OXCHAIN Blockchain and the Global South

Conference 22nd May
Coin Street Conference Centre, Waterloo, London

OXFAM   THE UNIVERSITY of EDINBURGH   northumbria UNIVERSITY NEWCASTLE   Lancaster University   Digital Economy

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Practical Information

Venue

The conference is being held at the Coin Street Conference Centre, an environmentally and socially sustainable centre located London's Waterloo. The address is 108 Stamford Street, South Bank London SE1 9NH, and the venue can be contacted on 020 7021 1600. We are in the Neighbourhood Room. More information including a map and accessibility can be found at: https://coinstreet.org/who-we-are/contact-us/coin-street-neighbourhood-centre/.

Travel links are:
- Tube: Waterloo (Northern, Bakerloo & Jubilee lines), 5 minutes walk; Southwark (Jubilee line), 7 minutes walk; Blackfriars (Circle & District lines), 10 minutes walk
- Bus: 1, 4, 26, 59, 68, 76, 77, 139, 168, 171, 172, 176, 188, 211, 243, 341, 381, 507, 521 to Waterloo Station; 45, 63, 100 to Blackfriars Bridge; 381 to Stamford Street; RV1 along Upper Ground
- Train: Blackfriars, Waterloo or Waterloo East

Chairs and Organisers

Conference Chair:
Dr Kate Symons, Centre of African Studies, University of Edinburgh, k.symons@ed.ac.uk

Organiser: Courtney Cooke, Centre for Design Informatics, University of Edinburgh, courtney.cooke@ed.ac.uk

Panel Chairs: Professor Chris Speed, University of Edinburgh, c.speed@ed.ac.uk
Dr Chris Elsden, University of Northumbria, chris.elsden@northumbria.ac.uk
Professor John Vines, Northumbria University, john.vines@northumbria.ac.uk

Social Media and Online Information

Tweet at @oxchain, @africanstudies, @DesignInf
For more information about the project see http://oxchain.uk or email c.speed@ed.ac.uk

Recording

There will be photography and filming throughout the day. Please contact one of the organisers on the day if you do not wish to be filmed or photographed.

Conference Introduction

What does it mean for developing countries if the fundamentals of our 20th century economic model are radically changed? How do we make our supply chains more sustainable? Can natural resources be governed in more egalitarian and transparent ways? How will the practices and politics of distribution in aid and humanitarianism be changed by new digital technologies? Blockchain, a distributed, secure and shared database of transactions opens up the possibility of fundamental changes to our current use of fiat currencies as the primary method of value exchange, enabling new forms of social interaction, and different models of trust between people and institutions. These changes may radically reconfigure practices in international development finance and delivery, humanitarianism, resource governance, supply chains and other relationships between the Global North and the Global South. The OxChain project, and this workshop seeks to understand the challenges and opportunities presented by blockchain to address global challenges within the field of international development, broadly understood. The OxChain Conference thus brings together practitioners, designers and thinkers in blockchain and international development to explore the practical and political implications of this potentially radical technology.

Ox-Chain is a major research project between the Universities of Edinburgh, Northumbria and Lancaster, and research partners Oxfam, Zero Waste Scotland, Volunteer Scotland and WHALE Arts, funded by the Engineering and Physical Sciences Research Council. It brings together experts in digital design, cryptography, business and international development. Through collaborative research, we will design a blockchain for Oxfam to better support the circulation and re-circulation of value within its network – hence 'Ox-Chain'. More broadly, drawing on the expertise and practices of our research partners, we will explore the reconfiguration of economic, social and cultural life which may be made possible by digital, peer-to-peer value exchange. The project is highly interdisciplinary. It combines a collaborative design-led approach to practical problems of designing with data, with a critical approach which draws on multi-site ethnographies, social and political theory and human geography, along with business studies and entrepreneurship.

The conference is a one-day event, and we have packed many contributors into a tight time-frame. Our three keynote speakers, Michel Bauwens of the Peer to Peer Foundation, Lord Christopher Holmes, author of Distributed Ledger Technologies for Public Good, and Ric Tighe, Oxfam ICT in-programme will discuss differing yet complementary perspectives on blockchain. We have four panels which focus on different theoretical, governance and practical aspects, and we also have a series of demonstrations and posters from the OxChain Development Team and from partners which can be viewed during the breaks, which will showcase cutting-edge research in applications of the technology.

We hope you enjoy the day!

Schedule

08.45 – 09.15	Coffee and registration
09.15 – 09.30	Welcome and introduction: Kate Symons
09.30 – 10.15	Keynote speaker 1: Lord Christopher Holmes Chair: Kate Symons
10.15 – 10.30	Coffee Break
10.30 – 11.50	Paper session 1: Power, Transparency and Accountability in Blockchain for International Development Chair: John Vines
11.50 – 13.10 1hr 20	Paper session 2: Peer-to-Peer Economies (A): Natural Resource Governance Chair: Kate Symons
13.10 – 14.10	Lunch
14.10 – 14.55	Keynote speaker 2: Michel Bauwens, P2P Foundation Chair: Chris Speed
14.55 – 16.15	Paper session 3: Peer to Peer Economies (B): Supply Chains and Development Chair: Chris Speed
16.15 – 16.30	Coffee break
16.30 – 17.10	Keynote speaker 3: Ric Tighe, Oxfam Chair: Chris Elsden
17.10 – 18.10	Paper session 4: Crypto-philanthropy and development: The Future of Giving? Chair: Chris Elsden
18.30 – 19.30	Evening wine reception

Keynote Speaker Information

Lord Christopher Holmes is not only Britain's most successful Paralympic swimmer winning a total of 9 golds, 5 silvers and 1 bronze, he is a passionate advocate for the potential of technology and the benefits of diversity and inclusion. In Parliament Chris is a member of the Select Committee on Artificial Intelligence and has been a member of Committees on Digital Skills, Social Mobility and Financial Exclusion. He is co-chair of the All-Party Parliamentary Groups on Assistive Technology, Fintech, blockchain and the 4th Industrial Revolution. Chris contributed to Distributed Ledger Technologies for Public Good: Leadership, Collaboration and Innovation, a House of Lords report. Chris also campaigns for more accessible environments for disabled people, is working to end the injustice of unpaid internships and hold numerous positions which consider the future of work.

Michel Bauwens is a Belgian Peer-to-Peer theorist and an active writer, researcher and conference speaker on the subject of technology, culture and business innovation. Michel has been a leading thinker in the emerging field of P2P theory and director, and he is founder of the P2P Foundation, a global organization of researchers working in collaboration in the exploration of peer production, governance, and property. He has authored a number of essays, including his seminal thesis The Political Economy of Peer Production. Michel regularly lectures internationally on P2P theory, the Commons and their potential for social change.

Ric Tighe is Digital Registration & Programme Data Specialist at Oxfam. Ric leads on how Oxfam manages digital beneficiary registrations and distribution tracking in humanitarian programmes, using systems such as Last Mile Mobile Solution (LMMS). He is also managing the DataHub project which is aiming to provide a central repository for data collected by country programmes and then helping teams analyse this data to drive better programming. Ric has 11 years experience with Oxfam, both in the UK and overseas in a variety of roles including Management Information Analyst, Change Manager, Supply Chain Systems Trainer and has been part of a number of emergency responses with the Logistics team. He has also worked as Project Manager & Business Analyst for the Oxford University Press and has a Postgraduate Diploma in Humanitarian & Development Practice. Oxfam is a research partner in the OxChain project.

Panel Abstracts and Biographies

Session 1: Power, Transparency and Accountability in Blockchain for International Development

Exploring blockchain in cash transfer programming in the Pacific
Josh Hallwright and Elsa Carnaby, Oxfam Australia

Josh Hallwright is a humanitarian specialist who has worked extensively in a range of disasters over the last eight years. He has designed, delivered, and evaluated projects at all stages of the disaster management cycle in the Pacific, Afghanistan, Ethiopia, the Philippines, Bolivia and Australia. Josh has worked for the United Nations' Office for the Coordination of Humanitarian Affairs, Oxfam, Red Cross, and Medecins Sans Frontieres (Doctors without Borders). Josh currently works at Oxfam, is a PhD candidate and teaches postgraduate courses in international development at RMIT University.

As part of Oxfam Australia's Technical Partnerships and Knowledge team, Elsa Carnaby supports Oxfam and its partners to design, deliver and learn from high quality disaster risk reduction and resilient development initiatives. Elsa has 10 years' experience in programme management and technical advisory roles in local and international NGOs within the humanitarian and development sector.

Distributed ledger (or blockchain) technology has recently gained public profile and promises to disrupt many sectors of society. It is being widely taken up in the financial sector but also in the social sector, through initiatives such as the Blockchain for Social Impact Consortium. Oxfam Australia is extending these financial use cases of blockchain technology to achieve social impact through a pilot project in Vanuatu. Oxfam Australia (OAU) seeks to disrupt existing power dynamics in the humanitarian sector through the use of blockchain technology in cash transfer programming. OAU is working with private sector partners, including Sempo.ai and Disberse, to use blockchain in place of existing technologies to transfer cash and e-vouchers from donors to people affected by disasters. OAU is piloting this in Vanuatu, the country with the highest risk of natural disasters in the world. Cash transfer programming is relatively novel in the Pacific so this pilot is effectively leapfrogging existing technologies to deliver cash or e-vouchers to people in need after disasters. The use of blockchain for cash programming will shift more power to those affected by disasters as they will be able to decide on their own humanitarian priorities, faster and with greater transparency. Furthermore, it will provide value for humanitarian organisations in terms of efficiencies gained through disintermediation, fewer transactions in fiat currencies, greater monitoring and oversight, as well as establishing a common platform for coordinated cash programming.

From vision to reality: Transparency and Accountability in aid development sector using blockchain technology.
Aiste Rugeviciute, HEC, Paris (business school)

Aiste Rugeviciute, a graduate from York University with a BEng in Computer Science, started her career in the investment banking industry, but developed a keen interest in sustainability issues and an online course in Sustainable Cities with Lund University inspired her to embark on a Masters in Sustainability and Social Innovation at HEC, Paris business school. The combination of her background and her desire to search for solutions for various sustainability issues led her to develop an interest in blockchain.

The rising blockchain movement proposes a lot different potential benefits, such as reducing fraud and corruption, eliminating human error and third party intermediaries, redefining transparency and trust. Based on these promises, there are a lot of evolving ideas, proof-of- concepts and emerging start-ups aiming to solve a variety of different problems. Through my Master thesis, I am looking at potential of blockchain technology to become a solution when solving the trust issue in aid development sector: that includes both non-profit organisations and big governmental institutions. Currently, we already see real life examples of such solutions. My research takes a closer look at two start-ups: Alice and Disberse, and how they use blockchain technology. Different interviews were conducted with actors from academia, Publish What You Fund, international aid organisations and non-blockchain based start-up to understand better the perception of the current blockchain movement and the situation of aid development sector. The questions discussed included if blockchain technology was really the best answer to transparency and accountability issues and what value proposition it could bring. The discussions revealed the importance of understanding the exact issues around the transparency and accountability. Blockchain technology is only a tool and is not a panacea for everything, hence it is important to identify the right situation and reasons to use it. However, actors did perceive different benefits of blockchain technology, ranging from demonstrating transparency in an easier and less costly way, to attracting more clients due to the current "blockchain hype".

Overseeing the "Trust Machine" in International Development: A Responsible Innovation Agenda
Dr Beth Kewell (Research Fellow, Surrey Business School).

Dr Beth Kewell is a Research Fellow at Surrey University Business School's Centre for the Digital Economy (CoDE), where she specializes in interpretative research, positioned at the boundary between innovation management, Science and Technology Studies (STS), and risk analysis. Beth's current activities for CoDE focus on the usability, impact and ethical implications of new innovations, including datalockers and blockchain technologies.

The enhanced levels of trust and transparency afforded by blockchain based 'distributed ledgers,' has seeded expectations that they will deliver strong ethical outcomes, alongside the information efficiency gains for which these systems were initially intended. Blockchain has acquired this definitive moral purpose partly as a result of innovative projects that have altered conceptions of what is possible in the international development space. In this paper, we look ahead to the potential implementation of blockchain projects that are associated with promoting self-sufficiency and economic empowerment using new business models, identifying the ethical problems they might resolve as well as the potential risks and ethical hazards they could unintentionally create. With this aim in mind, the paper sets out a framework for evaluating the risks and ethical sustainability of projects that aim to deliver 'Blockchain for Good' (B4G), using the Responsible Innovation (RI) literature as a starting point. We review key lessons of Bitcoin ecosystem governance before considering how prototype distributed ledger projects aim to promote effective risk management practices, while also ensuring that ethical integrity is consistently maintained. How do these projects aim to achieve their goals responsibly? What valuable lessons might we learn from these initiatives and could they presage a new RI agenda that is specific to blockchain and distributed ledgers?

Financial Inclusion and Blockchain Technologies: A Financial Ecologies Approach
Ludovico Rella, PhD Candidate, University of Durham

Ludovico is a Ph.D. student in Human Geography at Durham University, funded by the Economic and Social Research Council of the UK. His project looks into digital payment infrastructures, in particular blockchain technologies and cryptocurrencies, and their political, social and cultural impacts on money. Before coming to Durham, he studied Political Science and International Studies in Florence, Italy; and Global Studies in Lund, Sweden.

In the past decades, technological innovations have afforded more and more opportunities for monetary exchanges to happen in digital forms (Bátiz-Lazo and Efthymiou 2016; Mader 2016). The proliferation of platforms, applications and devices has, in turn, raised the question of how to include the "unbanked," "underserved" and "disconnected" resulting from multiple financial and technological divides (Polillo 2011; Schwittay 2011; Rea et al. 2017). In this context, blockchain technologies promise to achieve inclusion, overcome borders and disintermediate banking, unencumbered by regulation and geographical distance. However, at issue is more than assessing the potential of Blockchain technologies to achieve these aims or to adjudicate whether such goals are indeed desirable. Rather, this paper argues that Blockchain technologies are constantly in tension between disintermediation and reintermediation, inclusion and capitalization on multiple forms of exclusion, and between horizontality and reciprocity and value extraction and control. In reconstructing the 'financial ecologies' that populate Blockchain technologies (Leyshon et al. 2004; Lai 2016; Langley and Leyshon 2016, 2017), this paper shows how these innovations are presently ambiguous in their political and economic effects. It develops a number of case studies from different fields such as remittances (Cashaa), correspondent banking (Ripple), mobile money (Humaniq) and aid (Disberse) to illustrate the analysis, drawing upon interviews and participant observations of cryptocurrency trade fairs alongside promotional documents and marketing materials.

Session 2: Peer-to-Peer Economies (A): Natural Resource Governance

Unchaining REDD+? Blockchain and Climate Change Mitigation
Jack Robinson, University of Copenhagen

Jack is a MSc student at the University of Copenhagen. He studies and writes about blockchain and climate change, while learning Danish.

Reducing Emissions from Deforestation and forest Degradation (REDD+) has been heralded as a climate change mitigation policy with significant potential for reducing emissions, since it was first conceptually introduced in 2005. Since then however, it has failed to live up to initial expectations (Redford et al. 2012), for a number of reasons (Fletcher et al. 2016, Angelsen et al. 2012). I explore these reasons and analyse whether or not blockchain, a type of distributed ledger technology, has the capacity to improve any of the steps in the existing REDD+ framework, or whether it can go further together with other new technologies to achieve REDD+'s goals bypassing central governance and placing the power and benefits in the hands of forest owners and users. I start by discussing the history and evolution of REDD+ as a international policy tool. The initial challenges that the policy faced such as leakage, and additionality, were addressed by increasing the power and role of central governance, with national plans and the 'reddiness' stage that countries are beginning to emerge from now. The narrative of REDD+ so far has been one of a failed centralised policy tool, without the initially presumed global carbon market funding source. Blockchain possesses characteristics that could be used to address some of the early problems in novel ways, reducing the need for centralised government action, and allow more benefits to be accrued by local forest communities and users. Clearly there are some large barriers and challenges to be examined in this novel use-case, and as with much of the REDD+ debate, land and carbon rights still lie at the heart of the debate.

Blockchain and Water Management
Miriam Denis Le Seve, Research Officer Water Policy, Overseas Development Institute

Miriam Denis Le Sève is a Research Officer in the Overseas Development Institute's Water Policy Programme. Previously an independent consultant on WASH and a Policy Officer on Climate Change at WaterAid, Miriam's experience includes policy-orientated research on WASH technology and innovation, urban WASH, water governance and service delivery.

Blockchain's application in tracking assets is expanding into the realm of natural resources. Some claim it could 'revolutionize' the way all biophysical resources are recorded and traced from source, and may ensure government record and service integrity. It is already being used across several natural resource sectors, from forestry and fisheries to carbon accounting and energy. In the water sector, the role of blockchain has been most widely explored in the context of commodity trading. A rapid review of existing and hypothetical uses includes using blockchain (often in addition to other information management technologies, such as the 'Internet of Things') to monitor water quality, increase efficiency of repairs and maintenance of water infrastructure and in cleaning raw data, safeguarding data and authorizing access to it . With most references made to developed countries, there is fertile ground for examining the opportunities and limitations of blockchain to address water issues in developing countries. ODI's research aims to provide an authoritative orientation on this fast-moving topic and contribute and shape debate on an area ripe for further exploration. Key questions that will be answered include: How is blockchain currently being used in the realm of natural resource management? How are uses related to the characteristics of different natural resources? What are the opportunities (e.g. potential use), limitations and risks of using blockchain to address water management challenges, particularly in developing countries? What is the state of public policy around the use of blockchain for such purposes and where do knowledge gaps exist?

The cryptocurrencies of Indonesia's carbon forests
Peter Howson, Lecturer in Geography and Development, Northumbria University, Newcastle

Pete Howson is a Human Geographer with research interests in blockchain applications and implications for forest and marine conservation, international development, ecotourism, globalisation, climate change, resistance movements, and non-state forms of governance in the Asia Pacific region. He uses a feminist approach to geopolitical enquiry and political ecology to explore the intersections of conservation and development, as well as responses to these interventions from below.

Distributed Ledger Technologies (DLTs, or blockchain) rely on cryptographic protocols and a distributed network of users to store and transfer data. These DLTs enable direct and anonymous transactions without central oversight, with the potential to subvert traditional government controls, and minimising opportunities for state-backed corruption and fraud. Commonly linked to shady and/or radical platforms, like The Silk Road and TOR, and originally used as the technology to underpin cryptographic currencies, like bitcoin, DLTs are being increasingly hyped as applicable for a whole range of industries, social service provisions, and environmental management concerns. This includes the facilitation of natural capital asset market mechanisms, like Reducing Emissions from Deforestation and Degradation (REDD+). The original aim of REDD+ was to make tropical forests more valuable standing than cut down. However, for many REDD+ projects in Indonesia, the flagging carbon market and government licensing obstructions stalled progress. This year, Veridium Labs, a financial-technology (fintech) company, have created a digital marketplace that uses DLTs as the transaction mechanism for trading and verifying REDD+ carbon credits. The exchange is currently trading credits related to the Indonesian Rimba Raya Biodiversity Reserve in Central Kalimantan. Some have argued that REDD+ is dead; "it's time to cut our losses and move on" (p673) . However, linking DLTs with REDD+ in this way offers opportunities to circumvent past obstacles. Earlier REDD+ interventions failed to overcome fraud and corruption issues, which remain as pivotal factors in the political economy of forest use and deforestation in Indonesia. Despite the radical libertarian roots of blockchain technologies, social equity and environmental justice concerns might not prove the primary concern of those participating. This paper focuses on the Rimba Raya project, to consider the potential environmental and social applications (and implications) of DLTs for REDD+ in Indonesia, and questions the radicals' case for blockchain as a solution to human-induced climate change.

Blockchain-based Water Management Project and Community Engagement in Cape Town
Scott McKenzie, PhD Candidate, Resource Management, Institute for Resources, Environment & Sustainability (IRES), The University of British Columbia

Scott McKenzie is a PhD candidate in Resource Management and Environmental Studies at the University of British Columbia. Drawing from his experiences working in development and background as a practicing lawyer, his PhD research used a political ecology framework
to consider how residents in underserved areas of Cape Town, South Africa and Accra Ghana used legal and extra-legal means to address the water governance concerns in their communities. His broader work considers the relationship between the natural environment, human development, technology and law.

Blockchain has been suggested as a powerful tool to help manage natural resources, seeking sustainability and resilience in light of rising urban populations and changing availability caused by factors such as climate change. The technology brings new opportunities to how we record, secure, and transmit data - creating countless potential projects that range from mundane to game changing. These have the potential to impact water measurement, rights enforcement, and ultimately influence how the public participates in the governance process. However, there are significant user concerns - which limit practical implementation and raise larger ethical concerns. This is particularly a concern where blockchain could be used to control and minimize the water use in targeted groups who may or may not have given their consent. This presentation draws on fieldwork conducted in Cape Town in early 2017 focusing on the community reaction to the implementation of water management devices in informal settlements and follow up work with experiences of blockchain hackathon contestants who proposed a project to incentivize reductions in water use in light of the historical droughts experienced in early 2018. It concludes that cities need to practice greater user engagement when implementing blockchain based water management projects and strengthen projects to democratize access to technology particularly in these lower socio-economic areas.

Session 3: Peer to Peer Economies (B): Supply Chains and Development

Opportunities and Challenges in applying Distributed Ledger Technologies in Global Supply Chains for Social Good
Catherine Thompson, Innovation Manager, Fairtrade Foundation

Catherine Thompson is an innovation manager at the Fairtrade Foundation. She is leading on a global project for the Fairtrade system looking at the value of supply chain information, transparency and traceability.

The potential for distributed ledger technologies (DLTs) for supply chains has been heralded throughout the consumer goods industry. It is hyped as the ultimate solution for consumer transparency and understanding of the origin and journey of products – and in particular, food. Many of these applications introduce DLT applications as sustainability initiatives. Whilst it is clear that there is massive potential for positive social impact – there is also huge risk that these new technologies will have significant unintended consequences that could lead to negative social impact and further reinforce inequitable global systems.

Fairtrade have reviewed current and potential applications of DLTs within supply chains and identified some of the opportunities and challenges of applying distributed ledger technologies for social good within global supply chains; focusing on 5 key features of the technology and their application within this domain – decentralisation, reliability, transparency and immutability, automation and hype. Examples of the applications for DLTs in supply chains that are being explored and discussed throughout the industry that have been examined are: Supply Chain Tracking; Physical Traceability; Data Sharing and Interoperability; Overcoming Fraud; Ensuring Safety and Standards; Proof of Provenance; Waste and Inefficiency; Supply Chain Operations; Smart Contracts (Financial Flows); Proof of; Ownership/Ownership Transfer; Customs and Logistics; Impact Indicator Measurement and Marketing Material Creation.

Proof of concept case study with the World Bank: How blockchain can empower SME producers in the Vietnamese coffee industry
Robert Walker, Systems Designer, Provenance

Robert Walker is a designer from London. He studied Information Experience Design at the RCA. His design practice, irr.co, sits between speculative, systems and communication design. He will be presenting recent systems design work for Provenance which was commissioned by the World Bank. Provenance use blockchain technology to enable conscious consumer to make more informed decisions through supply chain transparency.

Provenance is a start-up that uses blockchain to empower consumers and producers by enabling supply chain transparency. We will be presenting our findings from a recent proof of concept case study commissioned by the World Bank in which we looked at how blockchain can empower SME producers in the Vietnamese coffee industry. The paper will use broad brush-strokes to present what we discovered. Our research engaged different actors such as multi-nationals, family farmers and policy-level government to inform our user-driven design process. We will discuss the learnings from designing radically new forms of governance and power distribution for less affluent and democratic parts of the world.

BitBarista and Autonomous Supply Chains
Larissa Pschetz, Lecturer in Design, University of Edinburgh

Dr. Larissa Pschetz is a researcher and lecturer in Design Informatics and Product Design at the University of Edinburgh. Her research focuses on Interaction Design and related areas of Human-Computer Interaction, Social Sciences and Humanities.

Bitbarista is an autonomous coffee machine that attempts to reduce intermediaries in coffee trade. It displays data on different producers and allows users to vote for the origin of its next supply. Once it runs out of coffee, it places an order directly with producers, giving people small cryptocurrency rewards for carrying out maintenance tasks (e.g. refilling coffee beans, filling its water tank, etc). As a technology probe, Bitbarista attempts to illustrate a scenario in which IoT devices would gain autonomy based on smart contracts hosted in a blockchain. On one hand, smart contracts could increase direct communication between final consumers and farmers, allowing orders to be placed directly, automatically deducing taxes and fees for intermediaries and transport. Triggered by collective vote, and revealing participation of different actors, they could help promote more democratic models of consumption. On the other hand, however, there is a risk that these technologies maintain and possibly perpetuate scenarios of inequality, locking farmers into new forms of intermediation and new relationships of dependency. Because technology is often implemented in ways that are hardly reversible, a technology probe can help to raise awareness and discussion on different scenarios in order to identify critical issues and possibilities before a particular model becomes naturalised.

Inclusive Supply Chains Using Blockchain: Reaksmei Agricultural Cooperative, Vietnam
Rogier Verschoor, Advisor Inclusive value chains, Oxfam Novib, The Hague, The Netherlands

Rogier Verschoor is a development economist with broad international experience. At Oxfam Novib, he provides technical advice to Oxfam country offices on inclusive value chain development. Over the years, he has specialized in tools and methods improving production conditions for smallholders and farm labourers. Currently, he is involved in the application of blockchain technology for this purpose

Numerous primary producers in developing countries do not make a sustainable livelihood producing food and other basic consumables for people in rich countries. The international communication and media reveal more and more proof of this injustice. Farmers, fisherfolk, livestock rearers and forest producers in poor countries tend to make a marginal income in international supply chains. Oxfam seeks to enable social changes towards sustainable livelihoods for all by investigating existing international food supply chains and identifying opportunities for systemic social changes. Proof of Concept of distributed ledger technology providing full transparency in international supply chains triggered Oxfam to dive into the application of such technologies. First blockchain use-cases showed that the registration of primary producers gave them recognition in their chain as a basis for social empowerment. Oxfam has an interest in the social changes which the application of blockchain technology could bring about. There is no other way than to test this in Oxfam's social practise: food supply chains originating from developing countries. Farmers of the Reaksmei Agricultural Cooperative in Preah Vihear province in Cambodia will sow organic rice in June 2018. This rice will be closely tracked and all relevant transactions registered on blockchain. By March 2019, it will have been transformed into a batch of rice crackers on the shelves of a European retailer. By that time, consumers can trace back who produced the rice and can see whether these farmers were paid correctly according to the contract price, volume and time. Oxfam expects that trusted transparency powered by blockchain can encourage actors in international supply chain actors to provide valued production conditions to their primary producers. In fact, blockchain technology offers may bring about new ways to influence supply chain conditions towards sustainable livelihoods for all.

Session 4: Crypto-philanthropy and development: The Future of Giving?

Crypto-philanthropy in action: Lessons from 3 deployments in global health
Authors: Connie Gallippi (BitGive Foundation), Jay Evans (MedicMobile & eHealth Research Group, University of Edinburgh), Claudia Pagliari (eHealth Research Group, University of Edinburgh)

Connie Gallippi is the Founder and Executive Director of BitGive, the first government recognized Bitcoin nonprofit, bridging the gap between blockchain technology and its practical applications for nonprofits and humanitarian work. BitGive has worked with well-known nonprofits including Save the Children, The Water Project, TECHO, and Medic Mobile. Their flagship project GiveTrack leverages the Bitcoin blockchain for tracking contributions in real time and engaging donors in project results and impact.

Jay Evans is a Lecturer at the University of Edinburgh and a part of the advisory board to the National eHealth Strategy in Nepal. For the last 5 years he and his team have worked in Nepal to deploy that country's first ANC/PNC mHealth program at scale. His current areas of research interest are mHealth and NCDs, in particular strengthening referral pathways. Jay received his BA in International Affairs cum laude from George Washington University, and MSc in Development Economics from The University of Pennsylvania.

Claudia Pagliari is a senior lecturer and researcher within the Usher Institute at the University of Edinburgh, where she leads a research programme on eHealth and directs the MSc in Global eHealth. With a background in social science and health technology assessment, her research is highly interdisciplinary and covers many areas of eHealth and the digital society.

The advent of blockchain-mediated cryptocurrencies like Bitcoin is having a twin effect on the global charitable sector. On the one hand, the sudden enrichment of those with the skills to create or trade this virtual money is manifesting as philanthropy on the part of new (mainly young) elites, struggling to reconcile their wealth with their social conscience and egalitarian ideals. In parallel, donors and charitable organisations have been inspired by the potential of digital ledger technology to enable direct and accountable giving without the administrative expense and graft often associated with intermediaries. This has led to a wave of start-ups dedicated to connecting donors and recipients through these new channels. One such organisation is BitGive, an early-wave US 501c3 charity founded in 2013 to fund global health and humanitarian projects. In 2017 BitGive began testing "GiveTrack", a novel blockchain-based platform that allows donors to donate bitcoin to charitable causes and track those donations in real-time. The countries selected for initial deployment were Indonesia, India and Kenya. This presentation will examine and contrast experiences obtained in these three developing country settings, which shine a light on the feasiility, utility and acceptance of these approaches in practice. We will describe how idealistic expectations were confronted with the mediating influences of local culture, organisational systems, infrastructure and policies, which buffeted or in some cases stymied the projects, and reflect on lessons learned about the importance of engaging local vendors and governments. We will consider the likely generalisability of these findings and their implications for the future expansion of global crypto-philanthropy.

Anticipating Blockchain for Development (B4D): Data, Power and the Future
*Margie Cheesman, Doctoral Researcher in Digital Anthropology, Oxford Internet Institute,
University of Oxford*

Margie's experiences and interests are interdisciplinary as she has undertaken degrees in Classics
and English (BA), Theology, Philosophy and Ethics (AKC), and Digital Anthropology (MSc). She has
worked at the Centre for Research on Sociocultural Change (CReSC) on various projects evaluating
international cultural diplomacy, and on Mapping Refugee Media Journeys, a report about refugees'
uses of smartphones. Margie continues to work for The Observer and Open Migration.

What is 'blockchain' doing – or anticipated to do – in international development discourse and
practice, and vice versa? In 'development', anxieties and aspirations about the future crystallise but
also venture into absurdity. Future-making is a material act which demands close ethnographic
attention, especially in hostile environments involving vulnerable people – for example, forced
migration: my fieldwork with the UN World Food Programme's Building Blocks project will take me to
a refugee camp in Jordan where blockchain-enabled digital identities are being operationalized in the
delivery of emergency cash assistance. With the critical, trans-historical, cultural-comparative
resources of anthropology, and through multi-stakeholder ethnographic research in a range of
'development' settings, I examine blockchain – as both a concept and as an instantiation – in relation
to three core questions. (i) How do we conceptualise a speculative, embryonic, and intangible
ethnographic object in-the-making such as 'blockchain'? In development, it is embroiled in techno-
solutionist vs techno-sceptic debates, rarely seen and even less understood. Through a Lévi-
Straussian (1955) analytic, I examine blockchain as bon à penser (good to think with), mapping the
'blockchain dreams' (Swartz 2017) but also asking what drives them. (ii) To what extent is/can
blockchain be more than just a thinking tool? While it seems the value of 'blockchain' isn't exhausted
by whether DLTs can achieve the myriad aims they're pinned with, those aims are clearly hindered by
socio-political constraints, including law and regulation, state and corporate agenda. I ask what
blockchain approaches achieve more effectively, and to what extent that overlaps with the space of
problems that are adopting them as a solution. (iii) What are the specific logics and assumptions in
emergent B4D discourses and practices? As digital data and infrastructures are unmoored from their
sociopolitical and ethical ties by actors in the development industry and beyond, I argue that
'blockchain' is becoming a moralistic, neutral device as more data is equated with better aid, and
trust in the code is presumed. I ask: what new digital inequalities and unintended consequences
(will) arise as anticipatory and contingent blockchain-enabled 'aidlands' (Mosse 2011) emerge?

Relational Money and NGOs
John Wood, Emeritus Professor of Design at Goldsmiths, University of London

John is Emeritus Professor of Design at Goldsmiths, University of London. After a decade as Deputy Head of Fine Art he wrote several degrees for what, subsequently, became the Department of Design. In the late 1960's he invented several innovative solar energy devices and has since published numerous articles, papers and book chapters on environmentally related issues. He is also co-editor of the Journal of Writing in Creative Practice (Intellect).

For five thousand years, the raw simplicity of money has made it a popular and versatile catalyst to human endeavour. However, the granular, value-free and addictive nature of money has also tended to alienate us from humanity, Nature, and ourselves. Surprisingly, then, charities, NGOs and local councils still use cut-down versions of colonialist, (e.g. fiscal and indirect) methods to combat problems that are, ultimately, local. Over most of the five million years since Homo sapiens evolved from chimpanzees, human organisations were considerably smaller than they are today (Dunbar, 2009). A few thousand years after the advent of agriculture, unit-based money enabled us to scale-up organisations well beyond their comfort zones (Graeber, 2012). As empires grew, rulers learned to maintain order indirectly, by lengthening the hierarchical chains of control and by managing the flow of money. However, this also meant replacing local autonomy and personal responsibility with managerial accountability. In evolutionary terms, the fact that this is happened so recently helps to explain why our ability to understand money (and large numbers) is so flawed (Cowan, 2001; Du Sautoy, 2009; Kahneman & Tversky, 2013). It is likely, therefore, that the design of money was shaped more by our three million years of experience in mining and tool-shaping, than from an innate grasp of number theory. For example, the mathematics of money is summative, rather than synergy-oriented. Whereas an inanimate product, such as a lump of coal, or a cake, may be divided fairly for distribution among a given number of recipients, living systems will not conform to this logic. Nonetheless, most economists remain in the thrall of the 'law of diminishing returns' (Smith, 1776; Marshall, 2005), which was inspired by the pessimistic logic of mining. In today's era of the 'creative economy', this mindset is patently absurd, yet governments, corporations and charities remain so wedded to it, that they cannot think far beyond the monetization of 'entredonneurship' (Wood, 2007). To make money to operate more like a living system it would need to focus our attention onto relations, rather than 'things'. After all, relations are potential synergies; and these are always many times more plentiful and useful (i.e. valuable) than their component parts. The purpose of developing a relational currency would be to encourage generous actions of (re)combination. Here, by re-imagining existing assets in clusters of innovation it is possible to create 'keystone synergies'. Doing so in the appropriate number of clusters would obviate the need for 'profit' because they should deliver a diversity of benefits to a diversity of stakeholders. Eventually, this would lead to an ultimate 'synergy-of-synergies'.

Demonstrations

We will also have a series of demonstrations and posters available to view in registration, coffee and lunch breaks.

Blockchain for Humanitarian Aid – Poster and informal Q&A
Kate Dodgson, Consultant, HumanityX, Leiden University

Kate Dodgson is a consultant at HumanityX - a Hague-based organisation researching technology in the humanitarian and development sectors. Kate's work focuses on blockchain technology and cryptocurrencies, and she has written articles and whitepapers on blockchain use cases. Kate also advises charities, NGOs and social enterprises on blockchain technology and how and whether they could benefit from it.

Blockchain has the potential to disrupt how humanitarian aid is procured, disbursed and evaluated. Its effects could lead to improved efficiency, reduced costs, and better collaboration and cooperation between agencies and governments. NGOs, charities and governments want to understand how and when blockchain can be beneficial to them. The research I am undertaking for TU Delft's Humanitarian Technology Lab and Leiden University's HumanityX is being used to construct a decision tree which can be used by relevant parties to assess whether and how they could use blockchain. The demonstration shows how the tree works, and takes into account business cases, humanitarian context, tech capacity and blockchain specifications.

Smart Donations: Using Smart Contracts as Escrows
OxChain Project Team

The OxChain team has been exploring a variety of potential opportunities for the use of blockchain technologies to support new forms of giving, drawing on technical and design expertise across the project. Chris Elsden is a human-centred, interaction design researcher based at Northumbria University; Ludwig Trotter, Peter Shaw and Mike Harding are researchers in human-computer-interaction and pervasive systems based at Lancaster University; Aydin Abadi has expertise in cryptography and blockchain protocols and is based at the University of Edinburgh.

One potential functionality of a smart contract is to act as a third party escrow mechanism, where donated funds are held and then released or transferred to a beneficiary. In this work-in-progress demonstration we explore the potential to use escrows to facilitate new forms of contractual and conditional giving. Donors are able to pledge funds to particular beneficiaries based on real-world events. What if you could donate to a climate change fund based on the level of air pollution in London? Or set aside a donation to be released the next time a disaster emergency is declared? Such examples raise questions about new roles for charities in reporting and validating real-world events, and reconfiguring their role as a mediator between donor and beneficiary. As this work-in-progress develops, we hope to understand how and when escrows could be useful and appropriate fundraising tools, and their potential integration into large and small charitable organisations.

Delegate list

(Dated 11 May 2018)

Mr Rob Walker, Systems Designer, Provenance

Ms Hetty Bailey, Secretariat, All Party Parliamentary Group for Africa

Dr Clare Barnes, Interdisciplinary Lecturer in Sustainable Livelihoods, School of Geosciences, University of Edinburgh

Mr Zac Beynam-Herd, PhD Student, University of Edinburgh

Dr Giovanni Bettini, Lecturer, Lancaster Environment Centre

Ms Kelly Bewers, Accenture Development Partnerships, Senior Manager, Accenture

Professor Dan Brockington, Director, Sheffield University Institute for International Development

Mr Antonio Capillo, Senior MEL Manager, FairTrade Foundation

Dr Rachel Clarke, Research Fellow, Northumbria School of Design / Centre for International Development

Ms Kate Dodgson, Consultant, HumanityX, University of Leiden

Ms Orla Fahey, Mres student, School of Design, Royal College of Art

Mr Alexander Kirk, PhD Student, Kings College London

Mr Wayne Holland, Senior Teaching Fellow in Operations and Management Science, Univesity of Bristol

Mr Alex Puig, Digital Currency summ.it

Ms Catherine Thompson, Innovation Manager, FairTrade Foundation

Dr Sara Heitlinger, Postdoctoral Research Associate in Participatory Design, Global Urban Research Unit, Open Lab, University of Newcastle

Ms Connie Gallippi, BitGive Foundation

Dr Claudia Pagliari, eHealth Research Group, University of Edinburgh

Dr Jay Evans, eHealth Research Group, University of Edinburgh

Ms Margie Cheesman, Doctoral Researcher, Oxford Internet Institute, University of Oxford

Dr Pete Howson Lecturer in Geography and Development, Northumbria University

Mr Jack Sebastien Robinson, Researcher, University of Copenhagen

Ms Miriam Denis le Seve, Research Officer Water Policy, Overseas Development Institute

Dr Beth Kewell, Research Fellow, Surrey Business School

Professor Glenn Parry, Professor in Strategy and Operations Management, University of the West of England

Dr Richard Adams, Reader in Entrepreneurship, Bettany Centre for Entrepreneurship, Cranfield University

Mr Ludovico Rella, PhD Candidate, University of Durham

Mr Scott McKenzie, PhD Candidate, Resource Management, University of British Colombia

Ms Aiste Rugeviciute, Researcher, HEC, Paris

Dr Feja Lesniewska, Research Associate, PETRAS Internet of Things (IoT) Research Hub, UCL

Dr Larissa Pschetz, Lecturer in Design, University of Edinburgh

Ms Jo Kabryn, Principal Consultant and Consulting Practice Manager, IOD Park

Professor John Wood, Emeritus Professor of Design, Goldsmiths, University of London

Mr Alex Maitland, Policy Officer, Private Sector Team, Oxfam

Mr Nick, Mitrovic, Chief Technology Officer, Oxfam Global

Mr Paul Gill, Head of Digital Engagement, Oxfam

Ms Emma Joy, Operations Manager, Oxfam Trading

Mr Rogier Verschoor, Advisor Inclusive Value Chains, Oxfam Netherlands

Mr Josh Harwright, Program Lead, Australian Humanitarian Partnership (Disaster READY), Oxfam Australia

Ms Elsa Carnaby, Australian Humanitarian Partnership (Disaster READY), Oxfam Australia

Dr Aydin Abadi, Research Associate, Informatics, University of Edinburgh

Professor Chris Speed, Chair, Design Informatics, Edinburgh University

Dr Kate Symons, Career Development Fellow, Centre of African Studies, University of Edinburgh

Dr Chris Elsden, Research Associate, Northumbria University - School of Design

Professor John Vines, Professor of Design, Northumbria University

Mr Ludwig Trotter, Lancaster University

Mr Peter Shaw, Lancaster University

Mr Mike Harding, Lancaster University

Mr Scott Cameron, Consultant, IOD Park