The Use of Blockchain and Cryptocurrencies in Humanitarian Aid Management. The Conundrum Between Myth and Reality

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Abstract
Most people consider cryptocurrencies as speculative assets purchased and traded for financial gains. Others consider them a way to avoid the overwhelming power of states, banks and financial institutions. Beyond these opinions, ONGs and UN Organizations are evaluating how to use these means to ensure an effective tool to manage humanitarian aid and overcome the opacities that may leave room for abused and criminal organizations operating in the areas where the ONGs and UN Organizations play their roles.

Keywords
Blockchain, cryptocurrencies, DLT, humanitarian aid, SDG1, SDG2.

1. Introduction

As with any new technological invention, blockchain and its applications have raised many hopes of boosting economies by creating new profitable businesses, eliminating bureaucracies, and tackling difficult issues such as inequality and poverty.

Namely, blockchain as a decentralized system without the need for a centralized government authority has been hailed by many as a return to natural law, in which these people believe humanity has experienced a golden age [1]. For others, perhaps more realistically, DLT [2] technologies could be a means to protect humanity from a future in which state authorities and big corporations are expected to become increasingly intrusive and despotic, ensuring a framework in which everyone can play their role independently.

The same reasoning applies to cryptocurrencies, considered a sort of liberation from the sovereign (and arbitrary) power of the State (and – in this perception – of banks and financial institutions).

The management of humanitarian aid and related concrete

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actions do not appear to be excluded from this scheme.

The purpose of this article is to record some cases in which technologies have played an effective supporting role and others in which their use seems to translate into a sort of window dressing aimed at achieving marketing objectives rather than real needs.

2. The Scenario

In regions affected by natural or humanitarian disasters, access to basic goods and services is often severely constrained. Not to mention access to financial resources.

This challenge is particularly acute in developing countries, where financial infrastructures are underdeveloped or non-existent. Therefore, cryptocurrencies and blockchain technologies have emerged as potential tools to enable financial inclusion and simplify the management of humanitarian aid [3].

Their promise lies in their ability to facilitate direct, transparent, and efficient resource transfers [4], addressing the limitations of traditional aid systems.

Although essential, the humanitarian machine is often criticised for its slowness and bureaucratic inefficiency. Cryptocurrencies, on the other hand, allow fast and direct transactions, offering a level of reactivity that traditional financial systems struggle to achieve and ensuring – at least in theory – efficiency and transparency.

In humanitarian contexts, one of the key advantages of blockchain technology is indeed its intrinsic transparency [5], since each payment is recorded on a distributed ledger, providing a verifiable and immutable record accessible to both donors and beneficiaries.

The benefits are quite obvious.

This feature allows humanitarian organisations and funders to be confident in the concrete allocation of resources, while significantly mitigating the risks of corruption, embezzlement, and misuse of funds – issues that have historically plagued traditional aid distribution mechanisms; what happened in the Gaza Strip [6] is only the latest reprimand.

In addition, blockchain allows funds to be distributed directly to civilians, removing the need for intermediaries [7], such as financial institutions or centralized authorities, which fuel inefficiencies in the distribution process and administrative costs [8]. The peer-to-peer nature of cryptocurrencies makes the transactions not only direct but also almost instantaneous thanks to the use of smartphones, saving a vital resource in times of crisis: time.

It is not surprising, so, that cryptocurrencies have already been widely used to provide humanitarian assistance [9].

3. Case Studies

Of note is the partnership between the UNHCR and the United Nations International Computing Centre (UNICC) in the Stellar Aid Assist 2022–2023 initiative which used blockchain to provide direct cash assistance to Ukrainians displaced by the conflict with Russia. Beneficiaries received funds in digital wallets accessible via their smartphones and could withdraw cash at MoneyGram locations, avoiding transaction fees.

The reduction of collateral costs is combined with a new level of transparency, which represents a top priority for humanitarian agencies to avoid undue delays, along with the traceability of funds.

In this regard, in 2022, the humanitarian organisation

Care International partnered with Binance Charity Foundation to provide financial support to communities in Western Kenya affected by the Covid-19 pandemic. Using the Binance USD (BUSD) stablecoin, Care distributed e-vouchers to members of the Village Savings and Loan Associations, which were then redeemed through trusted local merchants.

Digital tools have therefore proven to be essential for transparent and modern aid delivery. And this belief is also spreading to the private sector.

One example is AIDONIC, which uses blockchain, artificial intelligence and digital payments to bring transparency and visibility to aid from non-profit organisations. Through a GDPR-compliant data management platform and end-to-end payment facilities, the pioneering crypto-to-fund processing system ensures real-time and transparent monitoring, tracking and reporting of the delivery process along the entire supply chain.

Another initiative that has received unanimous support from observers is Building Blocks [10], a blockchain solution led by the World Food Programme (WFP) and based on the Ethereum protocol.

Globally, the humanitarian landscape has become particularly complex, and, without proper operational coordination, the distribution of aid can be uneven. Thus, Building Blocks has been designed to coordinate collective assistance to reach more beneficiaries while making the aid process equitable and convenient. The initiative of the WFP uses blockchain technology to securely distribute aid, prevent it from overlapping, and save millions in bank fees. Accordingly, humanitarian actors assisting the same target group can channel assistance to the same blockchain account, where recipients can access a variety of items allocated by different organisations.

4. Criticalities

Nonetheless, not all that glitters is gold.

There is no shortage of opinions on the actual effectiveness of cryptocurrencies and, more generally, blockchain technologies in improving the management of humanitarian aid.

Some studies have shown that the use – or alleged use – of blockchain systems is proving to be a useful expedient for fundraising, with little benefits and even additional costs [11].

In essence, touting the use and benefits of blockchain could prove to be nothing more than a communication strategy – almost a marketing choice – by some humanitarian organisations to attract the attention and enthusiasm of potential donors attracted by the efficiency and by the traceability that these innovations claim to offer in the aid supply chain.

But those might just be empty promises.

Often, the members or promoters of these organisations themselves do not know how the technology works and simply promote it as a magical, conceptually elusive technology that could produce a wide range of desirable effects without clear explanation.

In fact, the magic disappears immediately when the blockchain used is privately owned and adds distribution layers – often not qualified to deal with potential shortcomings – which burden the allocation of funds, nullifying the benefits of transparency and the possible gain of financial independence for beneficiaries. Traditional distortions that are repeated through a vicious

cycle of ignorance, in which the opacity of technology is exploited to attract funds and perpetuate power structures in society.

Beyond these considerations, cryptocurrencies can certainly constitute valuable tools in the management of humanitarian aid, on one condition: that their distinctive features – transparency and traceability, speed and cost-effectiveness – are not compromised.

On this last note, the unanimously recognised advantage of using cryptocurrencies is the drastic reduction in transaction fees for aid transfers. This means a significant increase in the percentage of money used to directly help people that would otherwise be wasted on administrative and banking costs in traditional international transfers.

Nevertheless, challenges remain.

5. Conclusions

The risks are many and varied as they can either be endemic to the functioning of the blockchain itself or arise from its implementation [12].

Among these are the typical dangers of IT projects, such as network governance – especially if privately owned –, lack of adequate IT support and individual responsibility in case of improper use, implementation costs and cultural resistance to change, and the potential inequitable distribution of benefits due to associated technological requirements.

Perhaps the biggest concern is the handling of private keys [13]. For many humanitarian projects, beneficiaries do not possess a device on which to store their keys – which are often linked to users' biometric data – so organisations need to act as their custodians. While this may be a practical solution, it denies one of the essential traits of blockchain architecture in terms of decentralisation and user autonomy. Consequently, blockchain projects in humanitarian and development contexts should be designed from the beginning to address the issue of personal key management by beneficiaries, and adopt solutions tailored to the specific conditions of each use case.

Another potential threat is that local governments in crisis areas or emerging economies – often corrupt leaders and autocratic regimes – may introduce superstructures, including regulatory ones, to exploit the use of blockchain and cryptocurrencies and, therefore, the financial autonomy of people [14]. This scenario raises the question of how humanitarian actors should proceed and how the existing regulatory ecosystem can be adapted to avoid the misapplication of these promising technologies.

Notwithstanding the above, blockchain and cryptocurrencies have the capability to serve as a potential lifeline for survival, transforming the way humanitarian and development funds are allocated.

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Notes

1. For an analysis of the solutions that technology innovation can offer for the protection of people, please see Schultz A., Di Giulio M. (2022), *Human Rights in the Digital Era: Technological Evolution and a Return to Natural Law*, in Bertolaso M., Capone L., Rodrìgiuez-Luesma C. (Eds), *Digital Humanism. A Human Centric Approach to Digital Technologies*, Springer, Cham.

2. Distributed Ledger Technology is generally defined as a digital system for recording the transaction of assets in which the transactions and their details are recorded in multiple places at the same time. It is worth noting that this technology does not need central data stores or a central administrator.

3. Hunt K., Narayanan A., Zhuang J. (2022), *Blockchain in humanitarian operations management: a review of research and practice*, «Socio-Economic Planning Sciences», vol. 80, https://doi.org/10.1016/j.seps.2021.101175.

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7. Oladipupo A.O. (2024), *Cryptocurrency, International Aid, and Development: Opportunities and Challenges*, cit., pp. 268-278.

8. Beyond official intermediaries, an advantage of cryptocurrencies is that they can also limit interferences from local criminals or tribal leaders.

9. WFP (2021), *Innovation Accelerator, 3 ways blockchain innovation is enhancing humanitarian response*, https://wfpinnovation.medium.com/3-ways-that-blockchain-innovation-is-enhancing-humanitarian-work-e40dd3e85dee.

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13. Private keys are essential for using cryptocurrencies as they prove that the user is the person entitled to dispose of them.

14. In this regard, a notable example is the stop to the conversion of the official currency into cryptocurrencies ordered by Nigerian authorities in 2024.