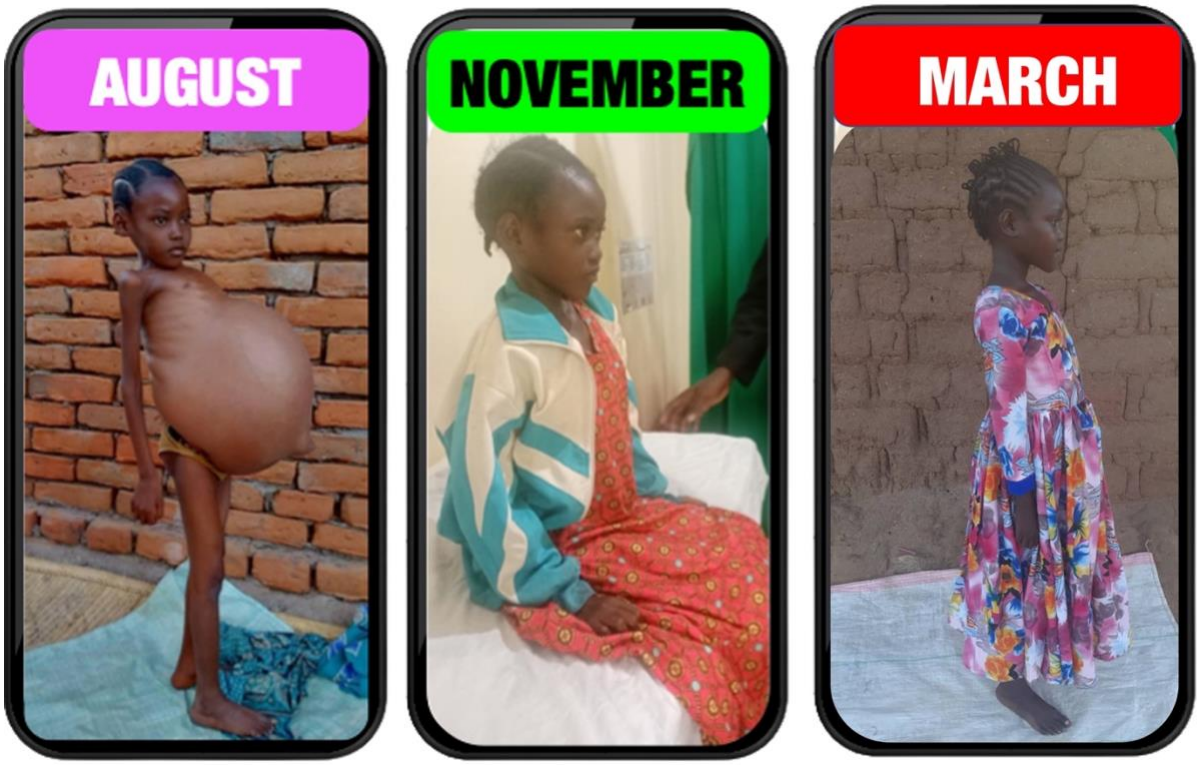
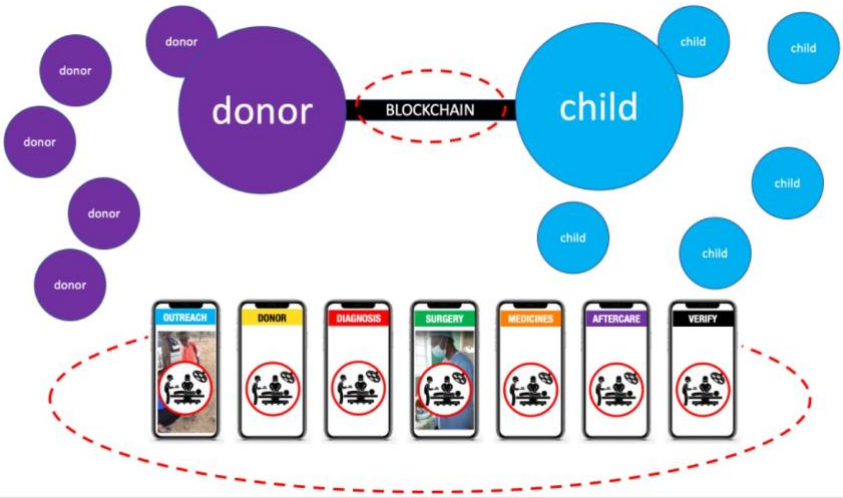
March 19th, 2023
Whitepaper for morechildsurgeries.com blockchain

By Mal James

There are enough resources in the world to end medical child poverty now – it's not an unfixable problem – vaccines, mobile phones, increasing life spans evidence the progress.



Children of the Serengeti, Kilimanjaro and Sub-Sahara, who are in need, **are** receiving surgical care via a developing blockchain conduit (with a token called mochsu) giving transparent, verifiable, world class outcomes.



As a donor you have little trust. You want 100% of your gift to be transparent, efficient, and effective – free of corruption, politics and religion – as you would any investment. But how?

A blockchain (vehicle) can **(1)move (2)monitor, (3)feedback and (4)recalibrate** your donation to be a solution to a problem with (5) smart contracts and solutions can compete, incentivize and (6) reach consensus (govern) via blockchain

Verification, immutable evidence, on the ground management where it changes lives. You want it to really matter, the child to get better guaranteed, you want that purity of giving. Feel good!

Working towards 1000 hospitals helping 1000 children at a 90% quality rate annually giving a multiplier effect medically, educationally, economically for children and community.

- We have beta tested 600 surgeries already at morechildsurgeries.com
- The multiplier effect incentivizes donor end as well - donor, family, community.

Contents

What are the industry issues?

Chosen industry is Philanthropy and Medical Poverty in relation to Child Surgery

- There are enough resources scattered around the world to help every poor child who needs a lifesaving or life-changing surgical operation.

- That can be proven by the eradication or near eradication of significant historical diseases such as polio or HIV via philanthropy, vaccine technology and local health networks.

- So why is global surgery – another identified health problem - not happening, especially for poor children?

Is it money?

- The philanthropy business is estimated at $457.8 billion USD (Globe Newswire 2022) in 2025. (1)

- Professor John Meara, head of the 2015 Global Surgery Commission, in a Lancet Publication podcast, stated that surgery can be just as cost effective as vaccines. (2)

- There is enough money in the world. No, it is not money!

Is it medical resources?

- Medical over-servicing of wealthy countries versus poorer countries as evidenced by (world bank 2023) figures on surgeons v head of population (Australia has 41 times the number of doctors Tanzania has) versus improvement in life-expectancy in last 50 years (world bank 2023 - Tanzania 53% v Australia 17%). (3)

- No, it not medical resources, but yes perhaps the allocation of them!

(3)

Is it conviction, understanding or clarity of issue?

- Perhaps according to Lancet Commission on Global Surgery head Dr John Meara who implies that podcast. (LANCET COMMISSION| VOLUME 157, ISSUE 5, P834-835, MAY 2015). (4)

What does the current supply chain look like?

Step 1: **A child** is found in the desert – usually through word of mouth between **parents, church elders** and a community health worker.

Step 2: A visit is arranged usually via mobile phone, a guess on the condition is taken by a **community health worker** (now incorporating video for telehealth) and a paper record is made – the paper record contains errors and usually not seen by the doctor. Getting the child's name right involves translation issues and usually the literacy standards are not high amongst anyone at this meeting.

Step 3: **A donor** is then looked for – as parents have no money, hospital has no money and most of the world has no vision of this issue. Most donors worry about trust of where the money goes and do not donate or donate little.

Step 4: Let's say child is lucky enough to get a donor and billions don't – co-ordinating the child to get from say Kigoma to Arusha – 12 hours and 1000km on a bus is difficult – when no money for bus fares.

Step 5: Child arrives at a **hospital** – usually without parents – communication can be poor – no written records – just verbal from outreach workers. And this is just the start…….

Step 6: **Surgeons** (who is the surgeon and what is her/his qualifications, do they get informed consent? Are medicines real, how do we know actually cost, does the bloods, xray actually work, monitoring post-surgery – who is doing that, what are their incentives for quality, ……..

Step 7: and we are not back home yet……so home, how do you communicate to parent for a follow up…..for medicines……..for contact if an unexpected issue.

But you can…..there are supply chains that are achieving this (we are)……it's just they are antiquated, inconsistent and untrusted.

Stakeholders: Child, Parent, Village, Outreach Worker, Outreach Worker Organisation, Donor, Hospital, Medical Network, Surgeons, Ancillary Health Workers, Aftercare Workers, plus Churches, Governments, Charities.

Reference: morechildsurgeries.com (5)

How can blockchain address these issues?

Medical child poverty – the problem is known, and a solution is known (surgery), but the delivery between problem and solution (the supply chain) is unknown or in such a poor state through inefficiencies.

Assertion is that medical child poverty can be largely eradicated by major improvements in the supply chains of

- Donor Information
- Direction of Resources
- Identification of Problems

The donor / surgical / child information / resources / identification supply chain can be repaired/created using the technology of blockchain.

What is Blockchain?

Blockchain is computer software in the form of unchangeable read only history, with addition-able open source code, that is replicated and accessible on a number of computers (from a few to many), forming a network that can be public (transparent to all) or private, making it centralized or decentralized (the latter being more theoretically acceptable as it reduces corruption, one of its key reasons for its creation).

It works – meaning progress on blockchain is along a defined path that efficiently records new actions as being accepted or rejected (legitimate or not) through a consensus, cryptographic algorithm (hash numbers that to date appear unbreakable) - meaning it's robust and secure from human interpretations, corruption, hacking etc making it efficient and cheap, as trust breakdowns (which are a significant cost and roadblock to innovation and development) are significantly reduced.

The defined path and its rewards, which can include currency, is pre-determined by the governing body (whitepaper, Dao, Company), be it an individual or more preferred for trust, a group, who are disparate entities with a commonality - the specific blockchain and it's individual/group results. The defined path is fixed and immutable via smart contracts – smart contracts example: if the input is x it's right or y it's left or input not x or y then nothing, no movement.

This known output along a rigid agreed and path, with no chance of change once an input takes place, could appeal to many of the players involved in child surgeries, for it's efficiency, it's immutability, it's transparency, it's traceability and above all, in such a decentralized issue (medical child poverty), it's verification abilities.

Blockchain appeal can best be summed up as trust building and it is this trust building that makes blockchain realistically the missing part of the answer to medical child poverty.

What criteria make a good blockchain use case?

The problem space for child medical poverty – global surgery supply chain is:

Complex involving overwhelming numbers in faraway countries with massively different cultures and no clear, consistent, widely communicated plan of how to begin, manage, let alone fix the problem. **IBM Food Trust is real world and deals with complexities simply (9).**

Multiple parties involved: parents, outreach workers, hospital admin workers, surgeons – there are churches, governments, elders, donors – there are medicines, health journals, international surgeons. There are literally hundreds involved in the supply chains.
Data privacy, sovereignty whist maintaining usability – a good blockchain can manage the balance between these things – paraphrase Samuel Brooks 2023 RMIT notes (10)

Current supply chains often involve paper-based documents, computer generated documents that do not talk to each other and in many cases no documents – eg child's identity – not to mention literacy, different languages and different protocols in languages.
Issue: No agreed way of communicating between stakeholders outside their little patch and this presents major issues in child safety in crossing over to different carers. Blockchain could give an agreed simplified way.

There is a need to share data along the chain – there is a need for efficiency but also to build trust (with donor and parents) and for child safety (which leg is being operated on)
Issue: Immutability and Security of information – blockchain can build this

Currently hard to trace products back through the chain – hard is an understatement – medicines that are fake are rife, children that are stuck in wards for months is not unheard of, doctors and nurses' qualifications can remain unchecked – especially from overseas.
Issue: Immutable verification and transparency all along the path (blockchain)

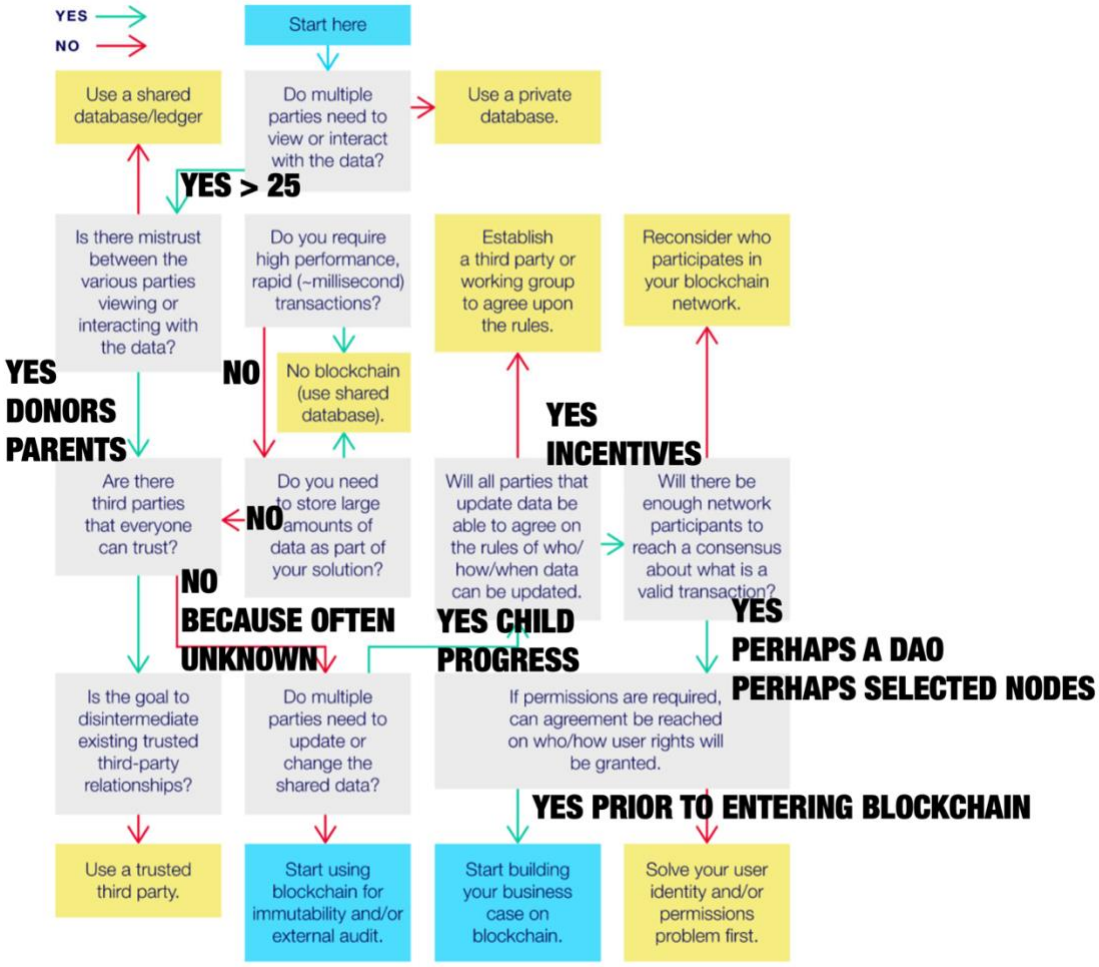
Supply chains cross multiple countries and legal systems – just paying money is a challenge, as African banks and credit cards on the internet are unreliable – money is AUD goes to USD goes to USD in Africa goes to TZS for payment. Not to mention all donors here is scams.
Issue Security and Cost: Huge cost – donor to doctor loses 30% before it even gets there – if indeed it does. Is a stablecoin on a blockchain a better answer?

No single trusted authority – no one authority is trusted – churches are not, charities are not, government is not, individuals of colour as largely not and white people are not!
Issue: when there is no trust and this leads to inaction, blockchain may be an answer due to its potential decentralization of authority and voting.

All above issues with blockchain use case are paraphrasing or heavily influenced by Evaluating Suitability of Applying Blockchain Sin Kuang Lo, Xiwei Xu, Yinkia Chiam, Qinghua Lu 2017) (7)

Is blockchain an appropriate solution for the issues raised?

Let's confirm Blockchain as a suitable part of the medical child poverty solution using the RMIT test (2023). (6)



Why Blockchain - why not a simple database?

There will be many databases involved in this project as databases are very important.

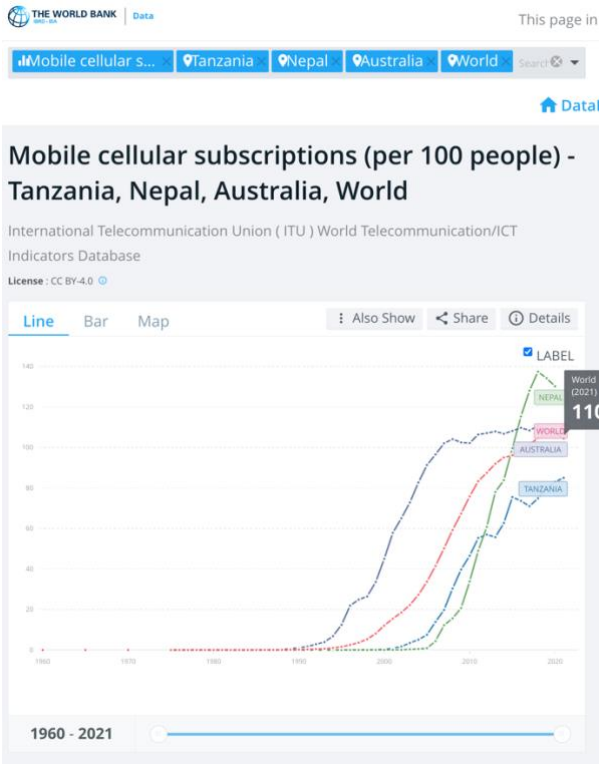
- Health records
- Drugs
- Donors

Yes, databases can be more user friendly and cheaper to set up – but no one database will be across all the people involved, and so the friendliness issue of customizable databases is lost. The issue is trust. If you can change databases, you can corrupt them and then you can't fully trust them. If you don't trust it, then you will not use it as much.

That is not to say that the blockchain will be without hurdles. **Training in use of Blockchain**

Hurdle: Technology: User-friendliness of Blockchain Dapp – Currently interfaces are generally poor. If computers are not common in all of Africa how will Blockchain operate? That is why it could well be a DAPP (Decentralized mobile APP) on mobile phones. Needs more study.

World Bank mobile use per 100 – even tanzania has over 80 accounts per 100 population.



(3)

Hurdle: Regulatory: Governance Public Vs Consortium/Private: Blockchains and who manages them (a team or nobody) needs thoughts. Dao, private enterprise, diverse poor people or combinations of all. What about Governments

Hurdle: Governance. Lone or competing – blockchain users says decentralization is important and yet some currencies are not – a concentration of mining (verifying) reduces decentralization – but do we want untrained people making decisions on the medical part of this blockchain.

Hurdle Cost: Agreement on blockchain system. One of the requirements for the healthcare industry is Interoperability. It is the ability of two parties, either human or machine, to exchange data or information precisely, efficiently, and consistently [19–22].” (Seyednima Khezr, Md Moniruzzaman, Abdulsalam Yassine and Rachid Benlamri 2019)

Donor Hurdle: Blockchain is part of the answer, not the whole answer – still need to market this paradigm shift to find donors.

More legitimate hurdles raised (Italics) by (Ivan Ivanitskiy 2019) (8)

Hurdle: *Even though blockchain does not allow for modification of data, it cannot ensure such data is correct.* It will be important to consider the “bridge” between real world child and blockchain code – is it fingerprint?

Hurdle: *However, this system is vulnerable to a very simple threat: a dishonest seller can make a copy of a real bottle with a token, fill it with wine of lower quality.* Agreed, fake medicines re a great example.

Hurdle innovation and acceptance and mistrust: *Let’s take university diploma authenticity as an example. In this case, we need to verify the genuineness of the statement), rather than a physical object.* Agreed – it's an issue already and the solution lies outside the blockchain to ensure validity of token.

Hurdle: *Interbank transfers with crypto - will be nonsensical if regulatory bodies prohibit or restrict the use.* Agree – the proposed system will consider stable coins etc. but not have it as it's only form of payment. Using crypto is not the only key to blockchain.

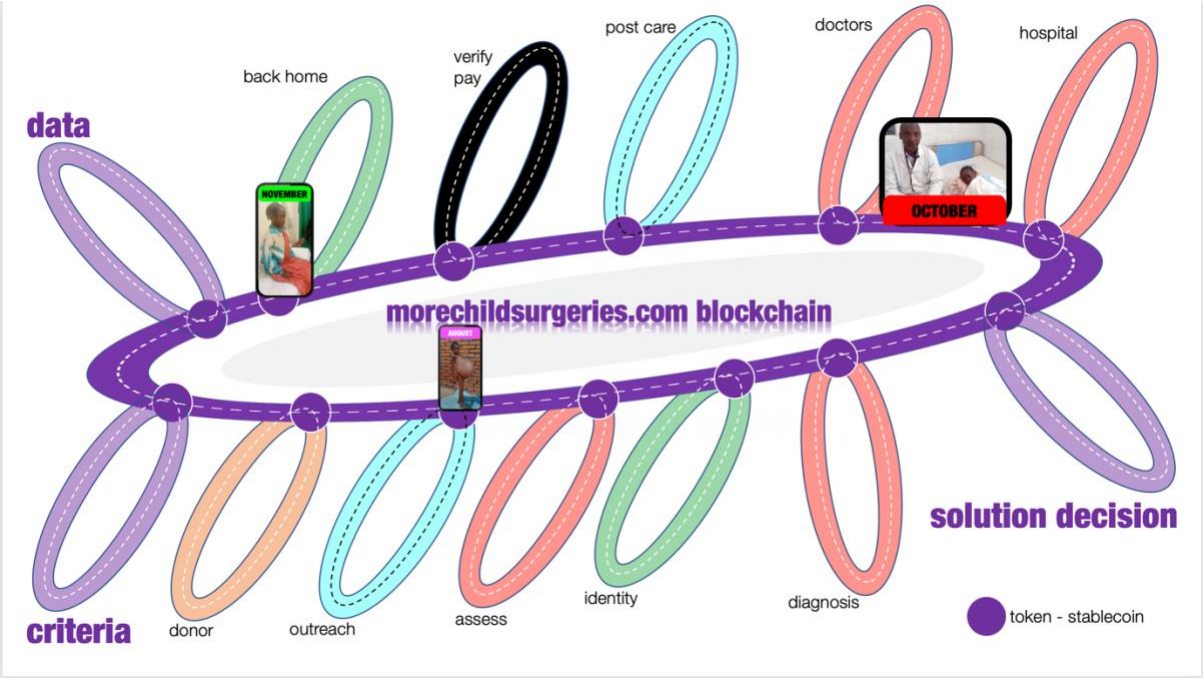
Hurdle: *Token for token’s sake. A promise in the form of a token alone does not oblige…. anything.* Agreed, so if tokens are used and the blockchain wishes to remain credible in the long term then tokens need to mean something. **Getting the right talent to build meaningful blockchain for the real world.**

Problem statement arising from this analysis?

Can blockchain meet all the stakeholders needs in a bid to seriously reduce world child surgery poverty?

Recommended blockchain solution?

A Firm or a Dao supported with a Website and Dapp (App on Blockchain) and a staged slow blockchain implementation with agreement from all stakeholders after field testing of all major concepts (more child surgeries of quality, incentives to stakeholders and sustainability).



References

(1) Dublin, March 29, 2022 (GLOBE NEWSWIRE) -- The "NGOs and Charitable Organizations Global Market Opportunities And Strategies To 2030, By Type, Mode of Donation, Organisation Location" report has been added to ResearchAndMarkets.com's offering.

(2) The Lancet Commission on Global Surgery Published: April 28, 2015

(3) World Bank per capita graphs https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

(4) LANCET COMMISSION| VOLUME 157, ISSUE 5, P834-835, MAY 2015

(5) Reference: morechildsurgeries.com

(6) Diagram from RMIT course notes - The Hype test

(7) Evaluating Suitability of Applying Blockchain Sin Kuang Lo, Xiwei Xu, Yinkia Chiam, Qinghua Lu 2017) Conference: 2017 22nd International Conference on Engineering of Complex Computer Systems (ICECCS)

(8) (Ivan Ivanitskiy 2019) You Do Not Need Blockchain: Eight Popular Use Cases And Why They Do Not Work

(9) IBM Food Trust (IBM 2019)

(10) Samuel Brooks 2023 RMIT notes)