When the economic impact of the Covid-19 lockdown reached her informal settlement in Nairobi, Lucy Atieno -- a single, 26-year-old gig worker -- lost her main income stream. Recently, Lucy began freelancing part-time as a digital microworker. *"I have not been in active employment so I have mostly been at home. For me, the microwork came in as an opportunity to make use of the extra time...and earn something so that I could take care of some responsibilities,"* she said. On a productive day, Lucy can earn up to KSH 800 (USD 7.00) by completing microwork tasks on her smartphone, such as tagging photos or transcribing audio clips for global technology firms. The ability to earn this income from home, grow her savings, and cash out earnings anytime makes Lucy feel financially secure.

Innovations in digital work and cross-border payments are inspiring new opportunities for youth, similar to Lucy, who have traditionally been excluded from the formal economy. In Kenya, the emergence of digital work platforms and trustworthy cryptocurrencies, such as stablecoins, are shaping a new, inclusive digital economy.

It is no secret that sub-Saharan Africa has the youngest and fastest-growing youth population in the world today, accounting for over 20 percent of the region's population.¹ The number of people between the ages of 15 and 24 in Africa is expected to double to 400 million by 2045.² In Kenya alone, 68 percent of the total population is below the age of 35.³ These young people make up the country's present and future microentrepreneurs, informal workers, smallholder farmers, people living in informal settlements, and those fleeing conflict or climate change. Their needs are widely varied and equally urgent, and the existing solution set leaves the majority of the 68 percent unemployed and vulnerable.

Digital microwork offers a promising solution that mobilizes the youth demographic to achieve Kenya's Vision 2030 objective to become "a globally competitive and prosperous country with a high quality of life by 2030."⁴ **Digital microwork is a form of digital labor that breaks up complex technical projects into thousands of fractional tasks which can be completed in minutes.** Part of Kenya's economic pathway towards Vision 2030 is to become a global business process outsourcing (BPO) destination by 2030, of which digital microwork plays a key role. The explosive growth of the artificial intelligence (AI) and machine learning (ML) sectors makes AI-based digital microwork highly attractive, and the AI industry alone is expected to reach a market value of USD 185.17 billion by 2026 (a compound annual growth rate [CAGR] of 26.1 percent from 2021).⁵ As a form of BPO, digital microwork has the potential to unlock income opportunities and increase savings potential for un/underemployed youth in radical ways. Yet the industry has been slow on the uptake in Kenya, due in large part to the cost and friction of cross-border micropayments. Transaction fees often require microworkers to forfeit a significant portion of their earnings (in some cases up to 30 percent of gross earnings), making microwork uneconomical.⁶

Cryptocurrency removes this costly barrier and offers the potential to transform the existing financial system by creating revolutionary new pathways for people to spend, save, send, and secure money. In simple terms, **cryptocurrency is a store of digital value, traded online through a network of computers that have the power to objectively verify and record unique transactions.** Stablecoins, a type of cryptocurrency tied to a store of physical value like a fiat currency, make everyday use cases like peer-to-peer (P2P) transactions and cross-border payments affordable, simple, instantaneous, and accessible to all.

1 Mercy Corps Youth Employment Labs. Towards a digital workforce: Understanding the building blocks of Kenya's gig economy. 2019.

2 Rockefeller Foundation. Digital Jobs Africa.

3 DFID. Regional Analysis of Youth Demographics. 2018.

4 Kenya Vision 2030. About.

5 Mordor Intelligence. Artificial Intelligence Market - Growth, Trends, Covid-19 Impact, Forecast (2021-2026). 2021.

6 Spindle Design. Landscape Assessment. Kenyan Microwork Ecosystem. 2020.

Mercy Corps Ventures (MCV) is accelerating financial inclusion and de-risking the adoption of new technological innovations by conducting real-world pilots that build the evidence base and develop lessons learned for large-scale implementation. The MCV pilot detailed in this report was completed over three months at the start of 2021 to test whether digital stablecoins and mobile wallets could ease frictions and reduce costs in cross-border payments for un/underemployed youth completing microwork in Kenya, and the results are very promising. Based on qualitative and quantitative surveys, the pilot confirmed three key insights:

- 1. Stablecoins reduce the costs and frictions of sending and receiving cross-border micropayments.** By leveraging easy-to-use mobile platforms, anyone with a phone can access a dramatic reduction in cross-border transaction fees: from 28.8 percent for a USD 5.00 transaction to 2.02 percent regardless of transaction value, which translates to a reduction in fees from USD 1.44 to USD 0.10.⁷
- 2. Stablecoin-based digital wallets can unlock new digital employment and earning opportunities for un/underemployed youth** by making digital employment a more lucrative, desirable work opportunity. Because stablecoins reduce cross-border transaction fees, the technology increases the emerging sector's take-home earning potential.
- 3. Stablecoin-based digital wallets can incentivize savings behavior for previously unbanked populations** by seamlessly building in a user-friendly wallet with savings rewards into the payment process.

All 200 pilot participants completed their three-month engagement as newly-trained microworkers and owners of stablecoin-based digital wallets, with highly positive feedback. One participant reflected on the flexibility of the work

opportunity, saying, *"I really enjoy [microwork] because it is convenient. You can do it in your own free time."*⁸ Another reported that the income gained from microwork served as a stepping stone to starting a small business. *"I made a lot of money from the microwork so I was able to join driving school. I started a small business where I earned another extra income."*⁹ The majority of participants confirmed that they would refer both microwork and stablecoin-based digital wallets to a friend.

While there is always early apprehension toward new technology, the momentum behind cryptocurrencies, and stablecoins in particular, signifies the overwhelming demand for a new way of transacting. Further, the youth bulge in Kenya represents an urgent employment challenge the world has never seen before, warranting openness to tools that push us to reimagine the future. MCV's pilot confirmed that new possibilities are emerging with digital microwork and stablecoin to unlock future economic opportunity for the 26.4 percent un/underemployed population in Kenya today.¹⁰ With proper regulation and collaboration, Kenya can continue to strengthen its pioneering role in the digital economy.

Kenya is already leading the world in P2P cryptocurrency transactions, and ranks fifth overall in cryptocurrency adoption.¹¹ **The tools to create universal financial access and enable a truly inclusive and equitable global financial system are now within reach, and a delicate regulatory balance is required.** To enable a successful, positively transformational new digital economy, the Kenyan government can proactively form a Working Committee that designs a regulatory roadmap and uses a "test and learn" environment, such as a regulatory sandbox, to closely evaluate and publicly trial new systems and processes over the long-term. This will allow the country to develop a thoughtful and flexible regulatory framework that ensures microwork and digital payments serve the needs of Kenyans, and in turn, brings the possibility of universal financial inclusion into tangible reality.

⁷ At the time of the pilot, the lowest market rate for cross-border transactions was through PayPal. For a USD 5.00 transaction, the fee was 28.8 percent.

⁸ This is a real quote from a pilot participant who identifies as female, age 24.

⁹ This is a real quote from a pilot participant who identifies as female, age 19.

¹⁰ Mercy Corps Youth Employment Labs. Towards a digital workforce: Understanding the building blocks of Kenya's gig economy. 2019.

¹¹ Chainalysis Blog. "2021 Global Crypto Adoption Index." 2021.



SECTION ONE | THE CONTEXT

1. THE CONTEXT

1.1 INTRODUCTION

When Lucy Atieno—a 26-year-old Kenyan microworker living in an informal settlement in Nairobi—finishes a microwork task, she receives an immediate stablecoin-based payment in her digital wallet. The amount for the single task is small—the equivalent of KSH 10 (USD 0.09)—but she earns it in a matter of minutes. If she keeps working for the full day, she expects to take home close to KSH 800 (USD 7.00). Lucy’s earnings will be immediately available to transfer to her M-Pesa account so that she can use it to pay her bills due that week. **The ability to earn this income from home using her mobile phone and either grow her savings or cash out earnings when needed makes Lucy feel financially secure.**

“

I haven't been in active employment so that means I have mostly been at home. For me, the microwork came in as the opportunity to make use of the extra time...and earn something so that I could take care of some responsibilities.¹²

LUCY ATIENO

Kenyan Microworker, 26

Lucy’s story represents the possibilities awaiting youth in Kenya today. **Young people are eager to earn a living and are more digitally literate than any generation before them, but income opportunities are still too few.** Based on 2019 data, Kenya’s overall unemployment rate was 26.4 percent, with 15- to 34-year-olds accounting for 84 percent of those unemployed in Kenya.¹³

Until recently, the high cost and friction associated with cross-border payments prohibited digital microwork at scale. Full-time employment with microwork service providers is often limited and inaccessible to most, and the costs associated with micropayments for freelance microwork have historically been uneconomical. While paying per task offers a fair rate, cross-border transaction fees, currency conversion fees, and long transfer

speeds significantly reduce a microworkers’ take-home earning potential. Now, the advent of stablecoins -- a type of cryptocurrency whose value is pegged to a stable asset such as the US dollar -- presents the potential to completely remove these barriers. By leveraging blockchain technology, stablecoins make high-speed transactions possible at extremely low costs.

MCV’s pilot set out to uncover the potential for these technologies -- stablecoin and digital microwork -- to unlock opportunities for youth employment in Kenya. Participants shared critical successes. *“I learned that through my smartphone, I could really make a lot of money.”¹⁴* Another explained, *“It is really easy to work at your own pace and the pay is instant.”¹⁵*

¹² This is a real quote from a pilot participant who identifies as female, age 26.

¹³ Mercy Corps Youth Employment Labs. Towards a digital workforce: Understanding the building blocks of Kenya’s gig economy. 2019.

¹⁴ This is a real quote from a pilot participant who identifies as male, age 26.

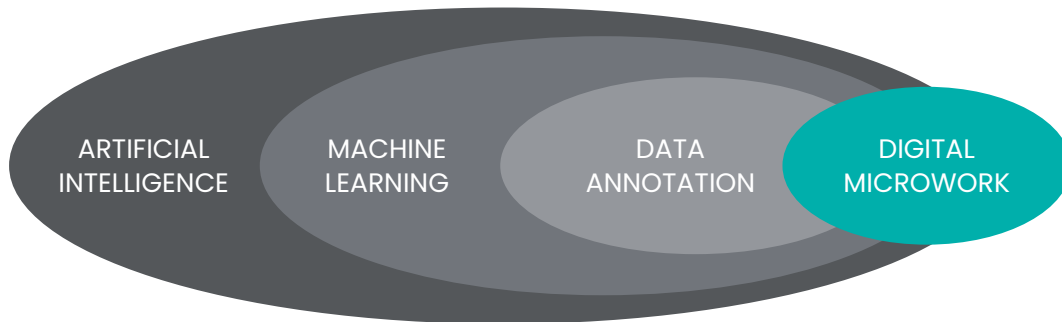
¹⁵ This is a real quote from a pilot participant who identifies as male, age 24.

1.2 WHAT IS DIGITAL MICROWORK?

Digital microwork is a form of labor that relies on the internet infrastructure to break up complex technical projects into thousands of fractional tasks which can be completed within minutes.

The tasks are completed by online workers, lending itself well to a global, remote labor pool. Microworkers are paid a nominal fee for each completed task, making the volume and speed of task completion an integral part of the microwork experience.¹⁶

» **Figure 1:** Digital microwork's relationships among AI/ML and data annotation sectors



Digital microwork is a subset of business process outsourcing (BPO), in which firms subcontract out specific components of their operations to a third party. The term originates from supply chain outsourcing in the manufacturing industry, but has now expanded to a broad range of industries, including technology. Kenya's [Vision 2030](#) names BPO as a priority sector in attaining the country's economic growth targets within the next decade.¹⁷ As Kenya drives toward becoming an international destination for BPO, digital labor -- and specifically microwork -- is critical to reaching this goal.

Globally, the prevalence of digital microwork has been rising for decades, and the ongoing Covid-19 pandemic has expedited this long-term structural shift. This development is driven in large part by the explosive growth of the artificial intelligence (AI) and machine learning (ML) sectors. The AI industry alone is expected to reach a market value of USD 185.17 billion by 2026, a CAGR of 26.1 percent from 2021.¹⁸ As a subset of the AI sector, ML was valued at USD 1.60 billion in 2020, and is expected to reach USD 12.10 billion by 2026, registering a CAGR of 39.86 percent between 2021 and 2026.¹⁹

» **Figure 2:** AI/ML market size



Source: Market sizing stats from Mordor Intelligence

*Note: Graphs are not drawn to scale

¹⁶ Banyan Global. The Nexus of Microwork and Impact Sourcing. 2017.

¹⁷ Kenya Vision 2030. Economic Pillar.

¹⁸ Mordor Intelligence. Artificial Intelligence Market - Growth, Trends, Covid-19 Impact, Forecast (2021-2026). 2021.

¹⁹ Mordor Intelligence. Machine Learning As A Service Market - Growth, Trends, Covid-19 Impact, And Forecasts (2021 - 2026). 2021.

Data annotation, a service industry utilized to train ML models, commonly leverages digital microwork to outsource tasks. The global data annotation market was valued at nearly USD 1.4 billion in 2020, and is projected to reach over USD 13.5 billion by 2030, registering a CAGR of 26.3 percent over 10 years.²⁰ With AI, ML, and data annotation all on the rise, the global labor opportunity for digital microwork is primed for Kenya's active participation.

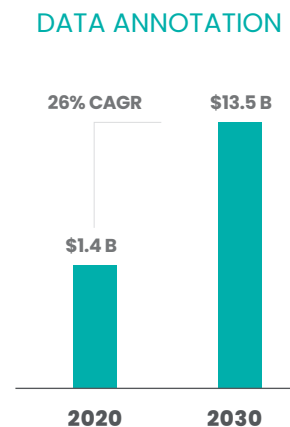
The Government of Kenya is rising to the occasion by building the infrastructure to foster digital employment and innovation, such as widening access to affordable internet, increasing digital literacy, and supporting ICT skills development.²¹ Further, a core part of Kenya's Vision 2030 is training and connecting youth to engage in digital work opportunities through the [Ajira Digital Program](#).²² There is also a wide diversity of private sector and humanitarian initiatives comprising the digital labor ecosystem in Kenya today.

Within Kenya's digital microwork ecosystem, each service provider operates with varying degrees of skill requirements and employment models. Many service providers engage with several types of microworker profiles, and almost all subscribe to the "impact sourcing" approach, hiring their labor pool from underserved populations.²³

Leading service providers such as Sama (formerly Samasource), Africa AI Labs, CloudFactory and Appen are fully focused on data annotation and microwork for AI and ML purposes.

Kenya's microwork ecosystem will continue to advance as the AI and ML sectors evolve over the next decade. Presently, the digital microwork sector can be segmented based on the frequency of work opportunities provided -- or as managed data services versus crowdsourced models.

» **Figure 3:** Global data annotation market size

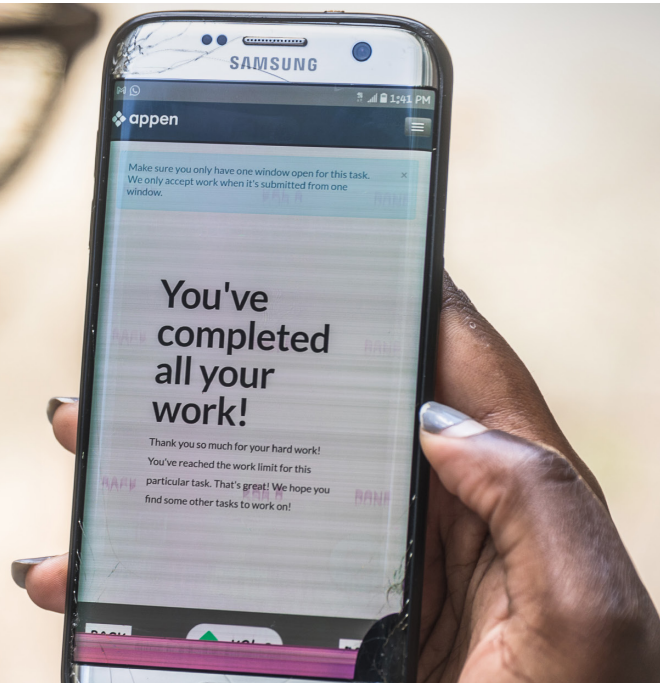


20 Allied Market Research. Data Annotation Tools Market Insights - 2030. 2021.

21 Government of the Republic of Kenya. Sector Plan for Business Process Outsourcing and IT-enabled services (BPO/ITES). 2018.

22 Ajira. Homepage. 2021.

23 Banyan Global. The Nexus of Microwork and Impact Sourcing. 2017.



MANAGED DATA SERVICES MODEL

The managed data services model is characterized by **microworkers who receive a regular flow of work from one primary service provider, either as an employee or freelancer**. They have access to training and technical oversight through this service provider, which often correlates to higher-skill tasks. Some companies under this model utilize a physical office space for employees to carry out microtasks during prescribed work hours, similar to a call center work structure. However with public health concerns related to Covid-19, an increasing percentage of microwork firms maintain a remote workforce. In either case, these service providers act as intermediaries between the work supplier and microworker, promising timely and high-quality execution of tasks. Impact sourcing firms may prefer this model in order to provide more holistic training and professional growth opportunities.

Sama is a managed data services provider, securing large work contracts from global firms such as Google and NASA and then employing microworkers to carry out the tasks. Sama provides a secure structure to its microworkers which allows them to fully focus on executing microtasks rather than spending additional unpaid time searching or waiting for new tasks to become available. This model also promotes greater opportunities for training and professional growth, such as education stipends. By using this approach, Sama can confidently guarantee quality outputs for their clients and consistent work for their employees. The downside of this approach is that it requires tailored support, making it less scalable.

CROWDSOURCED MODEL

In contrast with the managed data services model, the crowdsourced model is **primarily characterized by part-time freelancers. Service providers distribute microtasks on a platform that anyone with a profile and minimum quality rating can carry out**. The stream of work coming from each service provider is irregular but highly flexible. Tasks can be completed at any time at a price set by the work provider, enabling quality part-time income opportunities. The crowdsourced model requires significantly less infrastructure than the managed data services model, and microworkers who engage with these tasks tend to be more entrepreneurial in nature, securing work from multiple sources on their own, often with limited support or training.

Appen is an example of a service provider using the crowdsourced model. Appen converts projects into microtasks and directly contracts the tasks out to microworkers, either on their platform, Appen Data Annotation Platform (ADAP), or partnering with platforms like Corsali to administer the tasks.²⁴ To guarantee quality of work, Appen assigns “gold standard tasks” or random quality checks interspersed throughout tasks. Microworkers’ performance on these engagements is then calculated into their quality ratings, which dictate their ability to access certain levels of work. By applying the crowdsourced model, Appen eliminates the costs and additional resources required for the more involved infrastructure of the managed data services model, making the crowdsourced model highly scalable and accessible.

Both models of digital microwork have a role in defining the future microwork space.

The crowdsourced model is particularly interesting for youth because most young people today are earning their living through a “mixed livelihood approach” that comprises work including informal and formal wage labor, self-employment, agriculture, and/or unpaid family work.²⁵ Digital platforms also serve as a matchmaking catalyst in which digital workers are connected with work providers outside their social and geographic network to access income-generating opportunities.

²⁴ Appen. “Become an Appen Contributor.” 2021.

²⁵ Mercy Corps. The JobTech Revolution. 2021.

CONCLUSION

As the sector grows, a potential oversupply of workers competing in the global market may create risk of unfair pay and worker exploitation. Companies seeking microwork labor have little incentive to recruit labor based on anything other than cost. This is true of many sectors of the gig economy, where there is a “race to the bottom” towards the cheapest labor.²⁶ Impact sourcing firms like Appen are addressing this by promoting initiatives that ensure fair pay and ethical treatment of digital workers. Impact sourcing firms also work to guarantee their labor practices strengthen positive social outcomes, including women’s economic empowerment and helping microworkers develop transferable skill sets.

WOMEN’S ECONOMIC INCLUSION

Digital labor can often be completed in the home and during flexible hours, making it highly compatible with the multiple demands on women’s time. Moreover, because women traditionally carry the burden of unpaid care work, the prospect of earning a flexible income around these other responsibilities is an attractive one. A recent Research ICT Africa survey showed that *“females are more likely to be microworkers than males in Kenya, Ghana, Nigeria and Tanzania.”*²⁷ The structural barriers preventing women from engaging in other parts of the gig economy are many and varied, such as women preferring not to become taxi drivers because they feel insecure at night. Microwork therefore represents an exciting opportunity for women’s economic inclusion which not only provides flexible income but could also help to shift such structural barriers in the near future. In this emerging field, additional research is required to assess the specific gender-differentiated effects of how workers contribute to, and benefit from, microwork.²⁸

²⁶ Mothobi Onkokame, Aude Schoentgen and Alison Gillwald. What is the state of microwork in Africa? A view from seven countries. 2017.

²⁷ Mothobi Onkokame, Aude Schoentgen and Alison Gillwald. What is the state of microwork in Africa? A view from seven countries. 2017.

²⁸ Banyan Global. The Nexus of Microwork and Impact Sourcing. 2017.



DEVELOPING TRANSFERABLE SKILL SETS

Digital microwork has been shown to develop microworkers' soft skills, such as *“basic interpersonal and business skills, positive work habits, an increase in self-efficacy, an increase in confidence, and an increase in social and communication skills.”*²⁹ Studies also identify an increase in work experience and skills thanks to microwork. CloudFactory's 2015 Social Impact Report revealed an average increase of 27 percent in technical skills development, 30 percent in leadership skills development and 47 percent in management skills development among its workforce of over 2,500.³⁰ These transferable skills are highly valuable in the workplace and are often not taught in school, increasing the likelihood for microworkers to find success pursuing other job opportunities in the formal workplace.

Digital microwork brings high potential for social impact, workforce development, and access to income for a wide range of un/underemployed populations. Many of the opportunities around microwork are similarly true of online freelancers, another growing digital labor sector.

ONLINE FREELANCING

A freelancer is someone who is self-employed and hired to work for different companies on particular assignments. Online freelancing is another rapidly growing sector of the digital economy. Many digital microworkers are also freelancers, but the online freelancing sector also includes higher-skilled labor such as graphic designers, writers, and business consultants.

Between 2018 and 2025, the global market size of freelance platforms is projected to register a CAGR of **15.3 percent**, from **USD 2.35 billion to USD 6.7 billion**.^{*} Some of the most popular freelance platforms in Kenya are: Upwork, Freelancer, Jumia, Kuhustle, Fiverr, and Guru.

^{*} Market Research. Global Freelance Platforms Market Size.

One of the greatest barriers to the growth of the digital workforce in Kenya—and thus barriers to the Government of Kenya's goal to become a BPO hub by 2030—is the high cost and complexity of cross-border payments.³¹ According to *Digital Labour in Africa: A Status Report*, “Suitable payment mechanisms to pay crowd and micro-task workers in developing countries is a major problem that is affecting the uptake and growth of digital labor.”³² In other words, people work to get paid, and if that payment is diminished by fees and time lags, the primary motivator for engaging in digital microwork becomes trivial.

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Suitable payment mechanisms to pay crowd and micro-task workers in developing countries is a major problem that is affecting the uptake and growth of digital labor.

DIGITAL LABOUR IN AFRICA: A STATUS REPORT, 2018

29 Banyan Global. *The Nexus of Microwork and Impact Sourcing*. 2017.

30 CloudFactory. *Social Impact Report*. 2015.

31 Government of the Republic of Kenya. *Sector Plan for Business Process Outsourcing and IT-enabled services (BPO/ITES)*. 2018.

32 Jean-Paul Van Belle & Selina Mudavanhu. *Digital Labour in Africa: A Status Report*. 2018.

1.3 WHAT ARE STABLECOINS?

Cross-border payments are notoriously complex, time consuming, and expensive. Traditionally, they require such high fees that a minimum value threshold is required to make the transfer cost-effective. These fees have historically been justified by the complex set of actors needed to transfer funds across transnational regulations and currencies.³³ **Cryptocurrencies, and specifically stablecoins, bring simplicity to the transaction process.**

According to the World Economic Forum (WEF), a cryptocurrency is *“a digital non-governmental asset based on a combination of cryptographic algorithms, whose existence and transfer is confirmed and recorded on a ledger that is distributed across a network of independent computers.”*³⁴ In simple terms, cryptocurrency is a store of digital value, traded online through a network of computers that have the power to objectively verify and record unique transactions.

Cryptocurrency utilizes blockchain technology to verify and record unique transactions, designed such that no singular person or authority can control financial records. Blockchain technology democratizes the transaction process by allowing anyone in the blockchain network to participate in the verification process. As such, cryptocurrency is inherently transparent, secure, and efficient. Further, smart contracts—self-executing contracts that use blockchain technology to carry out

agreements once terms are met, without the need for a human intermediary—make payments related to completing a scope of work, such as a microwork task, automatic and seamless.³⁵

When Bitcoin, the first cryptocurrency, was introduced in 2009, it was viewed as a speculative, oftentimes eccentric tool that remained at the fringes of our global financial ecosystem. Now, just over a decade later, cryptocurrency has proven to be a revolutionary innovation, redefining how money is understood, traded, and spent. There are now over 10,000 cryptocurrencies in circulation with a total market capitalization of USD 1.5 trillion.³⁶ The exponential growth of cryptocurrencies has spurred a social, political, and cultural transformation, championing a decentralized financial system in which anyone—including the 1.1 billion people living without government-issued identification—can participate.³⁷

STABLECOINS

- **Are a form of cryptocurrency** operating on blockchain technology whose value is pegged to more stable asset, most commonly a fiat currency.
- **Enable continuous and/or real-time transfers** at unprecedented speeds and low cost.
- **Increase financial inclusion by enabling transactions** of any size, at any time, from any location.

DECENTRALIZED FINANCE (DeFi)

DeFi is an emerging decentralized financial system that is open to anyone with access to the internet. DeFi leverages “smart contracts,” or self-executing agreements written in blockchain code, to ensure transparency and decentralization. Stablecoins are part of the decentralized financial system.

³³ McKinsey & Company and SWIFT. A vision for the future of cross-border payments. 2018.

³⁴ World Economic Forum: Navigating Crypto Regulation. 2021.

³⁵ Coinbase. “What is a smart contract?” 2021.

³⁶ Planet Crypto. “How many cryptocurrencies are there in 2021?” 2021.

³⁷ Alpen Sheth. “The Digital Divide at the Heart of Financial Inclusion.” 2020.

TYPES OF CRYPTOCURRENCY

There are two types of cryptocurrencies: **traditional cryptocurrencies**, which are created by a standalone blockchain such as Bitcoin and Ethereum; and **stablecoins**, which are cryptocurrencies tied to a store of physical value like a fiat currency. While traditional cryptocurrencies fluctuate in value and are therefore speculative and risky, stablecoins were created in 2014 to enable the everyday use of cryptocurrencies that, true to the name, remain

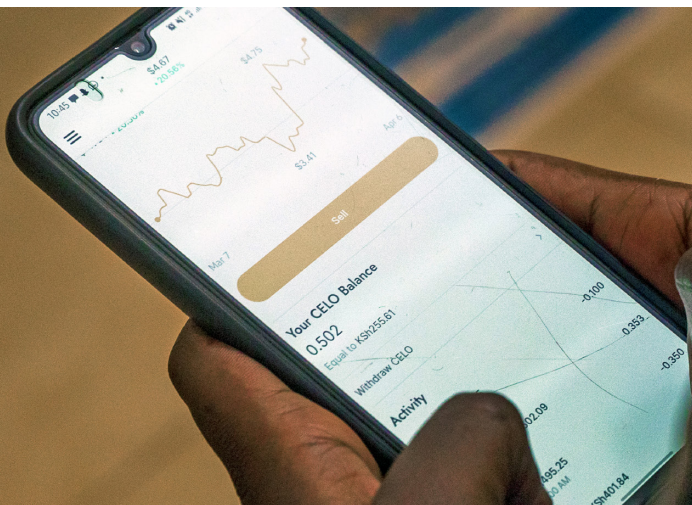
stable in value. As such, stablecoins are ideal for peer-to-peer (P2P) transactions, cross-border payments, and savings -- practical, everyday use cases. Because stablecoins do not require an intermediary for transactions, they present an unprecedented opportunity to streamline cross-border payments. Through stablecoins, anyone, anywhere in the world, can transfer money digitally to another entity at little-to-no cost, within seconds.

CELO CASE STUDY

Celo is a mobile-first platform building a financial system that creates the conditions for prosperity—for everyone. Celo's stablecoins, cUSD, cEUR, and cREAL, are backed by a set of other cryptocurrencies. With a goal of "turning mobile phones into virtual banks," Celo has been cited as "the new global M-Pesa," and is rapidly gaining traction in Kenya and across the world. As of January 2022, Celo facilitated over 94.7 million transactions globally, with an average block time of five seconds. Fintech startups in Kenya using the Celo protocol include: Kotani Pay, Pezesh, Kukuza, and Pesabase.

“

For once, every dollar will go to the people they are meant for.
Celo



COMMON CONCERNS

As with any asset class, the use and exchange of cryptocurrencies comes with a set of concerns that require careful and collaborative consideration. Designing effective, adaptive regulation will be key to creating a safe, effective mechanism that achieves the desired socio-economic benefits. Common concerns include the lack of government oversight, lack of accountability, the potential for illicit financial activity, and the devaluation of local currencies.

CONCERN

Regulatory imbalance

Stablecoins are an anomaly for central banks and existing financial institutions. Existing regulations do not cover this new asset class, and new regulatory challenges are arising with blockchain technology every day. There is a risk that regulations and oversight occur too quickly or are done without fully understanding the implications.

Quality of stablecoin pegs

Blockchain-enabled transactions are traceable and transparent. However, the value of stablecoins pegged to their fiat currencies is sometimes difficult to verify, raising concerns about the potential volatility of a stablecoin's value.

Use for illicit activity

A decentralized, digital financial system is an inherently faceless ecosystem, in which users can interact with anyone on the same blockchain protocol. This can lead to risk of illicit activity.

PATH FORWARD

Governments all over the world are **innovating regulations around cryptocurrency**. Policymakers and regulators should reference other countries' approaches to more **rapidly adopt and adapt to cryptocurrency regulation**.

Government regulators should closely collaborate with stablecoin issuers to **create mutually beneficial audit and accountability requirements**, such as working to ensure stablecoin stability mechanisms are not only publicly posted, but also accessible for everyday users to understand. Following the example of M-Pesa, **public-private regulatory collaboration can greatly increase benefit to the user** while managing regulatory risk.

This commonly-cited risk is significantly lower than expected: the percentage of identified illicit activity among all cryptocurrencies as a percentage of total cryptocurrency activity from 2017 to 2020 was **less than one percent**.³⁸ It is important to continue to monitor updated recommendations from the Financial Action Task Force (FATF) to enforce inclusive and compliant regulations.

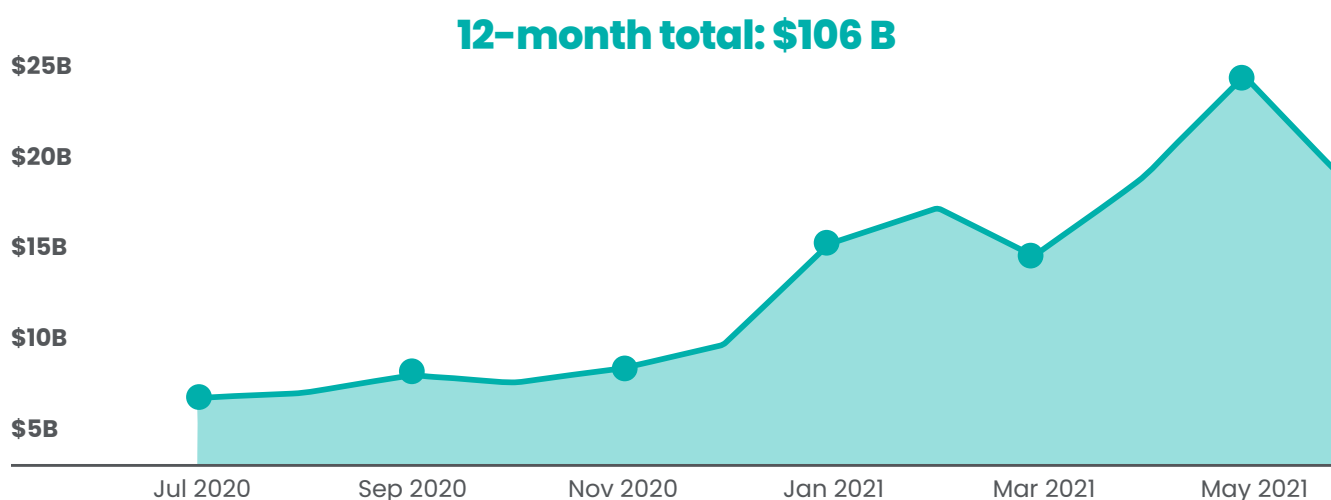
1.4 CRYPTOCURRENCY: A LOOK AHEAD

T rue to blockchain’s democratic design, the growth of cryptocurrencies and their resulting imminence in Kenya is driven by the demands of its users -- and users are indeed demanding greater cryptocurrency trading. According to the World Economic Forum, *“in one year, the value of digital assets locked in DeFi smart contracts [globally] grew by a factor of 18, from USD 670 million to USD 13 billion.”*³⁹

This upward trend is reflected across the African continent. Data from Chainalysis’ 2021 Geography of Cryptocurrency Report shows the cryptocurrency value received by Africa between July 2020 to June 2021 to be USD 106 billion, three percent of the global cryptocurrency value.⁴⁰ Kenya is a primary contributor to this exponential

growth as a global leader in cryptocurrency adoption.⁴¹ **Today, nearly one in 12 Kenyans owns cryptocurrency.** Furthermore, Kenya is already the world leader in peer-to-peer cryptocurrency transactions, and fifth overall in cryptocurrency adoption,⁴² and weekly trading volume between Kenyan shillings and Bitcoin is at record highs.⁴³

» **Figure 4:** Cryptocurrency value received by Africa (July 2020 – June 2021)



Source: Chainalysis

39 World Economic Forum. Decentralized Finance (DeFi) Policy-Maker Toolkit. 2021.

40 Chainalysis. Geography of Cryptocurrency. 2021.

41 Triple A. “Cryptocurrency information about Kenya.” 2021

42 Chainalysis Blog. “2021 Global Crypto Adoption Index.” 2021.

43 Coin Dance. Paxful Volume Charts: Kenya. 2021.

» **Figure 5:** Global crypto adoption index

Overall rank	Country	Index score	On-chain value received	On-chain retail value received	P2P exchange trade volume
1	Vietnam	1	4	2	3
2	India	0.37	2	3	72
3	Pakistan	0.36	11	12	8
4	Ukraine	0.29	6	5	40
5	Kenya	0.28	41	28	1
6	Nigeria	0.26	15	10	18
7	Venezuela	0.25	29	22	6
8	USA	0.22	3	4	109
9	Togo	0.19	47	42	2
10	Argentina	0.19	15	17	33

Source: Chainalysis

There is also growing attention to harmonizing transactions across the African continent. The Pan-African Payment and Settlement System, or PAPSS, was first launched in July 2019 at an African Union summit in Niger.⁴⁴ While this Pan-African infrastructure is currently made possible through

an alliance of central government banks, the opportunity for stablecoin to accelerate cross-border transactions across the continent and catalyze frictionless, low-cost transactions comes at a truly opportune time.

44 PAPSS. Homepage. 2021.



STABLECOIN & REMITTANCES CASE STUDY

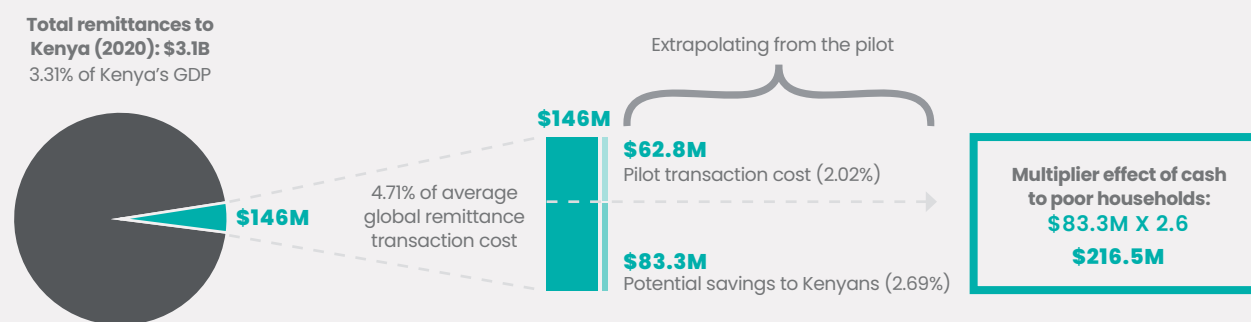
While this report focuses on cross-border payments for microwork, there is also **significant potential for cryptocurrency, and specifically stablecoin, to dramatically reduce the cost of remittances.** Startups like Chipper Cash and BitPesa are leading this opportunity in Africa. In 2020, remittances made up 3.13 percent of Kenya's overall GDP, totaling a value of over three billion dollars.⁴⁵ With global weighted average remittance costs at 4.71 percent, Kenyans receiving remittances are potentially losing out on over USD 80 million per year. Given that the average cost of remittances for USD 200 is significantly higher than the global average (8.72 percent in sub-Saharan Africa versus 6.30 globally), the savings are potentially even greater.⁴⁶

Imagine if all those transactions only cost 2.02 percent – the stablecoin-enabled transaction cost during the MCV pilot. This has the potential to reduce remittance costs by 57% and generate 2.6 times the value received based on GiveDirectly cash transfer data, creating USD 216 million in value for poor households, or 0.22 percent over Kenya's overall GDP.⁴⁷ Cryptocurrency brings significant potential to positively impact the Kenyan economy as well as remittance users everywhere.



With global weighted average remittance costs at 4.71 percent, Kenyans receiving remittances are potentially losing out on over USD 80 million per year.

Figure 6: Calculating the potential economic impact from reduced remittance transaction costs



Sources: World Bank, IFAD, Celo, GiveDirectly

45 IFAD. "Remittance flows to Kenya defy the odds during the COVID-19 pandemic." 2021.

46 World Bank. Remittance Prices Worldwide Quarterly. 2021.

47 Cash Essentials. "Multiplier Effects: How US\$1,000 Cash Transfers benefited Kenya's poor." 2019. Charity GiveDirectly gave US\$1,000 each to poor households in Kenya, resulting in US\$2.60 in additional spending or income for every US\$1 cash delivered.

1.5 THE CURRENT ENVIRONMENT IN KENYA

With Kenya ranking fifth in peer-to-peer cryptocurrency transactions globally, the message is clear: **Kenyan citizens are readily embracing cryptocurrency**.⁴⁸ According to Chainalysis, the leading motivations to adopt cryptocurrency for people living in emerging markets include *“storing savings in the face of currency devaluation, sending and receiving remittances, and carrying out business transactions.”*⁴⁹ These everyday use cases illustrate the pragmatic needs of Kenyan citizens, as well as their openness to digital solutions.

Kenya’s digital economy is rapidly advancing. It is one of the top ten fastest growing digital economies in the world.⁵⁰ The flourishing startup ecosystem in Nairobi offers new economic opportunities, while also increasing the prevalence of digital platforms that improve the efficiency and scale of sectors ranging from ride hailing to mobile banking. Digital platforms are not only expanding income-generating opportunities for gig workers, but offering gig workers more predictable income.⁵¹ For example, motorcycle taxi drivers who once operated completely through word of mouth are now

utilizing digital platforms to reduce downtime and reach new clientele. Further, by learning how to use these platforms, they gain the digital skills to more easily adopt other technological innovations.

With so many positive statistics around cryptocurrency activity already, and a thriving digital economy, Kenya is well-positioned to activate the proper levers to ensure cryptocurrency and digital microwork create a positive impact for the country and its people.

Additional enabling factors for these sectors to flourish include:

The Government of Kenya is actively investing in the digital economy

In addition to the Vision 2030, the Ministry of ICT is developing a Digital Economy Strategy and the Central Bank of Kenya is developing the National Payments Vision and Strategy, which includes regulation and security for digital payments.

Kenya has high rates of mobile phone and internet penetration

Ninety-six percent of the country’s population is covered by a 3G network and Kenya now ranks fifth in sub-Saharan Africa for mobile internet connectivity.⁵²

Kenyans speak the most commonly used language on the internet: English

This gives Kenyans a competitive advantage when competing in the global digital labor economy.

The success of M-Pesa paves the way for innovative technology adoption

Kenya’s digital leadership is due in large part to M-Pesa, launched in 2007. Between 2011 and 2017, account ownership at a formal financial institution or through mobile money skyrocketed from 42 percent to 81 percent.⁵³ Mobile money is now a leading driver of mobile phone coverage, with a growing synonymy between financial inclusion and digital access.

48 Chainalysis Blog. “2021 Global Crypto Adoption Index.” 2021.

49 Chainalysis. Geography of Cryptocurrency. 2021.

50 Republic of Kenya. Digital Economy Strategy (Draft). 2020.

51 Mercy Corps Youth Impact Labs. Towards a digital workforce: Understanding the building blocks of Kenya’s gig economy. 2019.

52 GSMA. Mobile Internet Connectivity 2020 Sub-Saharan Africa Factsheet. 2020.

53 World Bank. “Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+) - Kenya.” 2018.

M-Pesa is also an example of strong public-private regulatory collaboration leading to successful outcomes

M-Pesa was designed under a loose regulatory structure and now operates under a special license from the Central Bank of Kenya.⁵⁴ By coordinating with the government in this way, Safaricom was able to design a transformative financial product that met the demands of the Kenyan consumer, illustrated by the nearly nationwide use of M-Pesa today.

Kenya, and specifically Nairobi, has become a fintech hub

According to Dalberg, Kenya's ICT sector experienced the largest foreign direct investment compared with any other sector in the country, as is evident by the growing number of local and international technology startups launching in Kenya.⁵⁵ Technology continues to permeate through all facets of the Kenyan economy and culture.



Kenya is well-positioned to activate the proper levers to ensure cryptocurrency and digital microwork create a positive impact for the country and its people.

⁵⁴ Mercy Wanjau. M-Pesa Regulatory Framework. 2013.

⁵⁵ Dalberg Advisors. Rockefeller Foundation. Digital Jobs in Africa: Catalyzing Inclusive Opportunities for Youth. 2013.





SECTION TWO | THE PILOT

2.1 PILOT OVERVIEW

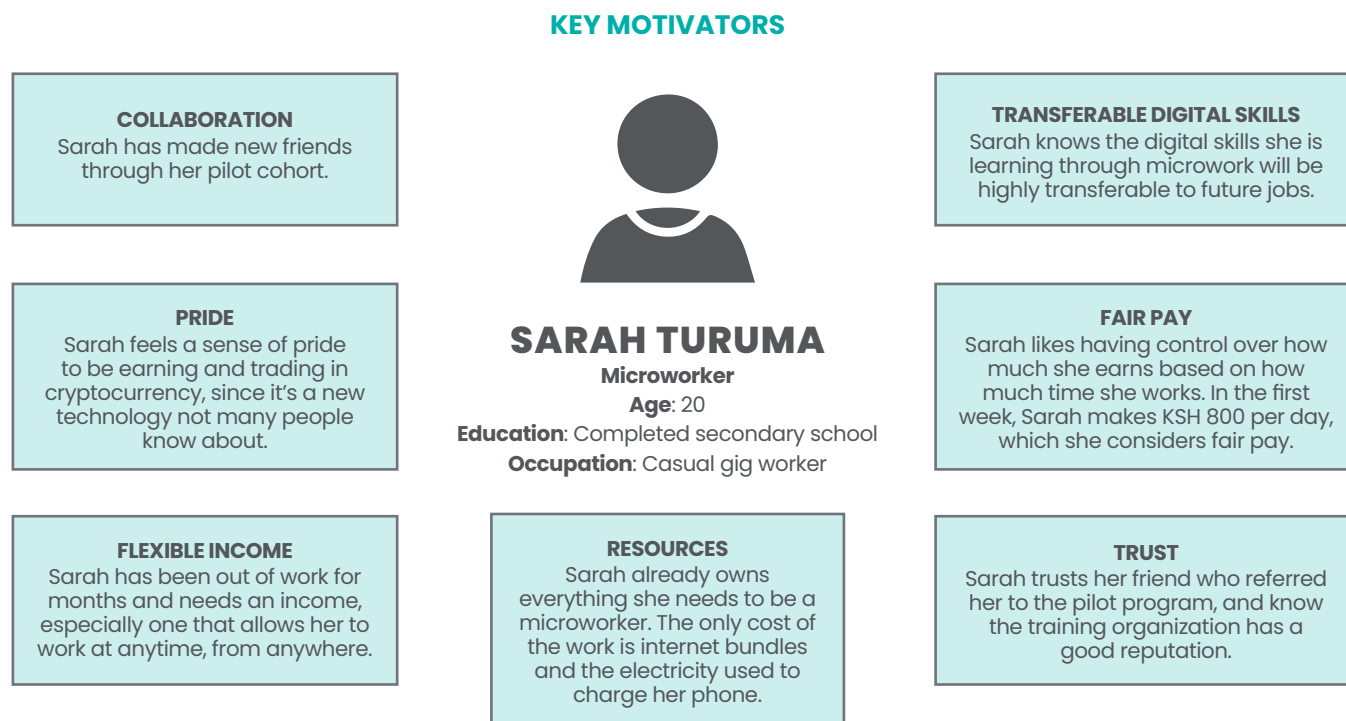
From January to March 2021, Mercy Corps Ventures (MCV) executed a pilot testing the impact of cross-border stablecoin micropayments on digital microwork for un/underemployed youth in Kenya. The pilot was designed to directly address the needs of the urban youth population.

PILOT DESIGN

Sarah Turuma is a 20-year-old gig worker who lives in a low-income settlement of Nairobi.⁵⁶ She is highly entrepreneurial, earning income to contribute to her household of four by selling airtime and providing ad-hoc support to her neighbor's housekeeping business. Even so, Sarah often finds herself without work, forcing her to use the small amount of savings stored in her M-Pesa account during slower work periods. Sarah owns a smartphone, accessing the internet through

data bundles or going to public areas with free internet. A close friend encouraged Sarah to apply for the microwork pilot with NairoBits, and Sarah decided to participate because she was in need of an income and trusts NairoBits' reputation. Still, she entered the pilot program with skepticism because she was wary of internet scams and the opportunity to earn income from her phone seemed, in her words, *"too good to be true."*⁵⁷

» **Figure 7:** Key motivators for digital microwork



⁵⁶ Sarah Turuma is an illustrative persona developed to represent a standard microworker profile, designed based on Spindle Design's landscape research and 60 Decibels pilot participant data.

⁵⁷ This is a real quote from a pilot participant who identifies as female, age 26.

IMPACT MEASUREMENT

Sarah was one of 200 microworker pilot participants selected among over one thousand applicants to participate in MCV's pilot. **The pilot gathered evidence responding to three guiding questions:**

- 1. How can stablecoins reduce the costs and frictions of sending and receiving cross-border micropayments?**
- 2. How can stablecoin-based digital wallets unlock new digital employment and earning opportunities for un/underemployed youth?**
- 3. How can stablecoin-based digital wallets incentivize savings behavior for previously unbanked populations?**

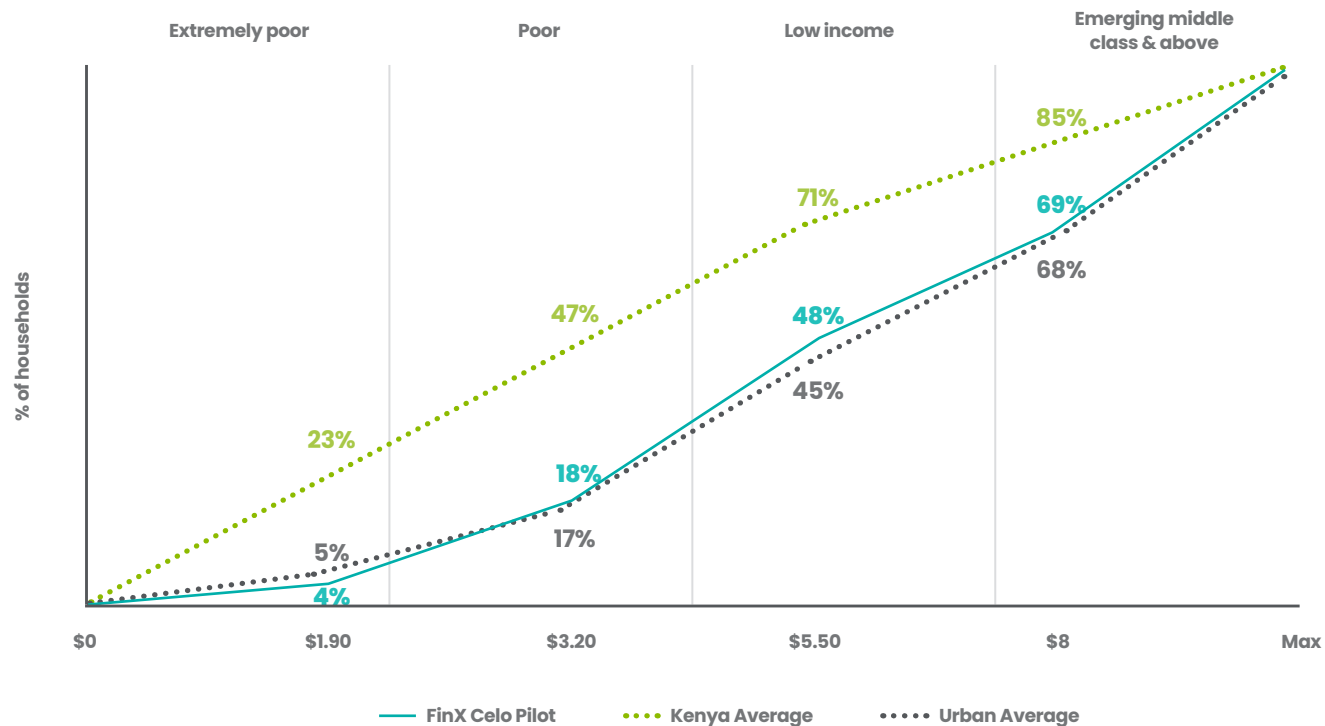
MCV employed rigorous impact measurement protocols alongside human-centered design methodologies, building the framework for both qualitative and quantitative evidence to be collected from the pilot. The income distribution across the selected participants closely represented the Kenyan urban average, with 82 percent of participants earning at or above an average of USD 3.20 per day. Additionally, 98 percent of the participants had never heard of microwork prior to the pilot.

Notably, this pilot was executed during the Covid-19 lockdown in Kenya. As such, the pilot was designed during a period when youth unemployment was at an all-time high, mobility outside the home was limited, and future economic impacts of the pandemic were uncertain. This lends the applicability of pilot findings to a wide range of contexts, including temporary refugee settlements and remote rural areas.



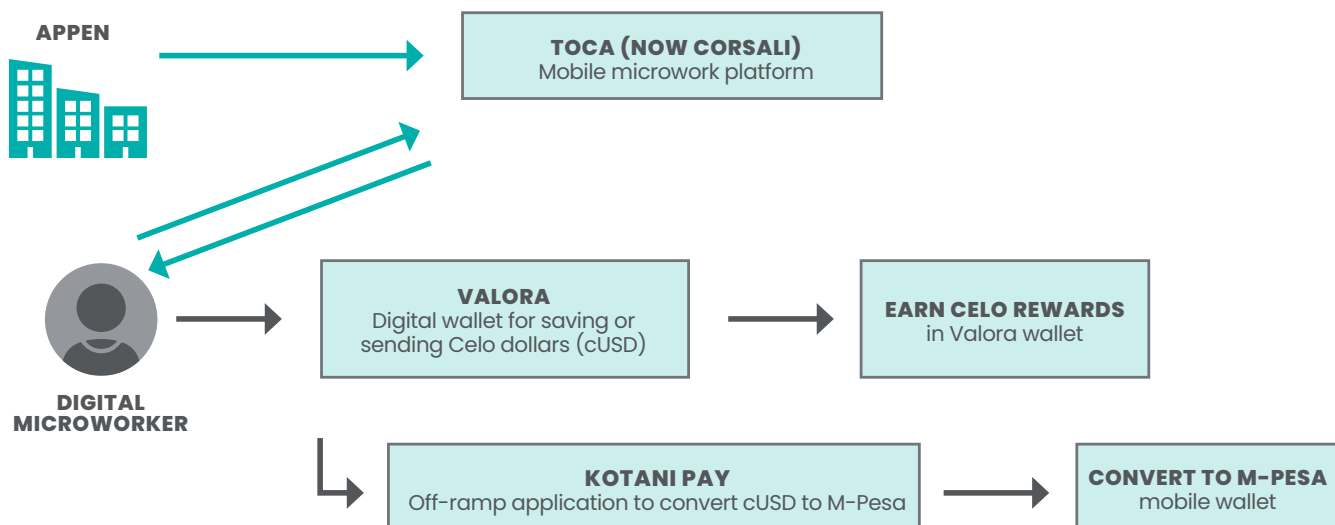
Figure 8: Income distribution of the MCV Celo pilot relative to Kenya average

% LIVING BELOW \$3.20 PER PERSON PER DAY (2011 PPP) (N=183)



Source: 60 Decibels

Figure 9: Pilot stakeholder process flow



ORGANIZATIONAL STAKEHOLDERS

The pilot brought together a comprehensive set of stakeholders for the first time. The pilot was led by Mercy Corps Ventures, the impact investing arm of Mercy Corps, in partnership with the Mercy Corps Kenya team.



Mercy Corps Ventures invests in and fuels high-impact enterprises, from seed to scale. Founded in 2015 as the impact investing arm of global development agency, Mercy Corps, we've supported 32+ early-stage ventures to scale and raise over USD 125 million in follow-on capital. Our portfolio centers around solutions that build climate resilience and financial resilience, so that those living in frontier markets can withstand disruption and plan for the future. Through targeted support, strategic collaborations, and insight sharing, we further catalyze the ecosystem towards smarter, more impactful investments.



Mercy Corps Kenya: Mercy Corps is a global humanitarian aid organization operating in over 40 countries with a mission to alleviate suffering, poverty, and oppression by helping people build secure, productive, and just communities. Mercy Corps Kenya was the program management partner for this project, overseeing the recruitment, onboarding, training, and support of participants.



Celo is an open platform that makes financial tools accessible to anyone with a mobile phone. The Celo Foundation was the funder and technology partner for the pilot. Celo provided the currency and payment system for participants to receive their earnings from completed microwork tasks. Celo's cryptocurrency used in the pilot was Celo Dollars (cUSD), a stablecoin. Rewards were earned in CELO tokens or rewards, an investment asset that fluctuates based on the total value of stablecoins in circulation in the Celo ecosystem.



Valora is a crypto wallet built on Celo, designed to make sending money to any mobile phone fast and easy. Pilot participants cashed out their microwork earnings into their Valora wallet to hold cUSD. Participants leveraged a promotion within the Valora app that rewarded savings with CELO. They received rewards directly in their Valora accounts on a weekly basis.



NairoBits is a registered trust in Nairobi, Kenya, that empowers urban youth from informal settlements by training them in digital skills to increase their employability. For this pilot, NairoBits served as the local recruitment and training partner, providing in-person and virtual training modules, and WhatsApp support during the training phase of the pilot.



Toca (now Corsali): Corsali is the app that microworkers used to complete microwork tasks. It was intentionally designed to make it easy to work flexibly from any internet-connected mobile device. Corsali was the interface for all microwork tasks conducted in the pilot.



Appen is a market leader in AI training data who now has access to a curated network of over one million flexible “contributors” worldwide from over 170 countries. Appen’s clients include Microsoft, Amazon, and Adobe. Appen is a member of the Global Impact Sourcing Coalition (GISC), a group devoted to inclusive hiring practices across the globe. Appen provided the data labeling work for the pilot and all pilot participants created an Appen account to access the microwork tasks.



Kotani Pay is an Unstructured Supplementary Service Data (USSD) application that pilot participants utilized to transfer cUSD earnings from their Valora wallet into their M-Pesa mobile money accounts. As a USSD application, Kotani Pay requires neither internet connection nor a downloaded application.



TRAINING AND ONBOARDING

The participants were divided into four cohorts of 50 people each to test the effectiveness of different training methodologies: Cohorts 1 and 2 attended in-person trainings in Nairobi over three days, Cohort 3 attended virtual trainings on Zoom, and Cohort 4 watched pre-recorded training videos on YouTube. The trainings included supporting participants to download and utilize each application required for the pilot, educating them on cryptocurrency and cUSD transactions, providing guidance on how to complete microwork tasks, and demonstrating how to cash out earnings to M-Pesa.

After the training phase, all cohorts entered a five-week implementation phase in which participants were actively working on microwork tasks provided by Appen via the Corsali app (Toca at the time of the pilot). The tasks included image labeling, receipt transcription, and product categorization that contributed to AI training data for major corporations. All tasks were capable of

being completed with an Android smartphone. The participants had access to support from other cohort members and NairoBits trainers through WhatsApp during this phase.

Unique to this pilot was the ability for microworkers to view their earnings deposited throughout the day, via the Corsali app. After initial setup, cashing out from Corsali to Valora was as easy as a click of the “Cash Out” button. Participants could decide whether to keep their money in their Valora wallet where they have the option to receive rewards based on their cUSD balance, send cUSD to someone else with or without a Valora account, or offramp their earnings to their M-Pesa account using Kotani Pay (see Figure 9).

The participants were assigned both real and synthetic tasks in order to guarantee a consistent supply of tasks during the pilot period. Synthetic tasks were recycled tasks that Appen had previously used to train AI models.

» **Figure 10:** Pilot training sequence

TIMELINE & PROCESS OF IMPLEMENTATION

APPLICATIONS & SCREENING

Over the course of two days, youth across Nairobi were invited to apply for the pilot through NairoBits’ social media channels and partners. Over 1000 applications were received which were screened to arrive at 200 pilot participants.

JAN 8-15



COHORT 2 TRAINING

Fifty participants as part of Cohort 2 were trained at community centers and NairoBits’ head office.

FEB 3,4,5



COHORT 4 TRAINING

Fifty participants as part of Cohort 4 were invited to a light-touch training via pre-recorded videos on YouTube.

MAR 2,5



JAN 11,18,22



COHORT 1 TRAINING

Fifty participants as part of Cohort 1 were trained at NairoBits’ head office. These served as the ‘pilot group’ of the pilot program.

FEB 15,16



COHORT 3 TRAINING

Fifty participants as part of Cohort 3 were invited for virtual training via Zoom over the course of two days.

After the pilot ended, direct support from NairoBits and other stakeholders concluded, but participants maintained access to all technical platforms, including mobile-based microwork opportunities on Corsali, cUSD-based savings and payments in their Valora wallet, and the ability to cash out earnings to M-Pesa via the Kotani Pay USSD interface.

At the end of the pilot, Sarah earned an average of KSH 2,200 per week, totaling around KSH 11,000 (approximately USD 100) in the five-week pilot period. *“I am in a better place [financially] now,”* she shared.

“

This program has changed my life and my overall view of online jobs...the pilot jobs served as good training for work on the open platform. The technologies are fast, easy to use, and efficient. Cashing out earnings was very low cost. The program came at a crucial time when many had lost their livelihood due to the Covid-19 pandemic and as such it has been beneficial to all participants.⁵⁸

SARAH TURUMA

Pilot Participant, 23

⁵⁸ This is a real quote from a pilot participant who identifies as female, age 23.



PILOT MICROWORKER INTERVIEW WITH SAMUEL OSMAN*

CASE STUDY

After the COVID pandemic, I was low on cash. A friend of mine sent me a link about the NairoBits Microwork project because I was really in need of some extra cash to manage my upkeeps. I decided to apply because it was an online program where you can earn at the convenience of your phone.

“

*That is the greatest benefit:
Cash in good time.*

On my first day [working], I managed to make around 500 shillings. So, I thought, if I can do 500 shillings within 8 AM to 1 PM, I will try extend to maybe 3 PM to make 1,000 shillings. So my experience was good because I could manage [to earn] at least KSH 1000 in a day. I realized that depends on your speed and commitment if you want to earn more, because the more you were doing, the more the tasks were reducing. But know that, that [availability of work] was limited. I did it for a week then the tasks were not available. [Valora] helped me to save because after doing my tasks, then [I could] transfer my amount to Valora without having to withdraw and I could save. So maybe sometimes when I am in need of cash, I remember I have some cash at Valora. So just going and maybe you find that does multiplied but because of the CELO rewards so I could just withdraw. So it was really a good platform for saving for me.

“

If I can do 500 shillings within 8 AM to 1 PM, I will try extend to maybe 3 PM to make 1,000 shillings. So my experience was good because I could manage [to earn] at least KSH 1000 in a day.

* This is an interview transcript from a real pilot participant who identifies as male, age 26.

2.2 PILOT RESULTS AND KEY INSIGHTS

Pilot results were gathered through qualitative and quantitative research and analysis led by Mercy Corps Ventures with the support of University of California, Berkeley's LIFT team and 60 Decibels. In response to the three guiding questions, the pilot uncovered three key insights:

INSIGHT 1

Stablecoins **reduce the costs and frictions of sending and receiving cross-border micropayments**. By leveraging easy-to-use mobile platforms, anyone with a phone can access a dramatic reduction in cross-border transaction fees: from 28.8 percent for a USD 5.00 transaction to 2.02 percent regardless of transaction value, which translates to a reduction in fees from USD 1.44 to USD 0.10.⁵⁹

INSIGHT 2

Stablecoin-based digital wallets can **unlock new digital employment and earning opportunities for un/underemployed youth** by making digital employment a more lucrative, desirable work opportunity. Because stablecoins reduce cross-border transaction fees, the technology increases the emerging sector's take-home earning potential.

INSIGHT 3

Stablecoin-based digital wallets can **incentivize savings behavior** for previously unbanked populations by seamlessly building in a user-friendly wallet with savings rewards into the payment process.

⁵⁹ At the time of the pilot, the lowest market rate for cross-border transactions was through PayPal. For a USD 5.00 transaction, the fee was 28.8 percent.

INSIGHT 1

How can stablecoins reduce the costs and friction of sending and receiving cross-border micropayments?

Stablecoins reduce the costs and frictions of sending and receiving cross-border micropayments. By leveraging easy-to-use mobile platforms, anyone with a phone can access a dramatic reduction in cross-border transaction fees: from 28.8 percent for a USD 5.00 transaction to 2.02 percent regardless of transaction value, which translates to a reduction in fees from USD 1.44 to USD 0.10.⁶⁰

The payments for an individual microtask are extremely small, typically ranging from KSH 5 to KSH 15 per task. Reducing the cost and friction of cross-border microtransactions, therefore, is highly impactful for the digital microwork sector, not to mention remittances, insurance payouts, and cash transfers as well. The existing services for sending and receiving cross-border payments require high transaction fees and currency conversions, making microtransactions uneconomical.

Currently, the most commonly known, used, and trusted payment gateway for cross-border payments is PayPal. At the time of the pilot, PayPal also offered the lowest fee option, which was dependent on the transfer size. Through

partnerships with M-Pesa and Equity Bank, PayPal reportedly offers as low as a one percent withdrawal fee on a high-value withdrawal from PayPal into an Equity Bank account. Unfortunately, the smaller the transfer value, the higher the fee, making this benefit inaccessible to average users. At the time of the pilot, the cost of a USD 5.00 transaction incurred a 28.8 percent fee, equaling nearly USD 1.50.⁶¹ The current incentive structure encourages microworkers to wait until they earn as much as possible before cashing out, or risk losing a significant percentage of their earnings. This may conflict with their preference—or even need—for more readily available access to earnings.

Figure 11: Transaction fees on major payment platforms for a USD 5.00 payment at the time of the pilot

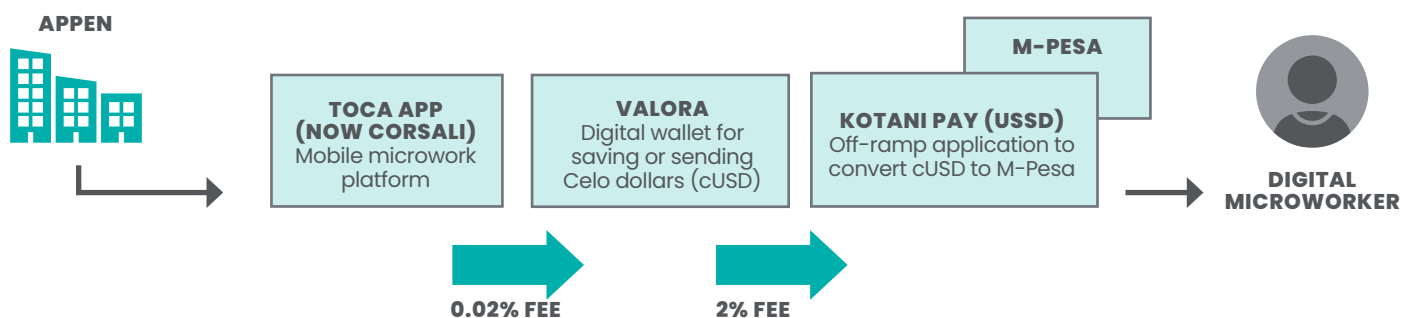
	TransferWise	PayPal	WorldRemit	Western Union	Celo
Fees (USD)	3.33	1.44	1.95	5.55	< 0.01
Fees as % of USD 5 sent from the US to Kenya	66.6%	28.8%	39.0%	111.0%	0.2%

Source: Spindle Design

⁶⁰ At the time of the pilot, the lowest market rate for cross-border transactions was through PayPal. For a USD 5.00 transaction, the fee was 28.8 percent.

⁶¹ Spindle Design. Landscape Assessment. Kenyan Microwork Ecosystem. 2020.

Figure 12: Pilot payment flow



Pilot participants were paid instantaneously for each individual task completed within the Corsali app. After initially linking their Corsali account to their Valora wallet, microworkers could then transfer their earnings into their Valora wallet for a transaction fee of 0.02 percent, regardless of transaction size.

Once earnings were transferred into the participant's Valora app, they could choose to: (1) keep their earnings in their wallet which then unlocked CELO rewards as savings incentives, (2) send earnings in cUSD to someone else with

or without a Valora account, or (3) off-ramp earnings into their M-Pesa account through Kotani Pay. Kotani Pay charges a two percent off-ramp fee, essentially serving as the currency conversion fee.

In summary, the total fee for withdrawing micropayments throughout the pilot, regardless of the withdrawal amount, was 2.02 percent. This two-step withdrawal process can occur within seconds, an unprecedented transaction speed for cross-border payments.

CONCLUSION

By using Celo's stablecoin, cUSD, cross-border transaction fees are lower than ever before at 2.02%. When compared with the next lowest transaction fee of 28.8% on a USD 5.00 transaction, this represents a reduction in fees from USD 1.44 to USD 0.10, a highly compelling cost reduction for cross-border transactions that could change cross-border payment behavior. If transactions are conducted end-to-end in cUSD, the fee becomes a mere 0.02 percent. If stablecoin-based digital wallets become a more widely-accepted form of payment throughout Kenya, or if the integration with M-Pesa becomes more seamless, this could truly return an average of 99.98 percent of microworker earnings into their digital wallets. Within the microwork space, this means that Kenyans can earn an income and transact with businesses anywhere in the world, spending their earnings within the Kenyan economy. More broadly, this indicates transformative potential for international payments of any kind, removing the need to wait for a minimum value to send payments, and making the process readily accessible to anyone with a smartphone.

INSIGHT 2

How can stablecoin-based digital wallets unlock new digital employment and earning opportunities to un/underemployed youth?

Stablecoin-based digital wallets can unlock new digital employment and earning opportunities for un/underemployed youth by making digital employment a more lucrative, desirable work opportunity. Because stablecoins reduce cross-border transaction fees, the technology increases the emerging sector's take-home earning potential.

The demand for digital labor is rapidly increasing, and microwork plays a key role in the sector's growth.⁶² For Kenya to capitalize on this market demand and compete in the global digital labor market, it is essential that digital microwork represents a desirable work opportunity that appeals to un/underemployed youth. Fair pay is a critical factor in boosting microwork's desirability. A microwork landscape assessment executed by Spindle Design prior to the pilot found that daily earnings for common income generating activities for youth ranged from KSH 500 to KSH 1,000 per day. In comparison, existing microworkers reported earnings ranging from KSH 500 to KSH 800 per day, making microwork comparable in pay to other forms of gig work.⁶³ Through stablecoin-based digital wallets, the earning potential for microwork can be maximized by reducing the cross-border transaction fees

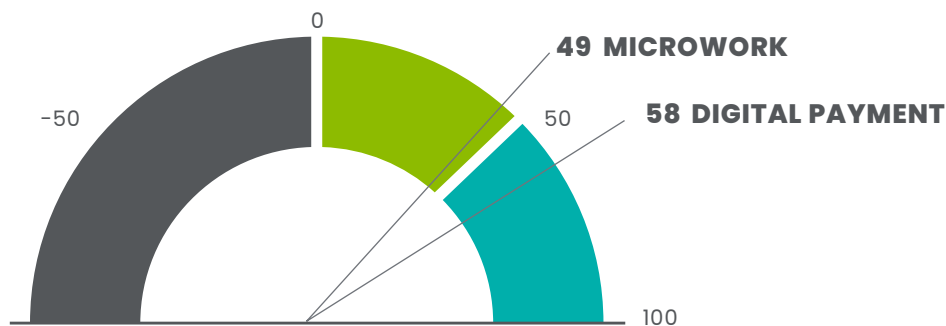
incurred in the payment process. In doing so, stablecoin-based digital wallets unlock digital employment as a more lucrative, desirable work opportunity by increasing the take-home earning potential of digital microwork.

The pilot measured overall satisfaction in microwork and digital payments by capturing participants' net promoter scores (NPS), a widely used metric for understanding a user or customer's likelihood of recommending the product, service, or technology to others. Impact measurement firm 60 Decibels considers an NPS score of 50 as a threshold for a "very good" experience based on over one hundred companies in East Africa earning an average score of 44, and seventy-five financial inclusion companies earning an average score of 49.

» **Figure 13:** Pilot net promoter scores

NET PROMOTER SCORE (NPS)

Q: On a scale of 0 to 10, how likely are you to recommend the microwork / digital payment system to a friend or family member, where 0 is least likely and 10 is most likely? (n=183)



Source: 60 Decibels

NPS =	
% PROMOTERS -	% DETRACTORS
9-10 likely to recommend	0-6 likely to recommend

62 Mercy Corps Youth Impact Labs. Towards a digital workforce: Understanding the building blocks of Kenya's gig economy. 2019.

63 Spindle Design. Landscape Assessment. Kenyan Microwork Ecosystem. 2020.

Both microwork as an income opportunity, and stablecoin-based digital wallets as the payment system, received a high NPS. This indicates that pilot participants had such a positive experience with microwork and the stablecoin-based digital wallet that they would recommend both to a family or friend. Using 50 as a threshold for a “very good” experience, digital payments had a slightly higher NPS of 58 versus a score of 49 for microwork. In other words, the pilot established a positive outlook for future youth engagement in microwork and stablecoin-based digital wallets.

Almost all positive feedback at the end of the pilot related to improved financial benefits for the participant. In fact, in this regard, the pilot

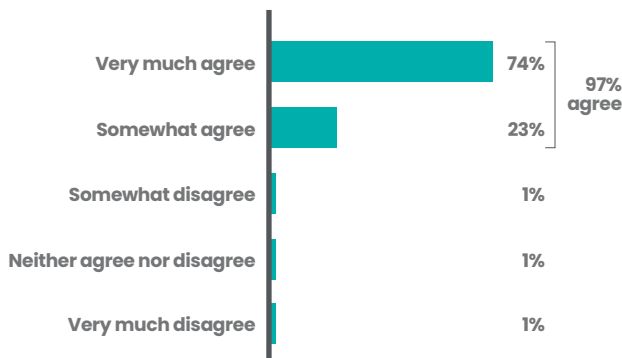
garnered overwhelmingly positive feedback: 97 percent of participants agreed that they received a fair reward for completed microwork and 77 percent reported higher earnings as compared to their previous income-generating activities.

One way to interpret this data is that youth are earning on the higher end of the KSH 500 to KSH 800 earning range reported in the landscape analysis. Additionally, because microworkers need not travel to a place of employment, their cost base is lower. This may mean that they would be willing to accept slightly lower gross earnings while actually earning higher net income versus traditional work that requires a commute.

» **Figure 14:** Pilot participant feedback on microwork wages

FAIR REWARD FOR MICROWORK

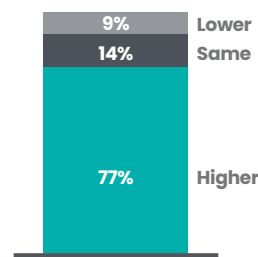
Q: I receive fair reward (pay and benefits) for the work that I did during the pilot. (n=182)



Source: 60 Decibels

COMPARISON OF MICROWORK WAGE

Q: Compared to other job(s)/income generating activities you had before the pilot, is the payment from this microwork pilot higher, lower, or the same? (n=182)



CONCLUSION

The pilot confirmed that stablecoin-based digital wallets can unlock new digital employment and earning opportunities for youth by reducing cross-border transaction fees, thereby increasing the percentage of take-home earnings. While microworkers may not have the power to negotiate pay rates, leveraging a stablecoin-based digital wallet maximizes the take-home earning potential of one’s work at no additional cost to the microwork provider. When workers are satisfied with the payment for their labor, they are more likely to be satisfied with their employment overall.

INSIGHT 3

How can stablecoin-based digital wallets incentivize savings behavior for previously unbanked populations?

Stablecoin-based digital wallets can incentivize savings behavior for previously unbanked populations by seamlessly building in a user-friendly wallet with savings rewards into the payment process.

The pilot demonstrated that access to on-demand microwork opportunities improved participants' financial wellbeing and instilled a savings culture among youth. With the new income gained from microwork labor, the majority of participants reported an increase in ability to save.⁶⁴ By receiving earnings through the Valora wallet, participants had a savings mechanism built into the payment process, which 67 percent of pilot participants utilized. Eighteen percent mentioned good incentives and rewards for savings offered through their Valora wallet as an instigating factor, and 12 percent remarked on the lasting impact of the pilot on their savings behavior, referencing a new "savings culture."

According to one participant, *"I saved with Valora and it was time-saving because my money was already in the wallet and the benefits such as*

*additional bonuses through Celo dollars and interest encouraged me to leave the money in the wallet to grow."*⁶⁵ Another participant simply shared, *"I leave money in Valora because of the bonus,"* referring to the Valora wallet's weekly bonus incentive program. If participants chose to save their earnings in their Valora wallet, they could receive rewards distributed in the form of CELO tokens based on their savings amount (cUSD balance). Sixty-seven percent of pilot participants took advantage of this opportunity.

Of the 33 percent who did not save in their digital wallets, 22 percent preferred to save in their bank or microfinance institution, 20 percent did not know how to use their digital wallet, 18 percent did not have enough money, and 17 percent did not trust digital financial services.

» **Figure 15:** Valora wallet savings incentive structure

CELO REWARDS TIER STRUCTURE

	Balance	Earnings
Tier 1	20 cUSD	\$1 of CELO/month
Tier 2	100 cUSD	\$5 of CELO/month
Tier 3	500 cUSD	\$10 of CELO/month

Source: Celo

» **Figure 16:** Use of Valora for savings

Q: Since participating in the pilot, have you saved using Valora? (n=182)



Source: 60 Decibels

64 89% of participants reported an increase in ability to save as a result of the pilot.

65 This is a real quote from a pilot participant who identifies as female, age 24.

“

The [Valora] app is one of the best. You can save from there and you can monitor your earnings. I cash out [my earnings] immediately, but I also keep some in Valora because I can monitor my money...They give you data of what you've done with your money.⁶⁶

PILOT PARTICIPANT

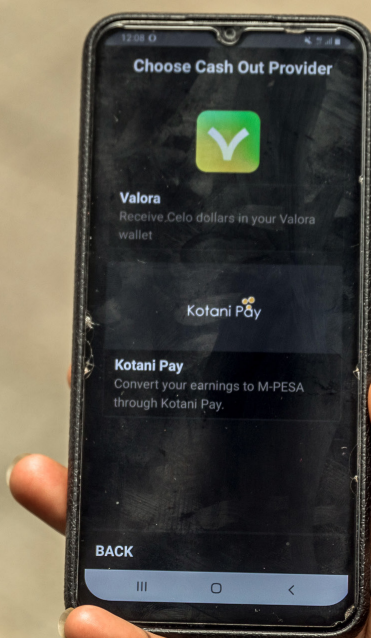
Female, 24

CONCLUSION

These results indicate that most pilot participants want to save, and the increased income gained from microwork paired with convenient savings incentives in the Valora wallet added a valuable instigating factor to increase the value and frequency of savings for pilot participants. The small number of participants who flagged lack of trust in the digital savings mechanism indicates both the need to continue to ensure users are educated on the functions of a digital wallet, and the general willingness of youth to utilize and trust new technologies.

In summary, the pilot identified positive responses to all three guiding questions. Stablecoins can reduce the cost and friction of sending and receiving cross-border payments by drastically reducing transaction fees, unlocking the digital microwork sector as a desirable earning opportunity for youth, and seamlessly improving digital wallet users' ability to save.

⁶⁶ This is a real quote from a pilot participant who identifies as female, age 24.



ADDITIONAL INSIGHTS

Beyond the pilot's learnings related to the guiding questions, additional insights emerged, relevant to the broader microwork and stablecoin space:

Pilot participants were eager to learn about, and quick to trust, cryptocurrency

Most pilot participants had heard of cryptocurrency but had not yet used it themselves. At least in the short-term, microworkers reported value in learning more about cryptocurrency and being able to practically engage with it. No participants expressed hesitation with the stablecoin-based payment process, but education and access to the trusted platforms is an essential consideration for the future.

Digital microwork can provide attractive supplementary income

Participants were aware that the pilot would last only five weeks and considered the labor as a short-term income opportunity. As such, they found the extra income to be transformative. Ninety-five percent of participants reported improved quality of life and 94 percent reported that their income had increased because of the pilot. Significantly, qualitative interviews highlighted examples of participants earning sufficient capital to launch full-time businesses. For example, one female participant shared, *"I made a lot of money from the microwork so I was able to join driving school. I started a small business where I earned another extra income."*⁶⁷ Another participant said, *"Through the income, I boosted my business and managed to pay school fees."*⁶⁸

Engaging in microwork hones marketable soft skills that prepare youth for future formal job opportunities

In addition to training and initial support from NairoBits, microworkers gained experience with time management and financial management. They also solved challenges independently or among their peer WhatsApp groups. These soft skills can be applied to future professional opportunities, as one participant reported, who applied the skill set gained from this experience to qualify for and secure a full-time job. According to a recent Soft Skills Literature Review conducted by USAID, soft skills training programs have led to a 19 percent increase in earnings and a 12.7 percent increase in likelihood of being employed.⁶⁹

CONCLUSION

The pilot insights indicate that stablecoins can reduce the cost and frictions of receiving cross-border payments and increase the adoption of digital microwork at scale, thereby making digital microwork a more attractive income opportunity for currently un/underemployed youth. By increasing the Kenyan digital labor force alongside the growing global microwork market, Kenya can readily meet its vision to become an international destination for BPO by 2030. Stablecoin's potential to dramatically reduce cross-border transaction fees has pivotal implications for the digital economy. For the microwork space, it makes it easier for microwork buyers to reach Kenyans as suppliers, creating the ideal scenario to address youth unemployment while reinvesting earnings back into the Kenyan economy. It also ensures that unbanked and underbanked populations are able to fairly participate.

⁶⁷ This is a real quote from a pilot participant who identifies as female, age 19.

⁶⁸ This is a real quote from a pilot participant who identifies as male, age 23.

⁶⁹ USAID. Soft Skills And Youth Workforce Development In Sub-Saharan Africa: Study Brief. 2021.

2.3 POLICY RECOMMENDATIONS

Based on pilot findings, new possibilities are emerging with digital microwork and stablecoin to unlock future economic opportunity, particularly for the 68 percent of Kenya’s population who are below the age of 35.⁷⁰ As a leading digital economy among emerging markets, Kenya is well-positioned to build on its reputation and leapfrog many of its peers through digital labor and cryptocurrency. A delicate regulatory balance is required to achieve this. Careful monitoring of this burgeoning system is important, but too much regulation risks throttling opportunities for Kenyans while its neighbors thrive. Overregulation may even lead to an underground digital ecosystem where any opportunity to create a free and equitable system becomes entirely out of reach for everyday users.

The most significant decision for policymakers and leaders is whether to risk reinforcing the present-day systems that exclude millions from the emerging digital currency ecosystem or to actively create a safe, ethical pathway for universal inclusion. Compliance must be balanced with these risks.

The largest potential barrier to inclusion is a Know Your Customer (KYC) requirement that makes it difficult, if not impossible, to get started. Though Kenya has attempted to introduce a digital identification program through Huduma Namba, it was stalled in 2021 due to data privacy concerns.⁷¹ Even if Kenya were to successfully introduce a digital identification program, millions of people—a majority of whom may be ideal participants in the microwork economy—may still be out of reach. Therefore, simply setting traditional KYC requirements similar to a bank account may not work. Having a more inclusive and innovative approach to KYC and Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) compliance is at the root of the success for mobile money platforms, such as M-Pesa in Kenya, and should be considered for cryptocurrencies as well.

A blockchain-based ecosystem of virtual asset service providers (VASPs) -- entities engaged in digital financial transactions and subject to KYC and AML standards -- can help create a mutually-agreed standard for pre-KYC eligibility that brings transactions safely into the system rather than forcing them out of the system

entirely. For those without the right identification or reliable internet connection, such as refugees and smallholder farmers, unhosted wallets -- the method of storing cryptocurrency without a third-party intermediary -- is the only option.

Worldwide, over 1.1 billion people do not have government-issued identification (IDs), and this is one of the key reasons overly restrictive KYC requirements present a significant barrier to inclusion.⁷² People lack government issued IDs for a variety of reasons. Significant groups lacking official identity documentation include refugees, populations displaced by climate change, conflict, or those under threat of persecution. Working with, not against, these VASPs and being supportive of those whose only option is to use unhosted wallets is the best step forward. The Financial Action Task Force (FATF) -- the international body focused on fighting money laundering -- recognizes the need for carefully balancing financial inclusion with compliance in a virtual currency ecosystem.⁷³

To enable a successful new digital economy, the Kenyan government can proactively form a Working Committee that designs a regulatory roadmap and uses a “test and learn” environment, such as a regulatory sandbox, to closely evaluate and publicly trial new systems and processes. The Working Committee can be composed of key industry stakeholders, as well as Kenyan authorities, to ensure the country develops a circumspect, flexible regulatory framework that enables digital labor and digital payments to serve the needs of Kenyans.

70 DFID. Regional Analysis of Youth Demographics. 2018.

71 Namati. “Press Release: Huduma Namba Stopped!” 2020.

72 World Bank. “The global identification challenge: Who are the 1 billion people without proof of identity?”. 2018.

73 Alpen Sheth. “The Digital Divide at the Heart of Financial Inclusion.” 2020.

RECOMMENDED NEXT STEPS

» **Figure 17:** Recommended next steps to design policy recommendations



1 Form a Stablecoin Working Committee. Understanding stablecoins and their relevance in the new digital economy is an important early step that can happen before any specific regulatory recognitions or restrictions are put into place. The Working Committee might include Central Bank of Kenya (CBK) representatives, international experts, and industry stakeholders who can advise and contribute to the key questions associated with stablecoins, which will reduce the burden on the CBK to retain all expertise in-house. The Working Committee can also feed into existing initiatives, such as the exploration of creating a CBK digital currency.

The activities of the working committee might include:

- Commissioning and reviewing relevant research
- Gathering stakeholder input and feedback
- Liaising with other digital currency initiatives within CBK
- Developing an initial regulatory roadmap

2 Trial digital labor and stablecoin on a larger scale as part of Kenya's "test and learn" environment. Kenya has demonstrated an openness to innovation through the Capital Market Authority's regulatory sandbox, a type of "test and learn" environment, which allows Kenya's regulators to build appropriate consumer protection safeguards into new products and services while learning from, and working with, innovators.

Example opportunities for further exploration in the "test and learn" environment:

- Stablecoin/M-Pesa integration
- KYC and AML monitoring
- VASP versus unhosted wallets
- Banking deposits
- Employment and income tax
- Minimum wage regulations
- Pension contributions and other portable benefits

3 Develop a stablecoin regulatory framework. Applying lessons learned from the Working Committee and initiatives tested in the "test and learn" environment, the CBK can develop a sense of clarity on the near-term and long-term implications and opportunities of stablecoins and the digital economy more broadly.

4 Recognize stablecoins as a valid cross-border transaction currency and scale the transformation of the digital economy. The CBK's 2015 notice renouncing Bitcoin and similar technologies as illegal has been replaced by more recent discussions including the CBK exploring a Kenyan digital currency. Recognizing the legitimacy of stablecoin is the first step to fostering the enabling environment necessary.

ADDITIONAL CONSIDERATIONS

Across these four recommendations are a multitude of questions, considerations, ideas, and potential hurdles that need to be addressed. Although our primary policy recommendations focus on the broader opportunities for stablecoins in the digital economy, other recommendations arising from the pilot include:

Work with other governments to establish cryptocurrency regulations and promote the urgency of doing so.

By nature of cryptocurrency being a global currency, cryptocurrency regulations will require global cooperation. Kenya's policy development will require Pan-African and international collaboration to be truly effective.

Key stakeholder: Government regulators

Secondary stakeholders: Regional and global intergovernmental forums (such as WEF, the AU, the UN)

Prioritize opportunities to minimize the climate impact of blockchain technologies.

While some blockchain technologies are known for energy consumption, more recent blockchains and cryptocurrencies are demonstrably less energy intensive and are additionally offsetting their carbon footprints by buying carbon credits. Working collaboratively with industry partners will help set standards and encourage more energy efficient and renewal-based technologies to thrive.

Key stakeholders: Government regulators, cryptocurrencies

Secondary stakeholders: Cryptocurrency users

Strengthen quality, affordable internet access and quality mobile device use.

In addition to [Vision 2030](#) objectives to expand internet access across the country, provide microwork-specific incentives, like subsidizing the cost of accessing microwork platforms. Public and private sector partnerships can also help level the playing field for digital workers by leveraging new blockchain-based connectivity infrastructure, such as [Helium](#), which help promote more user-centric internet utilities, and encourage coverage in remote and underserved areas.

Key stakeholder: Telecom providers, Telecom associations (such as the GSMA and ITU)

Secondary stakeholders: Government regulators

Promote training and education of Kenya's digital workforce.

Increase programs like [Ajira](#) to grow knowledge of how to find work, how to engage successfully as workers in the digital economy, and how to navigate the financial system. This includes improvements to financial literacy so that Kenyans earning money independently can save effectively and avoid bad debt.

Key stakeholder: Ajira and other microwork training initiatives

Secondary stakeholders: Digital workers

Prioritize regulation around digital worker labor rights.

Continue to work with international organizations, including the International Labour Organization, to advocate for and evaluate the implications and opportunities for workers' rights in the new digital labor economy, including portable benefits.

Key stakeholder: Labor rights organizations, microwork service providers

Secondary stakeholders: Government regulators

2.4 CONCLUSION

The momentum behind cryptocurrencies, and stablecoins in particular, signifies the overwhelming demand for a new way of transacting. The growing digital microwork space is radically unlocking lucrative income opportunities and increasing savings potential for un/underemployed youth.

For motivated, entrepreneurial young people like Lucy Atieno, learning about a way to earn a living and store earnings using a mobile phone is truly life-changing. It is about more than economic opportunity. Earning an income leads to a sense of purpose and pride in one's work, gaining transferable skills, working alongside other like-minded individuals, and experiencing the confidence that comes with increased income security. In the words of another pilot participant, *"Through this program, I have been able to learn a lot, engaging and viewing microwork through a different lens. I am proud to be a microworker."*⁷⁴

MCV's pilot uncovered clear insights into the positive impact of digital stablecoins and mobile wallets on easing frictions and reducing costs in cross-border payments for un/underemployed youth microworkers in Kenya. This is only one of innumerable use cases for stablecoins' transformative potential. For example, Kenya hosts one of the largest refugee populations in Africa, estimated at around 520,000 refugees and asylum seekers.⁷⁵ Digital labor, such as microwork enabled by stablecoin, has proven to be particularly relevant for refugees, who otherwise lack the legal right to work and have limited access to financial services.

It is only a matter of time before stablecoin-based wallets become mainstream and young Kenyans like Lucy use them for all transactions, including earning an income, sending money to rural family members, and paying daily expenses. Already, nearly one in twelve Kenyans are using cryptocurrency.⁷⁶ To realize the opportunities uncovered in this pilot, Kenya must proactively pursue regulations that encourage innovation to flourish while ensuring universal financial inclusion is reached.

⁷⁴ This is a real quote from a pilot participant who identifies as female, age unavailable.

⁷⁵ ACAPS. Kenya Country Overview. 2021.

⁷⁶ Triple A. "Cryptocurrency information about Kenya." 2021.



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VENTURES

MERCY CORPS VENTURES

45 SW Ankeny St
Portland, OR 97204
United States
+ 1 503 896 5000