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BLOCKCHAIN AS A TOOL IN HUMANITARIAN ACTION – A BRIEF OVERVIEW OF POTENTIAL USES

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Blockchain as a tool in humanitarian action -

a brief overview of potential uses

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Abstract

This working paper will discuss the possible potential of using blockchain technology in the humanitarian system to facilitate aid. It starts with a brief overview of the system of today followed by an introduction to blockchain technology and how it might make humanitarian aid more efficient, transparent and accountable.

A new technological innovation wave is washing over the globalised world. You may have stumbled upon terms like IoT (Internet of Things), ICT, AI, bitcoin and blockchain. It is all about digitalisation, technology and new ways of thinking.

Blockchain, being one of these new technologies, is predicted to become a potential gamechanger for how our society will develop in the future. Blockchain technology is compared to how we used to talk about the internet in the early 1990s. But as hard as it was to imagine the impact of the internet in its early stages, as hard is it to predict the possibilities of blockchain – especially its potential in combination with other technologies. How will it develop in the next twenty years? In what areas will it be used and what people will use it? Only the future can tell. But at least we know how it has been used until today; there are already initiatives on using blockchain technology in the humanitarian aid sector. Humanitarian aid is facing a host of challenges, mostly related to basic needs but also regarding issues within the system itself – related to lack of funds, namely the "funding gap". At the same time, more and more people need humanitarian support. Today, around 135 million people require humanitarian aid.[1]

The existing initiatives on using blockchain technology in humanitarian aid are few and at an early stage. The potential of blockchain should nevertheless be considered seriously. It can, for example, be used within financial means, reducing administrative costs, but also handing over ownership to refugees by using the technology in cash transfer programmes and as an identity insurer. However, more research is needed to fully understand its potential and impact in the humanitarian sector.

[1] The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Global Humanitarian Overview 2018.

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1. Introduction

History has witnessed several technological revolutions, and from the early 1990s the internet has had an especially powerful impact on globalisation. The revolution has moved forward quickly and in just a few decades the World Wide Web has revolutionized the ways in which our society works. Today, a 'new' technological innovation wave washes over the globalised world. It's been deemed the fourth industrial revolution and the second machine age, to mention a few labels.[2] In this context, blockchain technology has become one potential innovation to count on. Blockchain is an electronic ledger system based on algorithms validated by a network of users. It is predicted to have the same potential to change economic, social and political factors in our society as the World Wide Web once did.[3]

Among other areas, this technology has been implemented in humanitarian action. Today's humanitarian sector faces a variety of challenges, including a financial/funding gap as well as challenges due to operating in risky environments, which is a natural part of humanitarian work. Blockchain technology could be an opportunity to address these difficulties; with features that can secure transactions, skip intermediates and reduce costs. Moreover, the democratization of technology is making it more and more accessible to ordinary people – also in development countries. But technology's fast pace does not wait for laws, rules and governments to catch up, and blockchain's rapid growth and spread is a good example. It is therefore important for governments and other sectors, such as the humanitarian aid sector, to quickly initiate discussions and explore the blockchain technology's possibilities and limitations.[4] Considering the hype around blockchain, it is important for users, not least in humanitarian settings when dealing with human lives, to fully understand the technology before they decide to embrace it. The question is how blockchain can be used to benefit people in need as much as possible and what challenges must be considered.

Today, around 40 per cent of the world's population living in developing countries are digitally connected, which comes with a lot of opportunities.[5] At the same time, some 100 million people require humanitarian support and 60 million have been

[2] Zambrano Raul, "Blockchain - Unpacking the disruptive potential of blockchains technology for human development, White Paper, IDRC & CRDI, 2017, p.16.

[3] Kshetri Nir, "Will blockchain emerge as a tool to break the poverty chain in the Global South?", Third World Quarterly 38:8 1710–1732, 2017, p.1710.

[4] Sustaina, The Danish Ministry of Foreign Affairs and Coinify, "Hack the Future of Development Aid", 2017, p.6.

[5] UN, Office for the Coordination of Humanitarian Affairs, 19 April 2018, Under-Secretary-General and Emergency Relief Coordinator Mark Lowcock opening remarks meeting "Leveraging innovation for humanitarian action: are drone and digital technology up to the task?", p.1.

forced to flee their homes.[6] The need is clearly substantial, and blockchain could possibly benefit these millions of people. Discussions on the subject have surely begun. As late as the 19th of April 2018, at a meeting held by the UN on the topic of innovation for humanitarian action with a focus on digital technology, Mark Lowoch, Under-Secretary-General and Emergency Relief Coordinator at the Office for the Coordination of Humanitarian Affairs, brought up the blockchain technology as a driving factor for improvement of, for instance, transparency, accountability and autonomy.[7] Organizations such as the World Food Programme (WFP), UNICEF and the Red Cross have also started to implement the usage of blockchain in their activities and programming. Even though the blockchain technology is still very young, it is something to consider and take seriously, since the outcome may help improve the humanitarian field.

Crypto and crisis is a perfect match, because high speed money means more lives saved. [8]

[6] https://bravenewcoin.com/news/blockchain-company-helping-syrian-refugees-delivering-on-the-united-nations-vision/

[7] UN, Office for the Coordination of Humanitarian Affairs, 19 April 2018, Under-Secretary-General and Emergency Relief Coordinator Mark Lowcock, opening remarks, meeting, "Leveraging innovation for humanitarian action: are drone and digital technology up to the task?", p.2.

[8] Sustaina, The Danish Ministry of Foreign Affairs and Coinify, "Hack the Future of Development Aid", 2017, p.5.

2. Basic principles of the humanitarian system

The world community has nowadays an established judicial joint responsibility, whereas the humanitarian system is the way to carry out this responsibility in practice. After World War I and the Treaty of Versailles, humanitarian relief work became more organized and became associated with neutrality and impartiality, words that are linked to modern humanitarian action. This was also a beginning of the establishment of the United Nations, the first international organization with a main mission to protect people in conflicts as well as maintain peace.[9]

After World War II, NGOs emerged and redirected their focus from Europe to less developed countries where aid was more needed. Today, humanitarian action is a complex area to operate in. Thousands of NGOs and organizations from all around the world are providing emergency aid and other activities, such as development projects or similar.[10] Aid is delivered in armed conflicts as well as in crises related to natural disasters. However, they all have a common ground in four principles, which control their work and which were implemented by the UN General Assembly in 1991:[11]

Humanity	humanitarian action should protect lives, health, and respect all human beings
Neutrality	humanitarian action should not take sides, and not engage in politics, religious issues or other areas
Impartiality	the delivery of aid should be based on needs, prioritizing the most urgent cases – regardless of nationality, gender, class or political opinion
Independence	it should be autonomous, and not be tied to a state, military, political party or similar

However, these norms are constantly being challenged.[12] To tackle the issues in development aid in general, several commitments have been made. For example, the Paris declaration was put into place in 2005 to improve ownership, alignment, harmonisation, results and mutual accountability.[13]

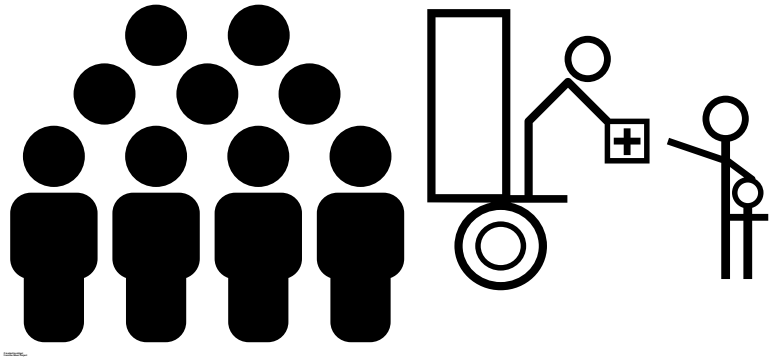
[9] Rysaback-Smith Heather, "History and Principles of Humanitarian Action", Brown University, Department of Emergency Medicine, 2016, p.6.

[10] Mac Ginty Roger, Peterson H Jenny, "The Routledge Companion to Humanitarian Action", 2015, p.38.
[11] Rysaback-Smith Heather, "History and Principles of Humanitarian Action", Brown University, Department of Emergency Medicine, 2016, p.6.

[12] Mac Ginty Roger, Peterson H Jenny, "The Routledge Companion to Humanitarian Action", 2015, p.39.
[13] OECD, The Paris Declaration on Aid Effectiveness (2005) and the Accra Agenda for Action (2008).

The humanitarian situation of today

Despite all the progress made in our modern society, people are still suffering because of conflicts, climate disasters and other factors. Conflicts are the major causes of suffering. In 2018, it was predicted that around 135 million people were in need of humanitarian support – but only 91 million people would actually receive aid through UN-coordinated funds.[14]

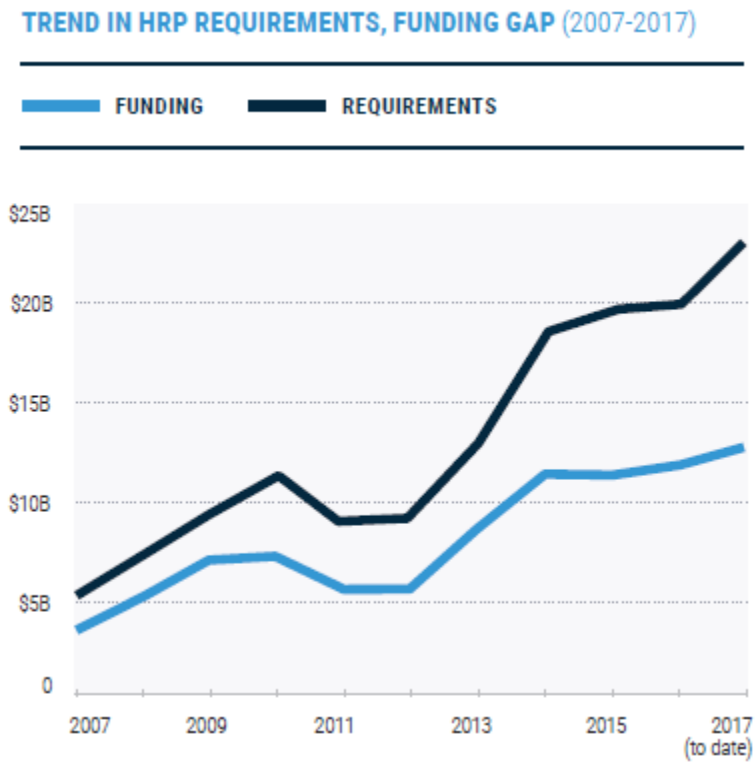


Created by Michael Thompson
from the Noun Project

135 million people need humanitarian support. But only 91 million people will receive aid.

The need is substantial but the funds are lacking. The gap between requirements and funding is wider than ever. Funding is increasing in scope but needs are growing faster. Many conflicts are becoming more long-lived, which imposes other requirements. Hence, humanitarian support must adopt a more long-term perspective, and should be incorporated within development aid as well.[15]

[14] The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Global Humanitarian Overview 2018.
[15] The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Global Humanitarian Overview 2018.



The gap between requirements and funding are increasing (The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Global Humanitarian Overview 2018, p.11).

The gap has been caused by long-standing conflicts in Syria, Yemen and South Sudan, for example. Other countries with a great need for humanitarian aid are Afghanistan, the Democratic Republic of Congo and Iraq.[16]

Challenges in the humanitarian system

The humanitarian system is not only struggling with a lack of funds, but from too much bureaucracy, lack of transparency, etc. The sector is also subject to increased scepticism and violence against humanitarian aid workers. The complex and unsafe environment humanitarian aid workers often are operating in is one explanation. Violence against them has increased over the last few decades, especially in countries such as Afghanistan, Syria and South Sudan.[17] It is more dangerous to be a humanitarian field worker today. This puts pressure on the system, since it not only affects the workers but also people in need – namely civilians and victims of conflicts.

In 2016, the (first) World Humanitarian Summit was arranged in Istanbul to discuss issues related to humanitarian requirements. One outcome of this global event was the signing of the Grand Bargain, where 30 of the biggest donors (states, multilateral organizations and NGOs) agreed to work towards increasing means to people in need.

[16] The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Global Humanitarian Overview 2018, p.10.
[17] Hoelscher Kristian, Miklian Jason, Mokleiv Nygård Håvard, 2015, Understanding Violent Attacks against Humanitarian Aid Workers, *Research gate*, p.2–4.

This is one step towards ending the funding gap and it proves that the political will is there. The Grand Bargain includes several improvements and changes on how to gain extra funding. One concern being discussed is the demand for greater transparency and the need to be able to follow the money from donor to recipient. Another main discussion concerns the will to cut the bureaucracy in order to be more cost-efficient. All parties seem to agree that in order to obtain this, the importance of innovative investment in humanitarian action is key.[18]

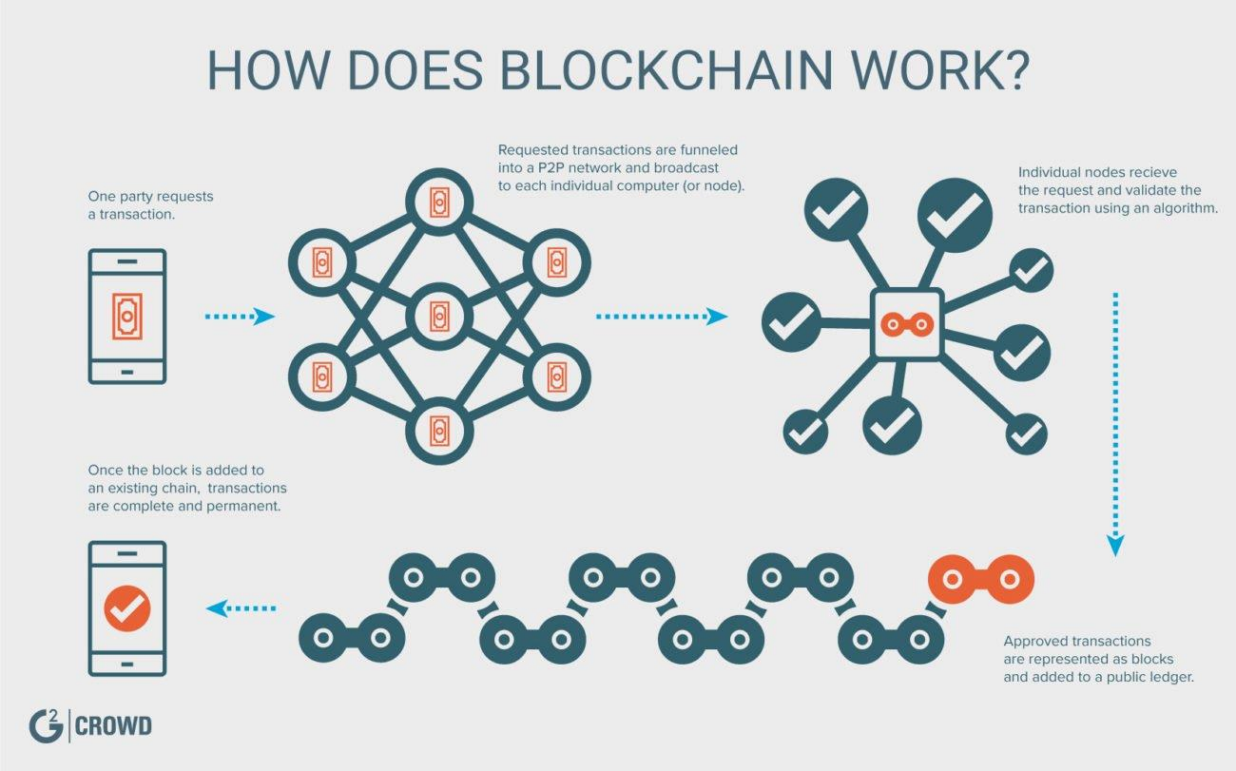
[18] High-Level Panel on Humanitarian Financing Report to the Secretary-General, "Too important to fail – addressing the humanitarian funding gap", January 2016, p.3–4.

3. Blockchain

To many people, blockchain is still a diffuse, confusing and perhaps slightly provocative word, just as 'Internet' was to many in the early 1990s. However, the blockchain technology is starting to be used more frequently in varying contexts. But what is it and how does it work? And how could it fit the humanitarian context? A brief description will follow below.

What is blockchain?

Blockchain is an electronical ledger system built on a peer-to-peer system that gives ownership and security to its users. It skips intermediates, such as bank authorities, states or other institutions.[19] It lowers the risk of fraud and should be a secure, transparent and fast system for verifications, such as transactions.[20]



Picture cred: G2crowd Learning Hub (https://learn.g2crowd.com/what-is-blockchain 2019-01-31)

Bitcoin and blockchain – the same thing?

No, bitcoin and blockchain are not the same thing. The blockchain technology was initially an underlying structure for cryptocurrencies such as bitcoin. A cryptocurrency is a digital cash that is stored on the blockchain technology. In contrast to common fiat currencies, it is not dependent on banks or other authorities. Instead the peer-to-peer network users

[19] https://blockchain4aid.org/glossary/blockchain/
[20] Sustaina, The Danish Ministry of Foreign Affairs and Coinify, "Hack the Future of Development Aid", 2017, p.11.

verify the transactions. All you need is a digital wallet that can be used with any device connected to the internet, such as a smart phone or computer.[21]

Bitcoin, the first cryptocurrency, was introduced with the blockchain technology in 2008. It was invented with the intention to redistribute power from bureaucracies to the individual, to achieve more self-determination and freedom.[22] Perhaps it is no coincidence that it emerged right after the 2007–2008 financial crisis when many lost their faith in the banking sector.

The blockchain technology has been struggling with a bad reputation, mostly caused by its association with bitcoin. Initially, bitcoin was used in a lot of criminal contexts, such as money laundering and sale of drugs.[23]

Users of the blockchain network in a humanitarian context

Basically, anyone with a stable internet connection is able to use the blockchain. Briefly described, the network consists of five different types of actors – core developers, full nodes, miners, end users, and service nodes. All users on the blockchain are equal in the sense that they have the same status and same value in the network. There are no hierarchies or considerations for whether you are male or female, your skin colour, where you come from, or your social status in the "real" world. This makes the blockchain technology unique, and enables neutrality and equality in a way that has not been possible before.[24]

Blockchain consists of a network of users without any intermediators. It is a decentralised system securing information. Users verify each other's transactions, ID, etc., which makes it impossible to change anything in the network without affecting other parts of the chain. The dependence on other users should therefore guarantee a secure system.

Its characteristics

The blockchain's new and innovative system has several characteristics not seen in previous technologies. It is, for instance, immutable, it can be both private and public, and it is secure. But what does this really mean in practice?

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[21] Sustaina, The Danish Ministry of Foreign Affairs and Coinify, "Hack the Future of Development Aid", 2017, p.11.

[22] Al-Saqaf Walid & Seidler Nicolas, "Blockchain technology for social impact opportunities and challenges ahead", Journal of Cyber Policy 2:3, 338–354, 2017, p.339.

[23] Kshetri Nir, "Will blockchain emerge as a tool to break the poverty chain in the Global South?", Third World Quarterly 38:8 1710–1732, 2017, p.1721.

[24] Al-Saqaf Walid & Seidler Nicolas, "Blockchain technology for social impact opportunities and challenges ahead", Journal of Cyber Policy 2:3, 338–354, 2017, p.343.

The technology is immutable because it guarantees integrity of the data that is being stored on the network. For example, a user will find it impossible to change something in the blockchain without affecting other parts of the chain. At the same time, it can be used both privately and publicly, whereas cryptocurrencies are being public and open for anyone to gain access to. Private usage could, for example, be possible in collaborations between several organizations creating their own blockchain network. A humanitarian organization could use it to interact with partners and as an internal process within the organization itself. It is important to note that blockchain is an innovation of its own. It is not originally made to suit humanitarian situations, but is more and more seen as having a potential in contributing to these settings and in making aid more efficient.[25]

Lastly, the system is secured with a "two-key system". Users have one private key that could be compared to their own ID in the system, which allows them to handle information and data that no one else can see. The other key decides what information is open to others. Blocks of information in the chain can be submitted or verified in real time – without having to wait for confirmation or an intermediate to handle the information, such as a bank authority, a government or another bureaucratic institution. Whether it is a financial transaction, a record of marriage or handling of personal identity details, data will be distributed among the blockchain (computers/nodes) directly, which at the same time secures the data.[26]

According to Danida, blockchain could be a tool of great benefit for the development and humanitarian sector.[27] For example, cryptocurrencies and the chain's fast-moving money transfers fit well within emergency responses, where the work is dependent on funds and donations. The faster money can be delivered, the more efficient help can be given. In other words, a faster response can be made and a donor organization will not depend on an intermediate to handle the process. More money will also reach people in need when fees and other costs relating to the payment process disappear. Another area where the technology is already being used in is remittances. Here, blockchain can reduce administrative costs, which means more money to people in need. Greater transparency will make it possible to track funds/transactions all the way from donors to recipients in more detail, since the special feature of blockchain makes the process transparent to all users.[28]

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[25] UN Office for the Coordination of Humanitarian Affairs, "Blockchain for the Humanitarian Sector: Future Opportunities", 2018.

[26] GSMA, "Blockchain for development Emerging opportunities for Mobile, Identity & Aid", 2017, p.4.

[27] Sustaina, The Danish Ministry of Foreign Affairs and Coinify, "Hack the Future of Development Aid", 2017, p.8.

[28] High-Level Panel on Humanitarian Financing Report to the Secretary-General, "Too important to fail – addressing the humanitarian financing gap", January 2016.

Furthermore, it can be used as a verification of identification for refugees or people lacking verified documents A lot of people, especially refugees, don't have any legitimate identification, which blockchain easily could solve by verifying their identity in the network. This gives more ownership to people in need. Other potential areas where blockchain can empower people, outside the humanitarian arena, is in trade, democratic elections, social interaction, and financial means.[29] Several governments have already begun working on the technology. Estonia, Georgia and Denmark are leading the way forward. Estonia is on its way to build a digitally advanced society, investing in, for instance, blockchain.[30] Blockchain fits very well within several areas and has the potential to grow in government services and new forms of governance, such as virtual services, electoral processes, anti-corruption, land titles and, as mentioned above, in aid and development as well as identity services.[31]

Blockchain is unique in the sense that it provides a global solution whereby transactions can be made without third parties and without regard to borders. Also, the possibility of smart contracts enables voting systems, identity verification, and decentralised fundraising. As one can see, this could be efficient in the humanitarian sector, handling everything from funding and quick responses, as well as helping people without an ID to verify their identity.[32]

Just to give a snapshot of the growing use of blockchain technology within various fields, the picture below shows blockchain initiatives in the public sector globally, by March 2018 (Danida, p.25). It is mostly used for digital payments but also for land registration, voting, identity management, etc.

[29] Al-Saqaf Walid & Seidler Nicolas, "Blockchain technology for social impact: opportunities and challenges ahead", Journal of Cyber Policy 2:3, 338–354, 2017, p.340.

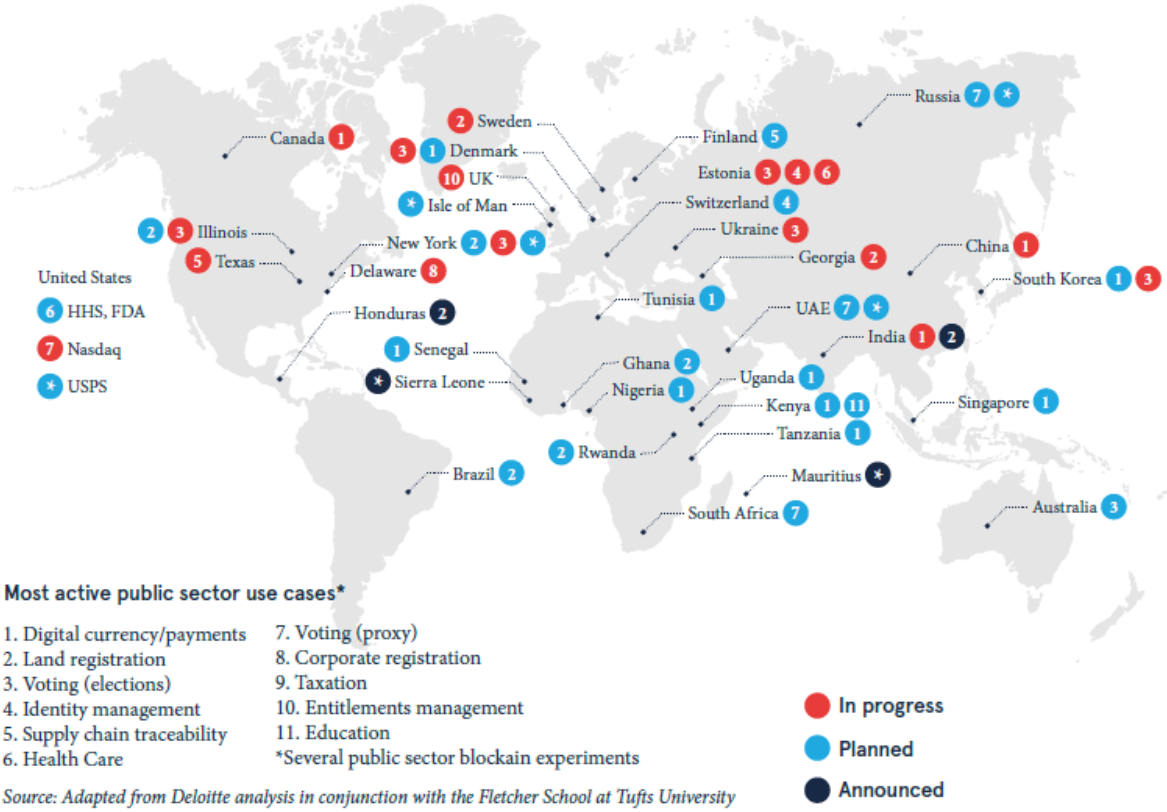
[30] https://e-estonia.com/

[31] Zambrano Raul IDRC CRDI, "Blockchain unpacking the disruptive potential of blockchain technology for human development", White Paper, 2017, p.7.

[32] Al-Saqaf Walid & Seidler Nicolas, "Blockchain technology for social impact opportunities and challenges ahead", Journal of Cyber Policy 2:3, 338–354, 2017, p.340.

Blockchain in the public sector (March 2017)

Blockchain experiments in the public sector are accelerating globally, with a concentration in the US and Europe.



Most active public sector use cases*

1. Digital currency/payments
2. Land registration
3. Voting (elections)
4. Identity management
5. Supply chain traceability
6. Health Care
7. Voting (proxy)
8. Corporate registration
9. Taxation
10. Entitlements management
11. Education

*Several public sector blockain experiments

In progress
Planned
Announced

Source: Adapted from Deloitte analysis in conjunction with the Fletcher School at Tufts University

Advantages and challenges

In a report from 2018, OCHA discusses opportunities and challenges with using and implementing blockchain technology in the humanitarian sector. When it comes to possible benefits for the system (including donors and receivers), OCHA highlights six of the most well-known advantages according to the literature:[33]

Transparency – blockchain provides a transparent ledger system that is open for its users. Data stored on the network is open and accessible.

Lower transactions costs – there are no intermediates who charge you for the transactions, the blockchain lowers all costs relating to transactions. Transactions are made entirely within the network.

Faster transaction time – it is fast moving and enables nearly instant transfers.

[33] UN Office for the Coordination of Humanitarian Affairs, Vanessa Ko and Andrej Verity (OCHA) & Digital Humanitarian Network, "Blockchain for the Humanitarian Sector: Future Opportunities", 2018.

Smart contracts – the technology enables programming of smart contracts, which is one of the most usable and well-known features of blockchain. By coding a contract, it is owned by the network itself – it verifies and enforces the performance of the contract.

Traceable – the information on the network is traceable all the way from start to finish.

Secure – data is secured by crypto, one of the most secure ways to store data.

But this is, of course, not the whole story. The system also comes with a number of challenges and requirements:

A stable internet and infrastructure – connectivity is required to use the blockchain technology in the first place. The infrastructure and importance of ICT is key.

New technology – a relatively modern mobile phone or computer is needed. The technology is still in its early stages, and requires quite substantial computing power. Also, a basic technical know-how is required.

Legal and social challenges – since the technology is new and rapidly developing, the legal and social frameworks are lagging behind. Frameworks are developing slowly, and users of the blockchain must therefore monitor possible changes.

The OCHA report states that it may be wise to study the impact of blockchain further and test it in the field – it could be of good use in some areas, such as cash programmes, humanitarian financing, and supply chain tracking. With more information, practitioners will have better knowledge when taking decisions on whether blockchain is the appropriate tool for certain issues or areas in the field.[34]

[34] UN Office for the Coordination of Humanitarian Affairs, Vanessa Ko and Andrej Verity (OCHA) & Digital Humanitarian Network, "Blockchain for the Humanitarian Sector: Future Opportunities", 2018.

4. Examples of existing aid projects using blockchain – applying blockchain technology in the humanitarian sector

There are already ongoing projects on blockchain and humanitarian aid. Below, I will give some brief examples of what has been achieved until now.

World Food Programme: building blocks in Jordan

The World Food Programme (WFP) operates in Jordan, a country which has been a target destination of refugees from Syria, Yemen, Iraq, Libya and Palestine. The programme is providing food assistance operations through blockchain and other innovative technologies. The blockchain supports refugees through a smarter cash transfer system, enabling individuals to buy and choose their food in markets and shops. By using the technology through a mobile application, money and vouchers are no longer needed. Everything is stored in the blockchain network. The technology also enables refugees to identify themselves when shopping with the help of an eye scanner in the store.[35]

By using blockchain, the WFP can deliver a more efficient, transparent and secure cash transfer programme. It secures better data on the beneficiaries and it is cost-efficient. In late 2018, the aim was to reach 500 000 refugees in total.[36]

AID:Tech in Lebanon

AID:Tech, an innovative Irish tech company, has partnered with the UN and the Irish Red Cross. It was the first company in the world that delivered aid by using blockchain technology. This was done through transparent transfers to Syrian refugees living in refugee camps in Tripoli, Lebanon. Lebanon is (in relation to population size) hosting the highest number of refugees in the world today; with a clear majority coming from Syria. Around 1.1 million Syrian refugees live in Lebanon, a country which has a population of 4.4 million people. This situation is putting pressure on systems and the funding gap is a serious threat. Money is needed.[37]

In 2015, AID:Tech collaborated with experts within humanitarian action from Ireland and Lebanon to set up their work in refugee camps in Lebanon, intending to test the company's technology on Syrian refugees . The aim was to ensure that refugees received aid and, at the same time, retained their personal dignity and humanity. By using the blockchain technology, AID:Tech provides a platform that can create a digital identity, which refugees can use to purchase or receive goods and/or services. By using vouchers/cards, the refugees were given the opportunity to purchase goods at local

[35] http://www1.wfp.org/countries/jordan

[36] http://www1.wfp.org/countries/jordan

[37] Janmyr Maja, "UNHCR and the Syrian refugee response: negotiating status and registration in Lebanon", The International Journal of Human Rights, volume 22, 2018, issue 3, p.393–419.

markets for the first time since they arrived. The digital identity provided a way to prove their personal identity, and could also be used as credit cards.[38]

[38] https://development.asia/case-study/using-blockchain-improve-aid-transparency-and-efficiency?hash=Vj4epTXvW_ammmmn4Kxpse0jSXTAijSpqvIcbHhY4ks&2

5. Conclusion

Ongoing projects on blockchain in humanitarian aid are mostly focusing on transactions, such as cash transfer programmes and funding. Blockchain technology in cash transfers gives ownership to the beneficiaries, and reduces administrative costs by skipping intermediates. This is being confirmed in a Danida report, in clear words: "Crypto and crisis is a perfect match, because high-speed money means more lives saved".

On the hand, blockchain gives opportunities to improve ownership, accountability and transparency – in line with the Paris declaration and the Grand Bargain. On the other hand, blockchain comes with a lot of requirements, which are not always realistic in fragile and conflict situations – such as internet connectivity. Investments in ICT are of great importance to be able to continue finding technological solutions in developing countries as well as in humanitarian situations. In humanitarian settings it can, of course, be used by donor organizations. But if you want to gain ownership in all stages, ICT and a stable internet is needed to provide opportunity and access to all groups wanting to participate. A basic technological understanding is also required – the importance of education should not be underestimated. If developing countries will lag behind on ICT, they will surely lag behind when it comes to improvements and opportunities presented by different technological solutions.

The very fundamental idea behind blockchain is to cut bureaucracy and to give more ownership to users. But if the users are confined to people from high-income countries, this will fail. For example, blockchain requires different types of actors, as described in the background part – nodes, miners and end users, etc. How you use the network depends on your knowledge, level of education, technical skills and understanding, and, last but not least, what type of internet one is able to access. A potential risk coming from the current innovation wave is the challenge it may put on developing countries. There is a risk that these countries just become end users or consumers of blockchain and other new technologies, while the Western world remain the active users.[39] It is important to note whether the blockchain technology will strengthen the "us"-and-"other" approach or if it will give people more ownership. This is where blockchain could fail, and could just reproduce existing power hegemony in West–South relations.

Blockchain and its fast-moving system may attract new actors to the aid scene. Smart contracts and accountability could be a solution to get rid of administrative and personnel costs. Whether this would outcompete current aid organizations is hard to tell. But transactions of existing aid initiatives could profit from using the technology to save money and deliver a more secure and efficient aid. Could this be a first step towards reducing the funding gap? Would a system based on blockchain be more cost-efficient? Will this development demand new ways of working and new competences among actors in the aid sector, such as IT competence and engineering skills? Probably. But first,

[39] Zambrano Raul IDRC CRDI, "Blockchain unpacking the disruptive potential of blockchain technology for human development", White Paper, 2017, p.17–20.

recipient countries and their construction of a functioning ICT must be taken seriously – to show that the potential of ownership is taken seriously as well.

Further studies and research on blockchain in humanitarian action are clearly needed to obtain a more complete picture on how this can improve humanitarian work and benefit people in need. The technology is still in the early stages, and more knowledge is needed.

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