Planetmakers

PlaNET platform
Building sustainable communities as new ‘Commons’, where we work together for the common good

[Lead Partners]

Planetmakers LLP - A cooperative partnership between Gary Alexander, Sofia Bustamante, Mamading Ceesay, Martin Dow, Angela Espinosa, Jon Walker

1 Abstract

The Challenge: With the growing awareness of a 'climate emergency', comes a dramatically growing public desire for a more sustainable society. We need to rapidly lower material consumption while enabling more people to lead a good life in vibrant communities. This means transforming local economies and communities, based on a radical shift in interactions between citizens. This is the greatest challenge facing our generation!

The social vision: An empowered community that self-organises to locally provide basic material and social needs like food, energy, transport, care services, etc. It provides strong incentives that reward volunteering and reduce people's need for money, while promoting prosocial and sustainable behaviour. It creates employment and flexible ways for people to earn money and contribute to the community.

Making this happen: We are building PlaNET, a decentralised platform: optimised for building sustainable communities to make it easy for groups to work together as new 'Commons' with organised collaboration, shared resources, self-governance and conflict resolution. At its core are 1) a decentralised social action network for community organising with local self-governance, and 2) a social marketplace as the basis of the collaborative economy.

Our community partners – with tens of thousands of members between them – will trial and validate the above.

We are submitting 2 prototypes and a user interface design showing the projected look and feel:

1 PlaNET on Holo: A work in progress app that will run on HoloPort servers running a new decentralised layer of the internet, Holochain. One benefit of the HoloPorts is that they are locally managed by experts as part of PlaNET.

2 Planetmakers PlaNET: A proof-of-concept using open source software, used by our partners until our app is released, to test and refine the processes that the platform will support, exploring synergies and bootstrapping collaborative projects that will be migrated to the app.

2. Main focus

The main focus of this application is

> *d) enabling the development of decentralized social networks or clouds, or of decentralized platforms for the collaborative economy;*

Most communities today have very little idea of what a sustainable community would be like. We give them direct experience to develop that. We use the model of a 'Commons' as specified by the Nobel Prize winner Elinor Ostrom[1] where all work together for the common good. Ostrom reviewed some 5000 traditional commons and came up with a set of eight principles that she felt were essential to their functioning.

The key tools needed are those that enable a community to build a sense of common identity, to know best how to work together and across communities for mutual support, to be self-governing with its own decision making tools, to handle conflicts and any other difficulties, and to be self-aware and to learn how to improve.

On a practical, daily basis, our core tools are systems for discussion (social networks but incorporating trust), and a social marketplace (incentivising collaboration, trustworthiness and sustainability) as the primary vehicle for mutual support and co-production.

The platform takes a groundbreaking approach to trust and reputation that provides strong incentives for people to be good actors in terms of their speech, behaviour and transactions. The platform's architecture will give back control of their data to its users, while helping to rebuild communities socially and economically.

Our partner Holo, is building a decentralised, distributed layer of the internet in which data can be stored on local servers, which they call 'HoloPorts', located within the community. These local servers can be deployed and controlled by the community, and with blockchain-style security where everything is encrypted, securely backed up, and where unauthorised changes are automatically picked up.

The PlaNET layer we are building on top of this has a decentralised social network and collaborative economy at its core, but takes this several steps further.

1. Our social action network design includes a network of trustworthiness where people are invited to indicate who they trust. They are connected into a group of mutual trustworthiness that connects with other groups to create growing networks of trustworthiness within a community. We expect networks of trustworthiness to eliminate the issues of trolling and manipulation.
2. Our social marketplace is designed with a ratings system that includes ratings for care of people and care of the natural world, so that products, services and individuals with a reputation for social justice and sustainability are given a competitive advantage. The design includes exchange using conventional money, but also a member-to-member credit system, and a 'gift economy' for exchanging moneyless favours with people who are part of the network of trustworthiness.

---

[1] Ostrom, Elinor, *Governing the Commons, The Evolution of Institutions for Collective Action*, Cambridge University Press, 1990.

3. Still further, we have included a 'metasystem', a set of tools to turn a disparate group into an effective 'Commons' in the sense used by Elinor Ostrom and others, and building upon viable systems principles[2]. These tools are self-evidently useful and can enable self-governance without needing any understanding of commons theory or viable systems theory.

The metasystem tools are:

- *'WhoWeAre':* Lists members of the group, with profiles that indicate trust. Trust connections are highly visible throughout the platform.
- *'Commons':* This includes:.
    - common resources (shared files and media, group calendars, references, records of meetings)
    - group identity (purpose, goals, aims)
    - group agreements (finances, charges, fees, rules, etc.)
    - flexible means of voting to provide self-governance
- *'Peacemaking'*: Supports groups to develop a conflict-handling policy and create a group of 'peacemakers'.
- *"Synergy':* A place for groups to explore how to work more productively, to discover ways in which they are interdependent, find opportunities to share resources and collaborate more. Supports self-reflection and self-assessment.
- *'Direction':* Enables group 'scanning and planning' where it explores its environment, discusses and makes decisions about future plans. It will include group agreements.

We envisage our community partners – assisted by us and our supporting partners – taking these tools and using them to integrate their existing projects for providing basic needs in a sustainable way, such as community food, energy, transport and caring services, adding a collaborative layer in which all work together with increasing levels of effectiveness and trust.

A vision of how this might completely change the lived experience of a community:

> *After a period of intensive promotion of the vision of a transformed vibrant community, the organisers set up a local PlaNET, a community communications network, using local HoloPorts in the homes of businesses and residents, that deploys PlaNET with its* ***social action network*** *and* ***social marketplace****.*
>
> *The social marketplace works like a local Amazon or eBay, but keeps their profits which now stay in the community and are used to fund part-time local posts to enable and sustain local food, energy, transport, and caring groups. All community partners remain as independent,*

[2] Espinosa, Angela and Walker, Jon, *A Complexity Approach to Sustainability*, World Scientific, 2017

self-governing organisations, but are able to use the metasystem tools to work more effectively, as for example by better handling of conflicts.

This creates many opportunities for ordinary people to make part-time community contributions, such as growing, cooking, caring, driving, repairing, and especially organising. Many of these are suitable for people who are housebound or disabled, or otherwise excluded from the mainstream economy.

The gift economy side enables people to contribute without using money, and has an ethos of offering favours first to those who do a lot of volunteering or who also offer a lot of favours. As a consequence, people find that they can live with less money.

Some examples:

The organic farmer: *As a small scale organic farmer for many years, I've made a precarious living, selling at Farmers' Markets (which I never liked). Now I have a lot more regular customers through the social marketplace, who are very satisfied because I can match their needs, so I have a great reputation, which other prospective customers can see. The Transport Coop collects my produce twice a week and takes it to a few drop off points and direct to some customers (no more Farmers' Markets). I have a large group that works for me from time to time. Some are paid and some do it as part of the gift economy.*

The disabled elderly person: *I am largely housebound, but PlaNET has given me new ways of participating in the community. I do some cooking for the local food network, using the reusable containers they provide, and using the Transport Coop to distribute it to my customers and to drop off points. I am also a volunteer organiser of the Care Network, which I can do easily from home in my spare time and which improves my reputation. I make some money and get lots of help through the gift economy, including a surprising amount from young people.*

The Sharing Cities council officer: *The community social network gives me great tools for organising new projects. Using the Synergy tools, I have put together the people from our Community Solar project with several of our community centres and other public buildings to get solar panels installed on them, and regularly use the voting facilities of the Direction tools to get community views on which projects should take priority.*

The technically minded young person: I help to run the local PlaNET software and manage the local servers. I also do a lot of personal technical support for people in the community that need it. I get some money, and some support through the gift economy. I'm also improving my skills and employability.

While the main focus of this project is

"d) enabling the development of decentralized social networks or clouds, or of decentralized platforms for the collaborative economy;"

it should be clear from the above discussion that it also contributes strongly to other prize focus areas:

"c) participation in democratic decision-making by enabling accountability, rewarding of participation and/or anonymity;

f) contributing to financial inclusion;"

More specifically, our tools include decision-making for each group using PlaNET. Our gift economy includes rewards and acknowledgement for volunteering, and our collaborative economy offers opportunities for earning money, acquiring skills, gaining endorsements and expanding their economic network for those that might not otherwise be able to find a suitable job, while opening up new opportunities for local employment.

3. Nature of the application

Our project is building a decentralised platform as described above, and has also recruited a large group of partners: community organisations and supporting organisations to try it out. The partners are described in the next section. This section describes in more detail the PlaNET software we are developing. There are two prototypes, PlaNet on Holo and Planetmakers PlaNet (for proof of concept) and a user interface design, each of which illustrates different aspects. None are complete, but the combination of all three, and especially the use of the proof of concept prototype by our partners shows its potential for social good. All can be seen from the Prototypes page at our website: planet.coop.

3.1 PlaNET on Holo: The Holochain-based prototype

This prototype is in two parts, the underlying decentralised hardware and software layer is from our partners Holo, and the PlaNET prototype we are building on top of it is from our partner EYSS.

From our partner, Holo:

The new distributed internet being built by Holo, starts from the server up. They have developed self-contained servers, *HoloPorts*, designed to be run with virtually no attention from its owner. Simply plug it in and it runs as part of the Holochain network. These have been developed with the support of a highly successful crowdfunding campaign. At the time of writing, they have all been manufactured, with a purpose built operating system installed, and have been shipped to distribution points. They have not yet been shipped to their crowdfunding sponsors, awaiting sufficient development of the Holochain software that will enable them to link with each other and serve Holochain apps.

The Holochain software is in effect a new decentralised layer of the internet. They say:

> *Each of us wants to have control over how and with whom we interact. In order to evolve and thrive, our communities must support everyone's uniqueness. Yet today, our online relationships are dominated by centralized corporate web sites.*
>
> *Holochain enables a distributed web with user autonomy built directly into its architecture and protocols. Data is about remembering our lived and shared experiences. Distributing the storage and processing of that data can change how we coordinate and interact. With digital integration under user control, Holochain liberates our online lives from corporate control over our choices and information.*

Holochain has gone through several internal alpha releases and is expected to be on public alpha release very soon, (but at the time of writing is not available yet for us to use at scale). Holochain uses DHTs, as does blockchain, but is 'agent-centric' not 'data centric'. It has no overall consensus requirement or mining and thus overcomes many of the energy use and scalability problems of blockchains, as explained in this short video Holochain Explained by one of Holochains's core developers, or this short video, How does Holochain work?, from the founder of Holochain, Art Brock.

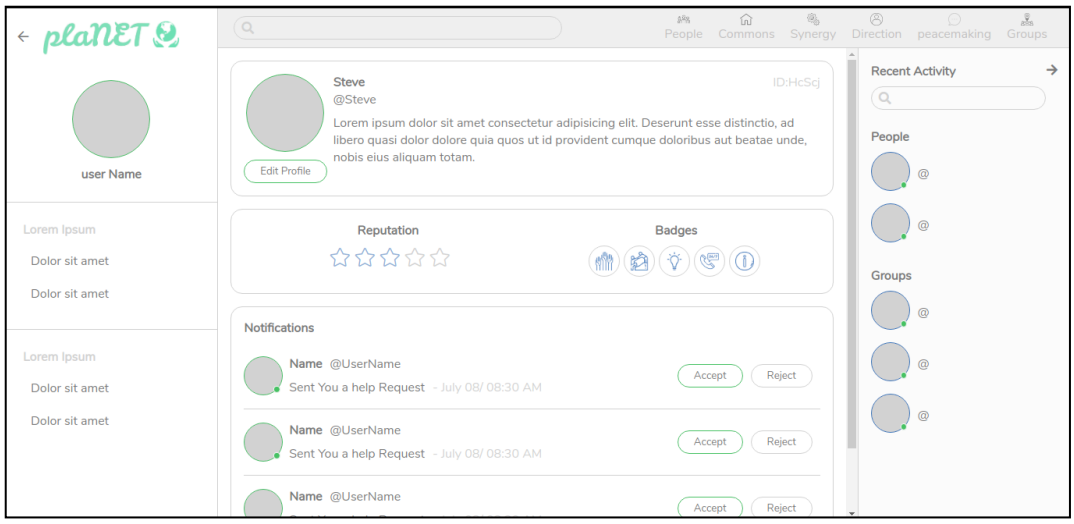
It will not be necessary to buy a HoloPort to have a node on the Holochain network. Holo is planning to release versions of the HoloPort software that will run on a range of other machines, from standalone servers, to laptops, tablets and even mobile phones, where it can use spare computing capacity to contribute to the Holochain network.

An explanation and demonstration of the way Holochain 'gives you back the ability to manage your own data, and look after your own identity' is given in a short video "Developer Demo of Identity Manager and Chat".

Holochain has public repositories of their code on GitHub.

We have a Memorandum of Understanding with Holo which gives us access to key staff members, advice and technical support. (Also, one of our Planetmakers LLP members is a full time staff member of Holo as their Systems Administrator.)

From our partner EYSS:



EYSS is a software development company with a deep connection to Holochain, with several ongoing projects with them other than ours. They have developed a partial prototype with the key features of the PlaNET software described above, building on the distributed, agent-centric nature of Holochain. The two central types of entities in the PlaNET app are 'people' and 'groups'. The aim is to build a constructive relationship between people into every part of it.

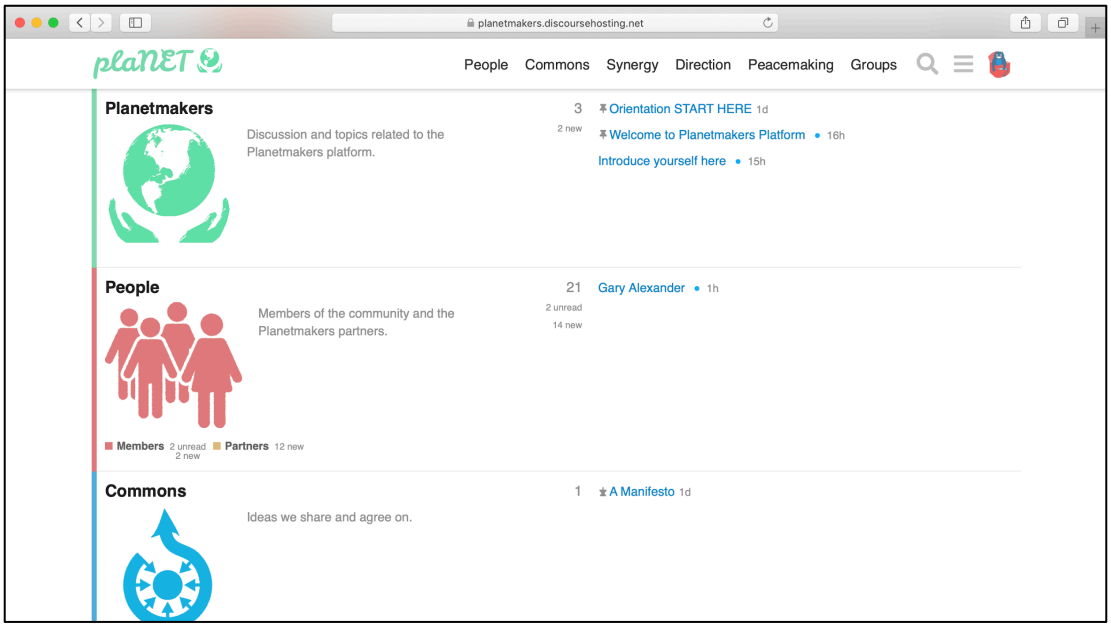
The starting point for a user is their Dashboard. It includes an editable copy of their personal profile, showing how they can control their own data: what parts of it are visible to different categories of people and groups.

The profile shown for each user includes personal identification, their values and a personal description. The key difference to conventional social network profiles is a field indicating whether they are trusted by the viewer and whether the viewer trusts them. This is the basis of the network of trustworthiness.

Finally, there is the messaging screen. Message headers includes an avatar and name of the user with an indication as to whether they trust and are trusted by the viewer. Thus the relationship of trust is displayed throughout PlaNET, keeping it at the forefront of users' attention. The types of message in the prototype include 'offers' and 'wants' providing the beginnings of the social marketplace, where the trust relationship is also displayed.

A major part of the development of this prototype was the backend, where it needed to be designed to run on the distributed Holochain network. The prototype is running on a small, private network of Holochain nodes and can be seen on the Prototype page of our website.

3.2 The proof-of-concept (PoC) prototype: Planetmakers PlaNET



The purpose of the proof-of-concept Planetmakers PlaNET prototype is to enable our community partners and supporting partners to start working together using our Commons-based approach before the full decentralised Holochain version is ready. It enables our partners to try out the processes and practices of PlaNET to see how they would benefit their organisations. After that, their main activity is to come up with a set of practical PlaNET-enabled projects within and between community partners that will be supported by the Blockchains for Social Good prize.

It is built on the Discourse discussion system, but customised and set up to emulate many features of our design, as described in Section 2. Discourse is popular open source software that includes many of the features we are building into our decentralised platform even before our customisation.

Note that Discourse is fully developed and widely used and so is at TRL 9.

They say:

> *"Our trust system means that the community builds a natural immune system to defend itself from trolls, bad actors, and spammers — and the most engaged forum members can assist in the governance of their community." and "We gently, constantly educate members in a just-in-time manner on the universal rules of civilized discourse."*

We have extended Discourse by:

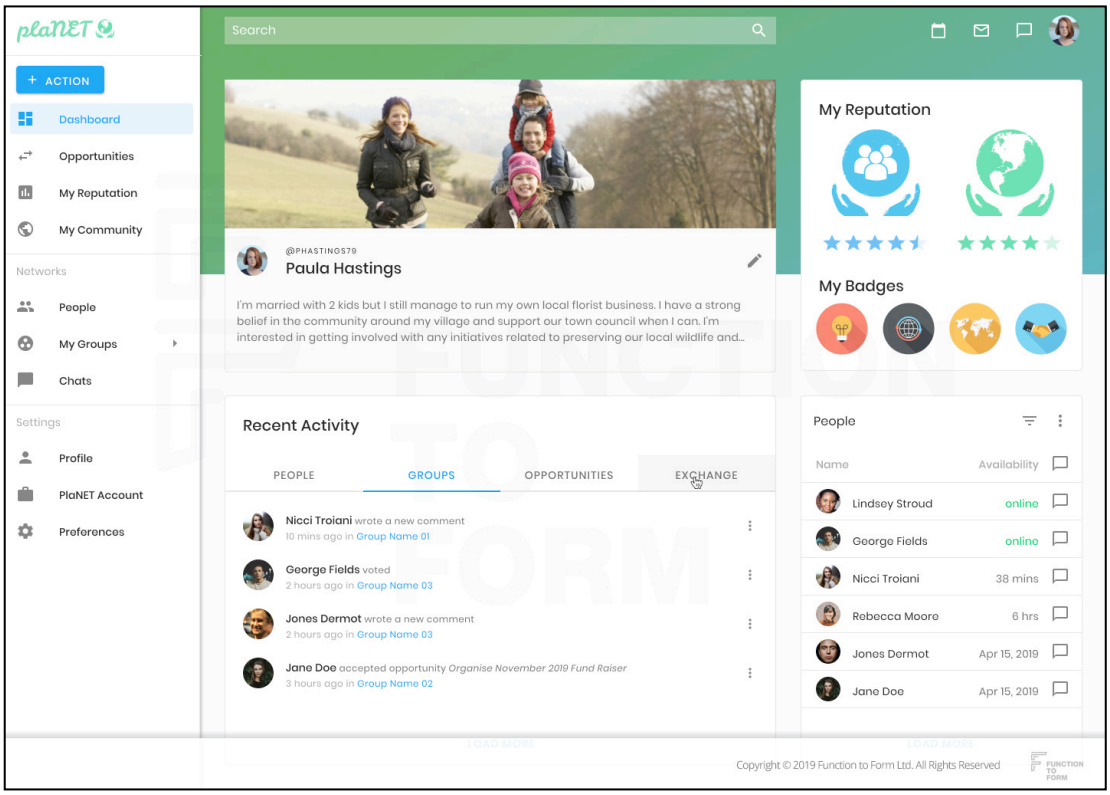
- building the metasystem component into Discourse as discussion categories, using the wiki-like feature for shared documents, and with several types of polls for voting.
- extending Discourse's badge system to reward volunteering and community contributions.
- building a somewhat primitive trustworthiness system, and using a plugin to create a rating system for care of people and care of planet.

Using these tools, the Core Team and other supporting partners are curating a series of discussions and activities among the community partners, as follows:

1. Working with each community partner separately to explore how they can leverage the platform effectively, and also looking at where there are potential synergies with other partners. Members of the community partners will create personal profiles and indicate which other members they trust, kickstarting the network of trustworthiness for their community. They will create and access common resources in the commons section, and try out the voting systems for making decisions.
2. Working with other community partners in small groups where we have identified potential synergies, with the specific task of identifying collaborative projects which will be supported or accelerated by the EU Prize, if we win it. Areas include local food, energy, transport and social support. They will use the Direction section, including a democratic decision making process, for deciding which potential projects will use the prize funds.
3. Working with all the partners to come up with an overall shared vision of sustainable, collaborative communities, building upon their separate visions.
4. Exploring visions of the collaborative economy and how it could be strengthened by a social marketplace that highlights trustworthiness and reputation. How could a self-governing collaborative economy use its decision-making tools to set its rules, fees, policies, etc.? One core topic is the use of gift economy approaches to reward and motivate volunteering and provide social support of various kinds. How can a gift economy reduce a community's dependence upon conventional money? How can a local collaborative economy, running on its own local servers, use transaction fees to provide a solid business model that funds itself and many other local community projects and services?
5. Building on the approach to Peacemaking we are developing to create highly effective local approaches to handling conflicts when they arise, and procedures that make conflicts less likely to occur in the first place. They will explore the patterns of building conflict handling systems and will set up a group of embedded Peacemakers to help resolve any conflicts that arise.
6. 'Open Space' discussions initiated by the participants in view of their own needs.

The Planetmakers PlaNET prototype and the activity on it from our partners is linked from the Prototype page of our website. Note that to make it work socially, it is a closed discussion. We will need to give the EU Prize assessors IDs on it to enable them to view and even participate if they wish.

3.3 The user interface design



The user interface design was created by our partner Function to Form. It shows a set of linked screens illustrating the components of the PlaNET software, as we envisage it when more developed. This is to clarify the functionality and also to display its clarity and ease of use. It highlights two key features:

1. to show how users control their own data: how different profiles can be shown to different groups, and how they have fine-grained control of what they receive.
2. to show an app that brings the relationship between people to the forefront, including trust and reputation, and that makes it easy for groups to work effectively on a 'commons' basis using the metasystem features.

The current version can be seen on the Prototype page of our website. We expect that this design will continue to evolve, and will be evaluated and discussed by our other partners as part of the Proof-of-concept prototype, described above.

3.4 How we will use the Prize money, if we win

Our plan for the prize money, should we win, is to use it in roughly three equal portions:

1. to fund the development of our partial *PlaNET on Holo* from prototype to full working software.
2. divided between our community partners and our supporting partners to fund posts and other expenses for a set of projects using PlaNET to make their communities more collaborative and sustainable. These sub-projects will be developed as part of the

Planetmakers PlaNET prototype discussions, and will include a democratic decision on the allocation of the funds.

3. to fund the promotion of the PlaNET vision widely, including materials that can be used to promote the sub-projects in 2., and for coordination and administration of the project overall.

4. Participant(s)

The application is being submitted by its lead partner, Planetmakers LLP. However there are other partners whose contribution to the development and use of PlaNET Platform has been crucial.

The lead partner: Planetmakers LLP

The lead partner in the PlaNET platform project is a new cooperative partnership, Planetmakers LLP. It is registered with Companies House in the UK, and is a member of Coops UK. Its function is to coordinate and shape the project overall.

It was set up for the purposes of this project, and builds on the formidable experience and background of its six partners. That includes working with community and environment groups, software development, setting up online communities, effective bottom-up organisation at scale, raising funds and creating new visions of a sustainable future.

In fact, what drew these people together was the prospect that very recent developments in the decentralised and distributed internet could enable their visions to be realised. This project is the result.

The partner members of Planetmakers LLP are:

Dr Gary Alexander: Gary retired after 37 years at the UK's Open University, where he was at times, the Director of the Energy Research Group, Director of the Electronic Media in Education Research Group, a pioneer in developing online courses using collaborative learning techniques, an author of many courses on environment and electronics. He has been involved in many community projects, including setting up the Diss Community Farm, was active in the Transition Network and was on its Board of Trustees for 4 years. In his books, papers and conference contributions over many years , he has developed detailed visions of a collaborative, sustainable future, especially in his book, *eGaia, Growing a peaceful, sustainable Earth through communication*. See his website for more details.

Sofia Bustamante: Sofia, MEng, FRSA is a social process designer with nearly 3 decades of work in conflict mediation, facilitation and community building. Her current focus is on applying the design patterns of nature to conflict resolution in distributed environments. She draws on diverse influences from biomimicry to The Art of Hosting practices to the martial art of Aikido. Sofia was given London Leader Status by the Mayor's office in 2010 for her participative community design work, for which she also won the Ogunte Women's Social Leadership Award People's vote in 2013. Her social innovations seek to bridge divides, enable individuals and communities to better work together, increase their sense of agency and unleash their inner and

collective creativity. She is a fellow of the RSA and an associate of St Ethelburga's Centre for Reconciliation and Peace.

Mamading Ceesay: Mamading is a highly experienced information systems engineer and architect who has worked in a variety of industries, most notably Financial Services, Film Special Effects and Virtual Reality. He has experience in designing peer to peer cloud services and collaborative social software.

With Sofia, he was a co-founder of London Creative Labs which won multiple awards for its local economic development work and successfully raised funding from JP Morgan Chase for its Startup Brixton project, which help drive the transformation of Brixton.

He has also been actively engaged in researching and designing new forms of political and social economies that are fit for the 21st century, with an emphasis on sustainability and social justice. As a result, he has:

* Worked on community currency software.
* Analysed outcomes of UK Timebanks and LETS.
* Delivered a course on community currencies.
* Chaired a community currencies panel.
* Co-founded the Brixton Pound.
* Invited to be a panellist on an upcoming currency design workshop.

Martin Dow: Martin is a solutions-oriented Software Architect and Consultant with a flair for innovation. His extensive experience in all stages of professional systems development goes back to the late 1980s with real-time networked software, later working as technical architect on transformative digital content solutions for the likes of a global digital agency, national broadcaster and international media telco. He subsequently specialised in the components of "trustworthy computing", including digital asset management, digital rights, identifier and semantic metadata architectures both for international companies, international standards organisations and publicly-funded projects within the institutional sector. Martin has taken his experience developing centralised repository systems of trust into other sectors using decentralised blockchain technologies, developing personal data mobility solutions (PDM) for healthcare data, professional networking organisations, and working on stable crytonomic value with the graphene blockchain family. He is excited to work with Holochain on PlaNET in supporting PDM and verifiable mutual accountability by design. Martin is passionate about the potential for real practical change these technologies can bring to society. He supports interests in community-built rural hyperfast fibre networks and home educational networks.

Dr Angela Espinosa: Angela started her professional life as a computer and systems engineer before doing a PhD on Organisational Cybernetics in the UK. After 10 years of working as an academic and consultant in Colombia, (including leading the Secretariat of Informatics in the Colombian President's Office), she moved to Hull University in the UK where she has spent the last few decades teaching and researching at the Centre of Systems Studies. Her research interests have been in studying organisational transformations for improved viability and sustainability, from an Organisational Cybernetics perspective. She has long and fruitful experience teaching, researching and consulting in this field, including large transformational processes in the Colombian public and private organisations; and in communities and

businesses in the EU; and in leading funded research projects in both regions. All her consulting and research outputs have been published in leading academic journals and research monographs. She was awarded the Ashby Lecture in the International Federation of Systems Societies and Vienna University in 2002; the Norbert Wiener Award by Emerald Publishing; and she has been listed in Marquis *Who is Who in the World*, and *Who is Who in Science and Engineering*.

Dr Jon Walker: Jon has over thirty five years experience working in the co-operative business sector. He has established and co-managed a range of businesses including retail outlets, a small-scale manufacturing plant, a warehouse and a chain of supermarkets dealing mainly with wholefood, organic and fairly-traded products. Concurrently, Jon has lectured, published, consulted and provided training courses in both private and public sectors, on organisational structures. His recent book "*A Complexity Approach to Sustainability*", co-written with Angela Espinosa is now on its second edition.

In particular Jon has pioneered the use of an innovative organisational approach known as the Viable Systems Model, in both large cooperatives and an eco-community. The resulting organisational changes have resulted in working practices which are both efficient whilst at the same time being based on principles of participation and individual creativity and autonomy. Jon is based in Yorkshire where he continues to have direct involvement with the co-operative food sector there, in particular in developing food networks that serve local communities.

The other partners

In addition to Planetmakers LLP, the lead partner, the project brings together a group of technical partners, building the prototypes of the platform, a set of community partners who are already actively working to build sharing, sustainable, collaborative communities, to try out the tools and principles of the PlaNET platform, and a set of supporting partners who are adding expertise to proactively work with the community partners to enable them to work as effective Commons.

The technical partners are:

Holo (contact: Dan Quinton) Pioneering the decentralised, distributed internet with hardware (HoloPorts), and Holochain, a new software layer of the internet that runs on them, a decentralised, scalable, efficient open source framework for truly peer-to-peer applications, and Holo, which acts as a bridge to the conventional internet. It provides the underlying layer on which PlaNET is built.

EYSS (contact: Eduardo Moreira) Founded in 2017 as a social enterprise in Venezuela to support individuals with disabilities, EYSS was then transformed into a limited company with the same

mission, which is to provide opportunities to those with disabilities, giving priority to employees applying with disabilities and in some cases promoting the search of talent with disabilities. EYSS is a software company building the PlaNET platform on top of Holo. EYSS is deeply connected with the Holo organisation, working on a range of other projects with them. While EYSS works in different technologies, it is their intention to become a leading development company for the Holochain decentralised platform.

Function to Form: (Contact: Adam Zahler) Function to Form's mission is to help people, organisations, partners and communities derive maximum benefit from modern design, web technologies, and software innovation, placing human factors front and centre of thoughtful design. Adam Zahler is a highly experienced professional designer who has been involved with web and user interface design since 2001. Adam studied Industrial Design at Loughborough University and has worked on projects for clients in the UK, Ireland, United States, Europe, China, Taiwan, Hong Kong, Japan, and more. He has trained, coordinated and managed teams of nationals from all over the world that were tasked with designing, developing, maintaining and marketing multilingual websites for international clients. Function to form have worked with us to produce our User Interface Design.

The community partners are:

Barcelona Sharing City (contact: Ricardo Espelt) The partner will be Dimmons (Internet Interdisciplinary Institute at Open University of Catalonia). Dimmons has an agreement with the City Council for the Sharing Cities Action, so the City Council will be part of this. BarCola (a local group of sharing economy organizations) is also involved in the organization of Sharing Cities Action. Beyond, the chapter of Open Food Network in Catalonia (Katuma) , there are other interesting organizations that participate in BarCola. Ereuse, for example, is using technology for the traceability of their products. In any case, there are many local projects that would be interested in being part of this exploration of possibilities.

ECOLISE (Contacts: Eamon O'Hara, Markus Molz, Thomas Henfrey) ECOLISE, the European network for community-led initiatives on climate change and sustainability, is a coalition of national and international networks of community-led sustainability initiatives as well as of organisations that support a community-led transition to a resilient and inclusive Europe through research, education and advocacy.

ECOLISE has almost 50 members, including international networks of community-led initiatives such as the Transition Network (representing Transition initiatives in over 1200 locations), the Global Ecovillage Network (15,000 ecovillages), the Permaculture movement (3 million practitioners globally) and ICLEI, the association of local governments for sustainability; national and regional networks; as well as several research institutes and education providers. Through its members, ECOLISE reaches thousands of communities all across Europe.

MINGAnet (Contact: Martha Giraldo), General Coordinator. MINGAnet project promotes the care and celebration of life from the person itself to its relationship with others and with nature, making actors visible, encouraging conversations and exchanges, promoting learning processes and political advocacy.

The groups within it that will be active In PlaNET platform are:

ACIS - Colombian Association of Systems Engineers.

Community Action Board of "El Tranal" village, Misak indigenous community, Guambía Reserve, Silvia, Cauca.

Alliance for the Rights of Mother Earth, Colombia

OpEPA -Organization for Education and Environmental Protection,

Corasoma Corporation, Contributing to peacebuilding processes

Biopedagogy Network - Teachers from public and private institutions

Agrosolidaria Charalá - Association of Agrifood Prosumers, Charalá - Santander.

The Free Seeds Network of Colombia, RSL Colombia,

UNIMINUTO- University Corporation

Network of Natural Reserves of the Civil Society from Alto Ricaurte, representing themselves and representing RESNATUR

CASA Latina

The Alternative UK (contact Indra Adnan). The Alternative UK are building *Citizens Action Networks* (CANS) around the UK. CANS form below the level of party politics or traditional social divides to establish the importance of place-based community for both identity and agency. In particular this will help people who have been excluded from the conversations about how we can face the future, from where we live. AUK has been developing CANs in South Devon / Plymouth, Stoke-on-Trent and Birmingham. Working closely with established civil society organisations in each city, AUK run three-stage collaboratories to engage 1) those who share our values but are not yet in the conversation 2) those who may not share our values, or are uninterested in taking action. Going from the 'Friendly' to the Inquiry to the Action. This is where the first stages of building trust happens. From there, participants are invited to join a digital network where they can develop their relationships and organise action across the community, within cosmo-local networks of communities doing the same.

Transition Woodbridge (contact: Martin Wilks) An active Transition Town in Woodbridge, Suffolk with a range of projects including food, waste, water, community clearing, plastics. Transition Woodbridge is a community-led group that aims to strengthen the local economy, reduce the cost of living and prepare for a future with less oil and a changing climate.

Impact Brixton (contact: Gerald Vanderpuye) A hub and custom co-working space "for a diverse community of entrepreneurs, freelancers, dreamers, creators and social change makers in South London" with 180 members in Brixton, London. Impact Brixton launched in 2014 as a community workspace for mission-led organisations. It has since become a home for community-led change, with projects such as the People's Fridge and Open Project Night bringing together people and organisations of all background to make a better South London, together.

The supporting partners are:

Open Food Network UK (contact: Lynn Davies) They are a 'fractal' cooperative, running for over 10 years, that supports a variety of local food networks: producers, hubs, distributors, etc. They will support and advise our community partners in building local food networks.

Community Forge (contact: Matthew Slater) Community Forge is a non-profit organization that designs, develops and distributes tools around complementary currencies. They will work with us to build an exchange system compatible with their protocols. They have 300 communities actively using their LETS software built on Drupal, but are looking for a new platform. Some of these communities would move over to PlaNET when it is fully developed.

The Peacemakers (contact: Sofia Bustamente) A newly forming consortium, commissioned specifically for this project, building a state-of-the-art framework for communications and conflict resolution both online and face-to-face, for community organisations.

Metaphorum (contacts: Jon Walker, Angela Espinosa) An NGO focussing on the theory and practice of systems and managerial cybernetics, and especially, the work of Stafford Beer on viable systems. They will advise and support our other partners on effective ways of building decentralised organisations.

Enspiral (contact: Phoebe Tickell) A network of people and organisations building tools for a more collaborative world. Members of the Enspiral Network will advise us on effective means and structures for collaboration and will participate in the Proof-of-Concept Prototype discussions.

5. Source code

The PlaNET platform project is essentially about creating collaborative, sustainable communities so all materials developed as part of the project will be freely available with Open Source licenses for the software and other published materials. Moreover, the social procedures we are working with will also be offered to the public through the plans for publicity and dissemination.

Our partners Holo are committed to the principle that Holochain will be an open source platform, but the new distributed nature of it doesn't fit well with current open source licenses.

They say:

> *"...we are creating the Cryptographic Autonomy License because we don't believe that any existing license is written to match the structure of fully peer-to-peer cryptographic applications, which seek to uphold the interests of the users, like the ones that can be developed using the Holochain framework".*
>
> *"Holochain's license boils down to this: You can run Holochain as free and open source software with a couple of conditions:*
>
> - *The source code of Holochain and any derivative works must be provided under compatible open source terms which include this condition and the following condition related to privacy of cryptographic keys.*
> - *You only have permission for "public performance" of Holochain (including use of its APIs for running your dApp) if you preserve each end-user's privacy and autonomy of their private cryptographic keys. "*

We intend to use the Cryptographic Autonomy License or a compatible license for open sourcing the PlaNET source code.

6. Adherence to the award criteria

6.1 Positive social impact

The largest overall impact of this project is that it helps communities become more collaborative economically and socially while also becoming sustainable ecologically. It does this by providing PlaNET, a decentralised software platform that makes that easier, plus a set of practical examples of that process in action through our community partners participation in the Planetmakers PlaNET (proof-of-concept) prototype, and a social support process for those partners that can be used by any community using PlaNET.

This is an implementation of a transformative vision for a collaborative, sustainable society that goes far beyond conventional political discussions that often stop at inadequate declarations of reduced carbon emissions, and the assumptions that somehow, we will reduce those emissions by a given date. These discussions often presume little change to overall economic patterns of activity, to personal consumption, to approaches to governance, but hope that greater efficiency, the replacement of fossil fuels by renewables, technical solutions, and better reuse and recycling will be sufficient to stop the climate change crisis. Our vision goes much further and deeper than that.

There are a wide range of projects that provide facets of sustainability such as local networks for food, energy, transport and approaches to local social support (such as Sharing Cities). With rare exceptions, such projects work in isolation from each other. This project provides community-level tools that bring all such facets of sustainability together, through a community communication system that includes exchange, discussion and local decision making. It goes further still, with tools that build a collaborative relationship and mindset, such as networks of trustworthiness, community-wide peacemaking. It is a vision for a new kind of society.

This vision has been articulated by various writers and projects in the short reading list below. Note that three of the authors cited are part of the Core Team of this project, which they see as a major step towards its implementation and most of the other authors are colleagues and peers we have engaged with on numerous occasions.

Alexander, Gary, *eGaia*, *Growing a peaceful, sustainable Earth through communications*, 2nd edition, FastPrint Publishing, 2014.

Bauwens, Michel, Kostakis, Vasilis, Pazaitis, Alex, *Peer to Peer, The Commons Manifesto,* University of Westminster Press, 2019.

Espinosa, Angela and Walker, Jon, *A Complexity Approach to Sustainability*, World Scientific, 2017.

Lewis, Michael and Conaty, Pat, *The Resilience Imperative, Cooperative Transitions to a Steady-State Economy,* New Society, 2012.

Ostrom, Elinor, *Governing the Commons, The Evolution of Institutions for Collective Action*, Cambridge University Press, 1990.

Books, videos and other resources from the Transition Network, including *Starting Transition, The Transition Handbook, The Transition Companion, Local Food, Local Money* and more.

Finally, the developing environmental crises are likely to throw up many social challenges. A community that is organised as a large scale mutual support network will be resilient: it will be better placed to handle major disruptions that may occur as a result of political, economic and environmental disruption.

6.2 Decentralisation and governance

The essence of our project is decentralisation and self-governance. The social model is of autonomous groups, such as small businesses, community projects, local government agencies, all independent but collaborating effectively for mutual benefit. The methodology we are applying, with its trust, reputation and metasystem are meant to make that easy, but without the need for people to learn or accept any ideology or overall plan. The methodology isn't arbitrary. It builds on the emergence of the Commons movement, incorporating Elinor Ostrom's work on traditional commons, and viable systems theory, now widely accepted as a management tool for building democratic, bottom-up, self-governing organisations. We believe this is a blueprint for an effective decentralised society, a largely missing ingredient in most discussions of what a sustainable and just society would be like.

By using Holochain as our basic networking and data storage layer, we allow our social action network and social marketplace to run on servers that are owned by and located in the communities they serve, rather than on distant, huge cloud servers owned by big corporations who have no stake in the community. This is inherently decentralisation of data on a community owned and operated platform. Our prototypes allow users to decide what information they receive and from whom, and to decide what parts of their personal profiles are seen by different people and groups. At the same time, we retain the strengths of Blockchain-like DHTs in creating linked, encrypted data that cannot be changed without alerting those who it is using for backups.

Our metasystem includes areas for group agreement – documents with polls/voting attached – to support group self-governance, and a state-of-the-art approach to avoiding conflicts and handling them effectively when they do arise.

6.3 Usability and inclusiveness

The vision built into this project is as much about social justice and inclusion as environmental sustainability. The social marketplace it is building provides opportunities to serve and to earn income for people who now cannot easily do so. It also provides active support and recognition for volunteering, which supports local governments and voluntary groups. This is the beginning of a real solution to many other problems such as drug taking, much crime, and the scapegoating of minorities who have been failed by the current social economy.

As you can see in our User Interface design, we have paid great attention to simplicity and ease of use, and are testing this with our community partners as part of our proof-of-concept prototype, so that any difficult aspects will be changed based upon the feedback we receive.

Our social vision incorporates a community cooperative that deploys and operates the local servers, and also provides technical support for local users, and will act as agents for anyone who doesn't want to use the platform themselves.

6.4 Viability at large scale

We are building on Holochain: a Blockchain-like technology without many of the problems of current Blockchain projects. The following extracts are taken from the Holo Green Paper:

> *(p.28) Holo takes us beyond the limitations of blockchain*
>
> *Holo fuel takes an agent-centric approach to cryptocurrency design rather than a data-centric approach. In doing so, the Holo crypto-accounting system surpasses the efficiency limitations of similar systems built using blockchain or other consensus-based distributed computing strategies. It is a tokenless crypto-accounting engine. Eliminating tokens makes crypto-accounting substantially more efficient. It frees massive amounts of computing power and network traffic from consensus and synchronization of a global ledger of tokens.*
>
> *We leverage principles from game theory and living systems feedback loops to establish an equilibrium for the value stability of currency units being accounted for. This approach, using Holochain, transforms the computational efficiency from blockchains O(n) to O(log n), and also addresses common security issues for blockchain-based currencies.*

(pp 9 - 10) Comparison of Blockchain and Holochain

	blockchain	Holochain
Hash-chain approach	Data-centric, a single global data set - one shared reality across all nodes.	Agent-centric, allows nodes to act independently, or in tight coordination only with counterparties, and then share independently evolving data realities that come to agreement over time.
Energy Use	Bitcoin consumes more than 0.1% of the world's electricity[3] [4] to power less than 0.0001% of the world's money.	Since no mining is required, no specialized processors[5] are needed, making it feasible to run full nodes on low-power computers or cell phones.
Transaction Volume	Neo currently processes +1000 transactions per second. Bitcoin and Ethereum considerably less at a handful per second.	Expected to surpass financial exchange backbones like the Visa network, with a max of 56,000 transactions per second.
Scalability	Even ignoring proof-of-work, there are serious scalability limits on synchronizing a global ledger across many nodes.[6]	With a sharded DHT, the transaction load per node gets lighter as the network grows [7] .
Platform	Can now only run effectively with special mining rigs or wasteful staking algorithms.	Can run on a Raspberry Pi or a mobile phone.
Computational efficiency of architecture (not 1 machine)	O(n*m) for validating transactions on blockchain as a whole distributed architecture.	O(n/m*log m) for validating transactions.
Consensus Effects	Core consensus algorithms centralize power (make the rich richer). Proof-of-Work results in infinitely growing computational overhead for finite data set.	No mining or staking. No consensus. Not vulnerable to majority attacks. You only have to trust the code on your own node and can validate counterparty's history directly.

[Note that the smallest version of the servers that Holo has developed, the HoloPort nano, (which is currently complete and being shipped to distribution points) uses a modified Banana Pi board, similar to a Raspberry Pi, showing the capability of running Holochain nodes on extremely

small, highly energy efficient servers. That also means it will be able to run using the spare capacity of many home or business computers or even mobile phones.]

> *(p 6) In fact, Holochain is so efficient that you can run over 50 full nodes on a cell phone or a $35 Raspberry Pi computer. Holochain even enables scalable crypto-accounting to build new generations of asset-backed and value-stable cryptocurrencies.*
>
> *Programmers can leverage our RAD tools (Rapid Application Development) to quickly build fully P2P web applications designed to operate on the scale of Twitter or Facebook with no centralized data centers or infrastructure. Each user just brings their own device to share a small amount of computing and storage.*
>
> *(p 7) Imagine if the more popular an app became, the more hosting power it received from new users installing the app and sharing the load.*
>
> *(p 9) Holochain provides the underlying cryptographic fabric with data sharing and validation protocols that enable massive peer-to-peer applications. The agent-centric approach to computation removes the need for consensus, eliminating synchronization bottlenecks.*
>
> *Rather than thinking of Holochain like blockchain, it may be better to think of it like git repositories for each agent which can be published, shared, synchronized or merged via a BitTorrent-like DHT (Distributed Hash Table). The provenance of all shared data is strictly enforced and the structure, content, and its compliance with shared application rules are validated by randomized peers.*
>
> *(p. 20) Holochain is a generalized crypto application engine. This means we can fulfill on the promises of many other major crypto projects. Between built-in functionality, applications already built, and applications that are in progress for near-term completion, we solve many of the most pressing problems in the crypto space including decentralized storage, scalable decentralized applications, and secure decentralized identity.*
>
> *(p.21) By keeping the focus on the security and scaling of a cryptographic application engine, Holochain can foster a massive ecosystem of distributed application projects much larger than anything seen in this space so far. When you add to that the ability of Holo to make these applications available to mainstream users in their web browser, that creates an even greater multiplier on the reach and value for the whole ecosystem.*

6.5 European added value

Our community partners are exploring and demonstrating the power of our decentralised platform in a range of communities, larger cities (Barcelona), smaller cities (Plymouth), small towns (Woodbridge), and less developed areas (Colombia) and all of their experiences are applicable to a similar range of communities throughout the EU. ECOLISE will support documentation and spreading of experiences and tools.

It is all about decentralised technologies, and designed to be set up in the same way anywhere. It greatly reduces dependency of people on the big American owned centralised platforms, such as Facebook, Amazon, and Google.

Our approach is suitable for adoption by any European community looking for collaboration and sustainability, and not just the software platform, but the social approach to deploying it and the

planned promotion campaign. The more it is used, the faster it will spread and greater its impact.

7. Publicity measures

Firstly, we authorise the Commission to disclose any additional information about our application, and there are no parts that need specific security or non-disclosure measures.

We are currently developing substantial plans for dissemination and promotion of the PlaNET Platform and have already arranged for three presentations.

1 We will present it at a meeting of *ECOLISE, the European network for community-led initiatives on climate change and sustainability* in Brussels in September, at the 2nd International Workshop of the Sustainable Communities Programme (SCP)

2 We will present it at the Metaphorum Conference in November in Amsterdam, which is a meeting of people involved with viable systems. We presented early plans for this project at last year's conference and found great interest.

3 We will also be presenting it at the Smart City Expo World Congress in Barcelona in November, where we will have a stand in the Sharing Cities Action Stand Lab along with our partners, Sharing City Barcelona. We feel that Sharing Cities are one of the most promising group of prospective partners for our project.

We will also seek out other conferences and meetings of people and groups that are currently actively working on sustainability, sharing and collaborative economies, as we feel that they already share much of our vision and will appreciate the technology we are offering.

We are working with the marketing company that originally set up Norwich Sharing City to do branding and promotion for the project, which will include a short video that describes the vision.

We will be promoting the project through our website at planet.coop where we will try to recruit further partners, who we will encourage to take part in our Proof-of-Concept Prototype.

We do not believe we are ready yet to promote the project to the general public, as our technology is not sufficiently developed. It is our hope that the funds from the Blockchains for Social Good prize will take us to that point, should we win.

8. Ethics

The essence of our project is to build support for a society based upon the values of caring for people and caring for the natural world. It is a template for a regenerative, resilient society. The technology it provides is intended to give strong advantages to working together for mutual benefit over working to exploit and manipulate others. It is intended to build a values-based, ethical society.

More specifically, regarding Holo's approach to anonymity and some of the negative uses of Blockchain technologies: (from the Holo Green paper, p. 33)

> *"Holo is not natively optimized for anonymity. Continuity of accountability is included by design — not a bug, but a feature. As such, the currency is not optimized for illegal, black*

market, or underground activities. Holo fuel is optimized to build a consistently reliable, peered network of hosting providers. Holochain enables continuity of identity across application contexts with its DPKI app,25 which can interface with decentralized identity service providers of your choosing."

This means that the foundations for trustworthiness are inherent in the very DNA of the decentralised networking and storage layer we are building on. Transparency and accountability are central parts of the PlaNET design. The design ensures abusive behaviour makes things harder for those who engage in it and that prosocial behaviour is recognised and rewarded.