Barun ICT Global News

Global Student Researcher & Reporter

Barun ICT Research Center

01 Cryptocurrency and Financial Inclusion in the Developing World

Global Student Reporter & Researcher

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With accelerating development in emerging economies, financial inclusion of individuals (especially the poor, women, and other marginalized groups) and businesses (primarily local and small entrepreneurs) is also important.

Image from https://techbullion.com/3-tips-for-investing-in-cryptocurrency/

Financial inclusion, according to the World Bank, is "access to useful and affordable financial products and services-transactions, payments, savings, credit, insurance, etc. delivered in a responsible and sustainable way" [1]. With the unprecedented penetration of ICT-led banking and digital transformation, financial inclusion has made great inroads. However, a report published by Deloitte notes that more than 1.7 billion individuals around the world currently lack the most basic financial services, and in turn are unable to invest in the most important spheres of life - education, healthcare, housing, and entrepreneurship [2]. While the traditional banking system has overlooked a large majority of the poor and small businesses, cryptocurrencies are helping those in developing countries leapfrog the conventional system and complete transactions using only a mobile phone [3].

Cryptocurrencies can be accessed via mobile phones and have become a viable option for the tech-savvy young population in the developing world. Further, national policies in favour of the application of blockchain technology and cryptocurrency have made it easier for both the supply and demand sides to adopt it. ndia is anticipating a promising future after the Supreme Court lifted the ban on cryptocurrencies in March 2020, which had been imposed by the Reserve Bank of India in 2018 [4]. In addition, in other developing countries where the IT infrastructure and start-up eco-

system is emerging, it will be a good opportunity to tap this market and invest in the technology to make it accessible and affordable. Foreign remittances and local market purchases could also be enhanced through the usage of cryptocurrencies.

Image from https://coindoo.com/best-cryptocurrency-mobile-wallets-for-android-and-ios/

However, there are some grave challenges and skepticism associated with cryptocurrency. The first big opposition and challenge is the regulatory framework. As part of a decentralized system, cryptocurrency is not regulated by governmental institutions and thus forgery and other illicit activities are rampant. Another big challenge is the digital divide; using cryptocurrencies requires apps, an internet connection, and smartphones, which can further divide the haves and have-nots.

Moreover, data protection is another issue. All cryptocurrency transactions are stored and shared, which creates a vulnerability where consumer data and other sensitive information can be traced by any member of the network. Knowledge-gaps about cryptocurrencies and its operations could be a serious obstacle for a majority of the population in the developing world. Also, as cryptocurrency markets are still growing, it is not as liquid as hard currencies and other banking instruments. Due to the limited market usages, cryptocurrencies will not be able to address the exclusion of a large chunk of the developing world from accessing such financial services. In response, governments need to support more emerging start-ups and invest aggressively in blockchain technology to exploit its applications in a myriad of fields. Considering how it can be a great equilizer and provide benefit to many, financial inclusion needs to be addressed innovatively, but the very spirit of inclusion itself must not be overlooked.

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02 Threats Posed by Deepfakes

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Deepfakes are manipulated audio and video that appear realistic but are created by processing original media sources and replacing target subjects or other components. Deepfakes utilize techniques from machine learning to synthesize audiovisual contents – coming together to look highly realistic and easily able to deceive the average media consumer. Specifically, a class of deep learning framework commonly known as the generative adversarial network (GAN) is used to make them. In training GANs, two neural networks – one that generates the manipulated media, and the other that attempts to detect the manipulation – are trained on the dataset that the deepfake is going to be based on [1].

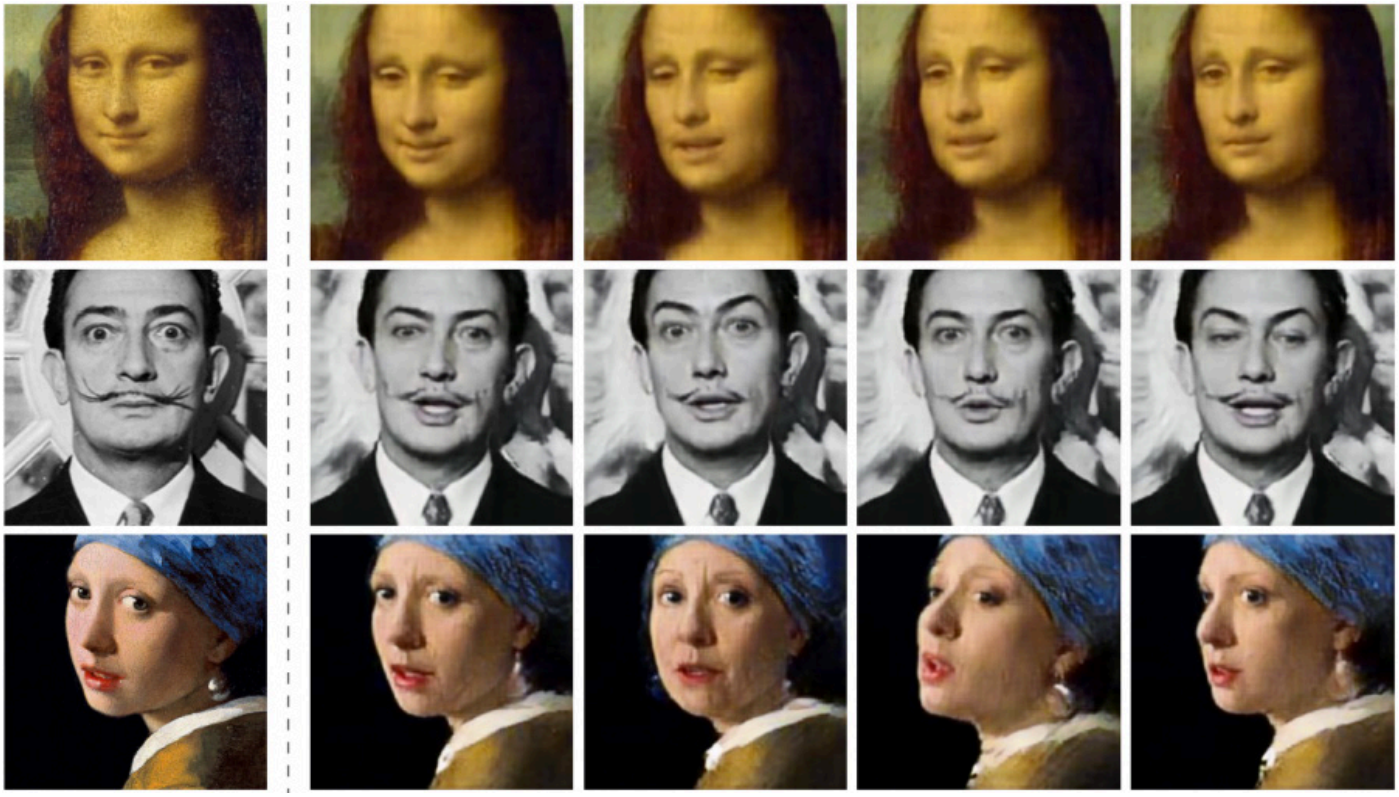

Image from https://neurohive.io/en/news/deepfake-videos-gan-sythesizes-a-video-from-a-single-photo/

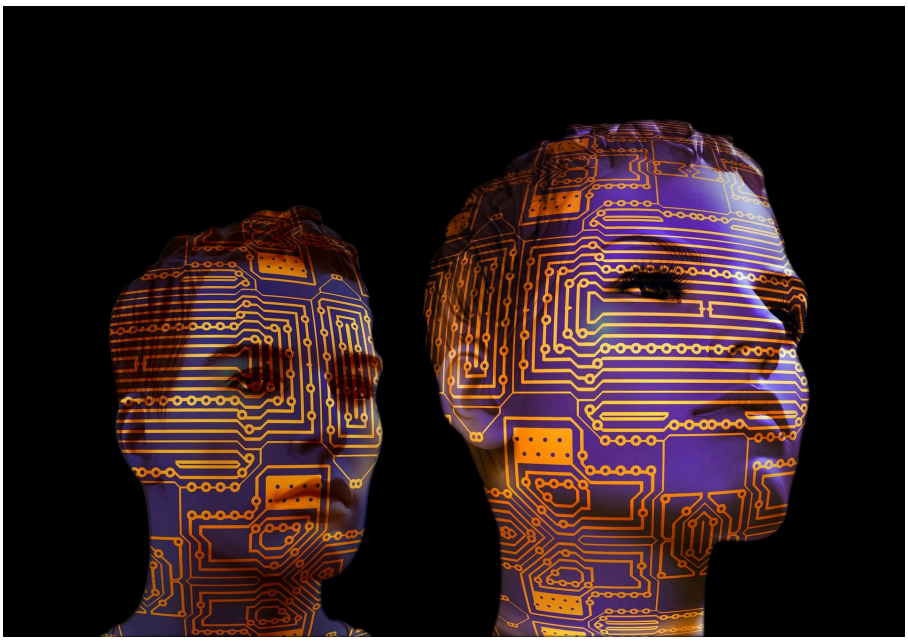

Image from https://www.kaspersky.com/resource-center/threats/protect-yourself-from-deep-fake

The highly realistic and deceiving characteristics of deepfakes are the result of the training which is carried out until the detecting neural network barely recognizes the manipulation made by the generative one. GANs have been used to generate contemporary art based on AI, recover features from low-quality images in scientific studies, and improve image/video quality in the creative industry.

However, the use of GANs to create deepfakes poses a great risk as these realistic fake videos or images can be used to create political distress, financial fraud, blackmail, or fake terrorist attacks. Current threats from fake news and disinformation could be highly amplified if they eventually become part of mainstream media.

The most alarming issue is that the technology is growing quickly and anyone with sufficient training can use software packages to generate deepfakes in the near future. Significant research been done on methods to detect them by using deep learning techniques that pick-up manipulation of pixels in images or frames of a video [2]. What makes detecting them difficult is that the GANs can be trained to surpass all known detection techniques; as a result, the detection methods always lag at least one step behind.

In the past two years, Canada, China, the UK, and some states in the USA have introduced legislation that governs the production and transmission of deepfake contents [3] [4] [5]. If detection methods are not perfected or strong regulation is not imposed on its generation, observers warn that the new technology can eventually lead to it being impossible for facts to be readily distinguished. This will erode the public's trust in governments and ultimately shatter the main link that keeps society together – a shared objective reality.

Image from https://blog.malwarebytes.com/artificial-intelligence/2020/01/deepfakes-laws-and-proposals-flood-us/

However, other critiques note that portraying deepfakes as doomsday technologies are mere exaggerations [6]. This is because other video manipulation techniques, which are not based on machine learning but have comparable potential to pose a similar danger, have existed for decades. Moreover, they claim that misinformation can be easily achieved by distorting facts and changing narratives instead of opting for expensive methods such as deepfakes.

With promising research that aims to make cheap and fast processors with modified architecture dedicated to machine learning, it is only a matter of time until making deepfakes becomes as easy as writing misleading news articles. Therefore, it is essential for governments and other concerned bodies to devise regulations that will minimize the dangers posed by a technology whose repercussions seem to outweigh its original purpose.

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03 Crime and ICT: Mexican Drug Trafficking Organizations

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Development in ICT has significant and positive effects on international trade. Markets are highly interconnected, offering infinite possibilities not only to consumers but also to producers. However, criminal organizations have taken advantage of this to expand their illegal activities. An alarming example are drug trafficking organizations (DTOs) in Mexico, colloquially called "cartels." Mexican DTOs are using technology to improve their shipments' efficiency, coordinate operations, and communicate police activities.

When cartels need to move merchandise, they use encrypted communications apps like Telegram and WhatsApp to negotiate prices and locations. In October 2019, Ovidio Guzman (son of convicted drug leader Joaquin "El Chapo" Guzman) was released from prison after several members of the Sinaloa cartel closed an entire city.

During the lockdown, criminal groups communicated via Facebook and Telegram to coordinate mass shootings, car burnings, and murders. As the Mexican government was unable to decrypt the communications, they gave in to the pressure and released Guzman [1].

Additionally, the Los Zetas cartel built its own radio network; since 2006, it has covered the whole country, Texas, and part of Guatemala. Los Zetas have taken advantage of their acquired knowledge, since most of their members have been part of the official Mexican army. The network functions as a military communication system: it includes signal relays and secret antennas that broadcast over the internet. Research also shows that some of the antennas work through solar energy [2] and the cartel has installed antennas on existing towers in order to avoid being detected and save money [3].

The Mexican government's response has been inadequate and only some of the antennas have been dismantled. Drug trafficking organizations still rely on radio communications. Moreover, multiple ICT specialists, hired by the government to repair communication towers, have been kidnapped and killed.

Image from http://belowsealevel.co/drug-trafficking-organizations-central-america/

Consequently, the problem has escalated as cartels use unrelated technicians to build their radio network [4]. These cases reveal the limited capacity of Mexican officials, allowing the cartels to maintain their presence and control the drug market.

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04 Growth Opportunities for Fintech in Peru

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COVID-19 has had devastating effects around the world, and Peru is no exception. One bright spot, however, has been in the local technology sector, where the use of virtual applications when making payments has increased as the population adapts to the new status quo.

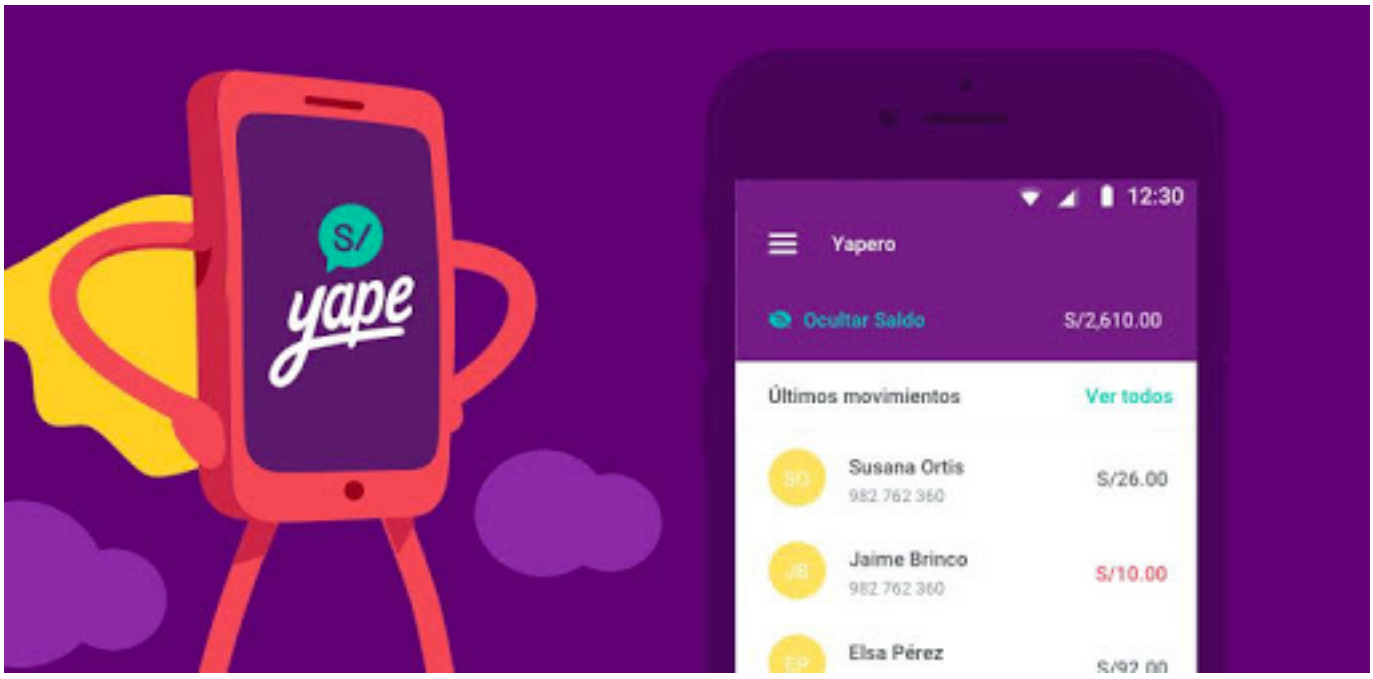

Image from Google Play

Only a few companies, including Yape from BCP, Lukita from BBVA, and Tunki from Interbank, are Fintech with a presence in online payment platforms. Due to lack of connectivity and inconsistent information in Peru, they had previously struggled; however, this changed with COVID-19. According to Ecommerce News, it is anticipated that 90% of all internet connections in Latin America will be made through mobile devices by 2022 [1]. Fintech companies are forecasted to experience a higher rise in the following years, creating more opportunities and improvements as they innovate.

04 Growth Opportunities for Fintech in Peru

The YAPE application of Banco BCP has had considerable growth in recent months in MYPES. According to Rufino Arrivas, Manager of Yape, "The growth we have had has been exponential. By managing ourselves as a startup, our growth is on a large scale and we already have a new goal for the end of the year: to reach 5 million yaperos and democratize the application in the provinces [2]." To date, there are 100,000 active locations that make their payments with YAPE, including micro-businesses, hairdressers, wineries, taxis, and ice cream parlors. This greater acceptance is in part because YAPE is free and has no maintenance, transaction, or membership costs.

Image from Yape Facebook Page

COVID-19 has led to a growth opportunity for Fintech companies in Peru, especially for YAPE, which saw explosive growth in the first half of the year and seeks to continue reaching more users throughout the country.

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