



How could Blockchain technology revolutionise humanitarian aid?

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Abstract

Despite numerous advances in the disbursement of humanitarian aid by developed nations and other institutions, current practice in the way these funds are given often result in inefficiencies, greater costs, and a lack of traceability and transparency. This article explores and analyses how blockchain technology disruption in the transfer of foreign aid and remittances within the humanitarian landscape could become a powerful force in addressing some of these issues. Whilst blockchain technology is no panacea for these flaws in the system, we argue it certainly provides an alternative mechanism to current practice. Built-in mechanisms of blockchain networks ensure a greater level of traceability and transparency is achieved as well as a reduction in transaction costs arising from current foreign aid giving as a result of the unique characteristics of this novel technology. This article does not envision a full disruption of current practice. However, current inefficiencies in the development landscape and the constant critique of practitioners and institutions lacking effective tools to improve their efforts in regions and countries where they operate are widely spread. In turn, we have argued blockchain technology could be an efficient and reliable tool for major stakeholders in the humanitarian landscape to improve their efforts in the years to come by providing both donors and recipients with a better mechanism to help those in need.

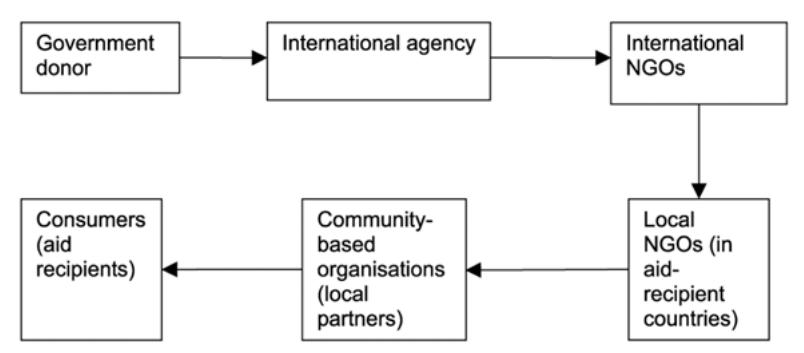
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With more than 125 million people in need of humanitarian aid, public organisations and private ventures are striving to make an impact in the humanitarian landscape using blockchain technology to tackle rising transaction fees and eliminate the high degree of corruption and bribery in non-governmental organisations (NGOs). Such deceit takes up more than 30% of aid failing to reach its destination, according to former UN Secretary-General Ban Ki-Moon (UN 2012). However, blockchain technology may have the key to eliminate the donors' biggest concern, whether their donations will arrive to the place or people where funds are supposed to arrive.

What are the current problems in the humanitarian landscape?

Firstly, one of the main problems found in the development arena is a profound lack of transparency. In 2018 "only 3.1% of global humanitarian aid delivery was channelled either directly to a local or national NGO, or through only one intermediary" (Bricout and Aurez 2020 citing Urquhar, 2019). Given the number of intermediaries present in these transactions, this precludes any form of efficient management of funding, of tracing the journeys of foreign aid flows, ultimately reducing the degree of transparency (Ibid). The inefficiencies of the foreign aid supply chain are well documented, but until now, it seemed a thorough reform of supply chain management proved would prove to be a difficult task. Indeed, data is the name of the game. Without comprehensive data, "it is impossible to know where and whom to target, and how to coordinate, evaluate and analyse aid flows" (Ingram, 2018). The chaotic nature of current practice leads to a lack of transparency of aid flows, creating high levels of mistrust by major stakeholders, i.e., donors and other institutions, as to how funds will be managed, by whom, and whether the terms will be respected (Ibid). Consequently, the amount of aid that would normally be disbursed is reduced by billions of dollars because of the mistrust of donors towards the current practice (de Vrij, 2018).

Another problem that remains in the field is the lack of coordination between different actors. Because many actors pursue the same goal, this situation "favours redundancy, policy incoherence, inefficient use of resources, and unnecessary administrative burdens on host countries" (Bricout and Aurez 2020 citing Lawson, 2013). Also, the ever-present issue of transaction costs arises due to the lack of cooperation and fragmentation of donors (Ibid). With the many actors operating in the field obtaining heterogeneous interests, structures, methodologies, it is thus unavoidable that these processes become inefficient, resulting in both duplicities and increased transaction costs, ultimately reducing the bulk of funds donated to those populations in need (de Vrij, 2018). Indeed, a study by Stanford University found that organizations working with foreign aid lose around 3-10% of the funds in transaction fees (Galen et al., 2018). Reducing the scope of these costs, i.e., reducing the number of nodes shown in Figure 1 remains paramount for the efficient delivery of aid, by reducing leaks in aid transfers, and increasing accountability of various actors on the field (Rugeviciute1 and Mehrpouya 2019).



Source: Oloruntoba & Gray 2006

What is blockchain, and what would it solve

One of the main barriers in the development landscape is the lack of reliable information being accessible for actors in the field. This prevents reliable information management within the sector. One of the many benefits of blockchain technology is that it enables actors to share data that then become immutable. Hence all users can access this information which enters the public domain. As Miguel Santafé put it, "blockchain lends itself well to being a universal, permanent, searchable, irrevocable public records repository" (Santafé 2020). This system, where information is digitally verified, immutable as well as time-stamped, ultimately provides a solution to information asymmetries within the humanitarian field, as it reduces the cost of accessing information and facilitates a more transparent mechanism for information sharing (Ibid).

Additionally, Blockchain technology enables actors in the field to achieve more control over aid distribution, more specifically the journey of these funds from the donor to the recipient. This significantly reduces transaction costs through eliminating intermediaries, and ensuring contracts are in the blockchain. Whether they are normal contracts or smart contracts, they display what the commitment made are, how distribution will take place, while also clearly stating the intended use of the funds. Therefore, this mechanism increases transparency levels in the various stages of foreign aid by providing reliable information to the different stakeholders, and above all, donors (Ibid).

Another benefit of blockchain technology is the rate at which funds can be delivered (Bäckman 2019). A rapid response in a humanitarian emergence is critical. Blockchain can deliver these funds much more rapidly than current transfer mechanisms, and it can do so without funds disappearing or being misappropriated in the process (Ibid). On this front, blockchain technology would address some of the issues outlined above, with regards to transaction costs and the ability of this technological innovation to harmonize coordination and procedures, thereby reducing transaction costs to a large extent (Ashoff, 2004).

A further benefit from blockchain applications to humanitarian aid is it provides a viable solution to traceability and transparency issues. Addressing lack of transparency is primordial for aid to be effective (de Vrij, 2018). Blockchain would allow "funds from private donors, governments, or NGOs to be traced through every step of the supply chain and to register every action taken by each intermediary" (Galen et al., 2018), therefore ensuring funds and resources arrive to its intended purpose and recipients. A further aspect related to traceability and transparency is the possibility to the build-in smart contract in donations. This would enable stakeholders to outline the conditions under which funds would be released and grant them permission to access the data and follow the journey of their donations (Galen et al., 2018).

Evidence from the field

As an example, the United Nations (UN), has suffered numerous counts of fraud, substantial administrative fees, and mishandling of funds for many decades. In response to these inefficiencies and desire to tackle the mismanagement of finances, the UN has been a pioneer in the use of blockchain technology. To ensure the maximum amount of aid is delivered to those recipients in need, through one of its subsidiaries, the World Food Programme (WFP), it launched a pilot program in 2016 destined to use blockchain technology in the humanitarian landscape. Building Blocks, the WFP pilot programme launched on an Ethereum network has saved the WFP around \$150,000 a month by eliminating close to 98% of bank-related transfer fees thus far (WFP 2021). This program has been deployed in a refugee camp in Jordan successfully, which helped the WFP distribute cash-for-food aid to more than 100,000 Syrian refugees in Jordan through a public Ethereum blockchain (*Ibid*). The WFP building blocks project leveraged the capabilities of blockchain technology for humanitarian impact as it became a tool for authenticating and registering the main beneficiaries of the transactions and enabled users in two refugee camps in Jordan, to “purchase groceries by scanning an iris at checkout” (WFP 2021).

The case of Aid: Tech, a precursor in the use of blockchain for humanitarian causes, alongside the Irish Red Cross also provides substantial evidence of the far-reaching impact of using new technologies to consolidate practitioners’ work. In their case, this joint venture successfully used digital identities on a blockchain network to deliver aid to Syrian refugees located in Lebanon (Aid: Tech 2020). Further examples by Aid: Tech include projects in Tanzania and one new project in Serbia launched in 2018, which attempts to solve issues with remittances in the region alongside the UNDP (*Ibid*). On innovations within the blockchain sphere, Aid: Tech is currently attempting to solve one of the biggest problems in the development landscape, how remittances are currently being sent and received. By leveraging the power of blockchain technology and its unique properties, Aid: Tech launched the first peer-to-peer donation system through mobile applications, thus, helping donors ensure payments and remittances would arrive safely (*Ibid*).

Further examples of blockchain use in the humanitarian landscape include Oxfam’s solution UnBlocked Cash project (UBC). The cash transfer solution aims to leverage the power of DLT to reduce the cost of aid distribution, lower delivery times of aid, as well as increasing the level of transparency and accountability of actors to the aid-giving process (Oxfam 2020). Such mechanism involves three major elements, “1) e-voucher “tap-and-pay” cards provided to beneficiary households which they can use to purchase goods, 2) smartphones with a pre-installed app through which vendors receive payments, and 3) a single-payment online platform where NGOs like Oxfam can disburse funds and monitor transactions remotely and in real-time” (*Ibid*). Through training support and help from Oxfam experts, this ensures this innovation can successfully provide an alternative to current practice, as well as training the various actors’ new skills. More specifically, the project was first implemented in Vanuatu in 2019, in the aftermath of Tropical Cyclone Harold, as well as the impact of Covid-19, which had profoundly affected the population in terms of lower-income levels, particularly those whose situation had been aggravated by these external shocks (*Ibid*). Since its implementation, over 35,000 users have benefited from this program. The design of the program was simple, but highly innovative. By using digital forms of local currencies, which were then collateralized into blockchain tokens, a population that up to now had lived off the grid in terms of banking services have now been financially included in the system thanks to this solution (*Ibid*). Moreover, this solution also benefits donors and potential institutional

donors, who can track funds and disburse aid through this mechanism which are more transparent and reliable than previous aid practices.

A crucial aspect found in the Oxfam solution is that it can harness the power of blockchain technology to drive the economic development of regions. Through the project's user-centered approach, it is having an empowering component built-in. With local communities and business owners taking part, the main beneficiaries of the program are those simultaneously speeding up the economic recovery, without resorting to direct forms of foreign aid (Ibid). This is particularly interesting as one of the unique features of this solution is it allows for "vendor-to-vendor cash-out", meaning, vendors are allowed to exchange their tokens for fiat currency, thus, increasing the level of "financial liquidity and ease of exchange that is essential for economic development" (Ibid). Moreover, another benefit of this solution is it reduces the scope of gender-based violence, which can sometimes occur once cash and voucher assistance is given. This system of tokens is thus beneficial for women, as no hard currency is given out. Also, this system has resulted in a greater degree of digital literacy of female participants, who have become more technologically savvy because of this program (Ibid).

Concluding remarks

Blockchain technology can indeed be a powerful solution to many of the problems plaguing the development arena. Whilst it is no panacea to the many evils that preclude practitioners' work from delivering the best possible results, we argue it could become a useful tool for stakeholders in the humanitarian landscape. Whilst its full potential has not been seen, its power of disruption offers promising alternatives to current practice, in the way it would solve many of the coordination, transaction costs, traceability, and transparency issues arising from aid transfers. Nevertheless, we are optimistic about the future scalability of blockchain technology in the humanitarian sphere, and, as Robert Opp, head of innovation at WFP noted, if Blockchain "can reach the poorest people in the world, the most vulnerable people in the world, I really think it could be a transformation story." (BBVA 2017)

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