
The LocalPay Technology Project Specification

A project proposal for the massive scaling of local currencies worldwide, developed by the largest global federation of local currencies.



LOCALPAY

Empowering community exchange

<http://localpay.tech>

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Overview

Empowering community exchange

Opportunities for reducing social exclusion and poverty, supporting more sustainable lifestyles and developing community arise from local exchange networks that operate without official money.

A local currency is an imaginary unit of value defined by a local community to facilitate the exchange of goods and services amongst themselves. It may be accepted outside that community as well.

Thousands of grassroots local currencies worldwide are struggling to maintain their online tools given the pace of technological change. Connecting them to work collaboratively and learn together could empower a renaissance as the mainstream economy is failing more and more people. This project will ensure that this problem is averted and the opportunity seized for massive scaling of local currencies worldwide.

A brief description of the rationale for the “LocalPay Technology Project” is provided online at <http://localpay.tech> and should be read before reviewing this document which provides a detailed project specification.

This project specification does not provide detail on which role will be responsible for which task by when and with what indicators of success. These can be mapped out if and when requested by a donor according to their protocols. The task-to-role allocation has been done in the preparation of the draft budget (available upon request).

Working as a global federation

The exchange and payment platforms for over 300 local currencies in 20 countries have now federated. Our goal is to support our infrastructure development, significantly grow our user base (currently 30,000+ people) and ensure an open-source future for the payments system of this new economy. We are determined to help people benefit from local currencies without them becoming dependent on platforms provided by corporations that seek monopolies.

The operational name for this effort is the Credit Commons Collective (CCC), which is a federation of the three largest open-source platforms, run by three very small but well-established non-profit organisations: CES, CES Australia and Community Forge.

A map of this federation and some related but non-federated projects is available at <http://www.creditcommons.net/map>. It also contains real time data on current users and transactions (scroll down to the table below the map).

LocalPay is one of the branding options for the new software and standards and so is used for the name of this project, though the final choice of brand will depend on the findings of the project.

Background

All of the participating exchanges or currencies use the self-generated credit model for payment, which means there is no official money required for issuance. Transactions between participants are recorded in the local currency unit, with a debit on one's account indicating a commitment to provide goods or services to a member of the local group in the future.

In many parts of the world, particularly France, Belgium, South Africa, and Australia, these currencies are proving to be successful tools for social inclusion, soften the effects of poverty, increase well-being and to strengthen local ties; larger ones show signs of becoming hubs for local organising, increasing economic resilience and reducing food miles. If taken seriously, by the conventional economy and politicians, such systems could take a more explicitly financial role in the local economy, combating recessions and distributing the risk and reward of investment in local business and infrastructure. More information and case studies are provided on <http://localpay.tech>

We are part of a wider movement. 'Creative Commons' for example helps share knowledge and creativity globally. It provides a means of controlling the transfer of information in a simple and standardised way. The 'credit commons' is intended to be an equivalent, to create a standard accounting infrastructure to empower users of any local currency to share trust, and thus exchange with any other locality.

Our Mission

Connecting to and paying for goods and services with locally controlled currencies should be easy, free, and secure for millions of people worldwide.

Local currency exchanges have been held back by piecemeal investment in isolated software projects which have mostly failed to create or engage communities and given up¹. Our attempts, as a bloc of those very communities to provide ourselves with software have been hampered by lack of money and skilled volunteers.

This collaboration will generate a new software ecosystem to support local community engagement and encourage neighbour to neighbour cooperation all over the world.

¹ See <http://matslats.net> for a list of projects, none of which are interoperable, and most of which have died.

We will publish free basic software and maintain a suite of web services which will connect local groups into a global network allowing them to share offers and needs, organise, and acknowledge each other's contributions.

We will build in system resilience from the outset by avoiding future dependence on software providers or, ultimately, grant-makers. Once the basic software has been built, we plan to use our platforms and own credit within those networks to maintain the IT code and back-end systems, to avoid depending on future grants to maintain this global system.

Workstreams

1. **Establish Collaboration Systems and Common Software Architecture:** Establish a common communication system and infrastructure between the three founding organisations (and others to be invited later) to enable them to generate and utilise core funding (from their members) to maintain, improve and update software systems for the foreseeable future.
2. **Migration to common platform:** To standardise the software used by members of our networks on similar configurations of Drupal 8, which should be current for at least another three years. This migration ensures all CCC federation Groups are using the most up to date version of the operating software by moving to Drupal 8.
3. **Community Development:** We will build stronger relationships with our 30,000+ end users to encourage their participation, and especially with the 300+ group administrators. This means more structured communication, tools for them to support each other, and training materials.
4. **New Web Services:** One of the main objectives of this project is to integrate local groups, so they have the autonomy that goes with being local but the connections and state-of-the-art techniques that go with being global. We will create two new web services to which each local group can voluntarily connect to share the members' adverts between groups and to register transactions between groups.
5. **Scaling Up:** The development of all the above is intended to support local currency groups to expand their reach. We will also reach out to strategically chosen sectors, to seek partners or adopters to bring these tools to new sectors, with the goal of a mass scaling from 30,000+ to one million users by 2021.
6. **Decommissioning the platforms:** Once all platforms are consistent, and up to date, we will start work on the next generation of software which is a mobile-*first* approach.

Need for Funding & Partners

An entirely grassroots initiative, the CCC has hitherto relied only on voluntary labour. To respond to the scale of the mission and strategy as outlined, we are now seeking grants to allow this step change in our work to professionalise and build capacity.

We regard our work as some of the most significant long-term and widespread in the field, but do not wish to build up a financial infrastructure if it already exists elsewhere. Other organisations with aligned goals have more experience in seeking and managing grants.

Therefore, we have provisional agreement with a couple of established NGOs to act as project hosts so that we can manage donor funds appropriately. The budget has included a 7% overhead for that function.

Founding Organisations

Community Exchange System (CES)

The Community Exchange System started as an experimental online LETS (local exchange trading system) in Cape Town, South Africa, in 2002. In 2003 it was launched as the first mutual credit platform on the internet. CES pioneered inter-trading between communities when exchange groups in other countries joined, creating the first global, alternative exchange network.

In 2008 CES registered as a not-for-profit organisation and in 2012 'CES Australia' was established and a Spanish CES clone, 'Integral CES', started up. Also in 2012 CES won a tender to provide time banking services for the New South Wales government in Australia.

These different systems link through 'Clearing Central', a bridging facility created by CES.

CES' model is a software-as-a-service; it does not currently provide its software for stand-alone instances.

Community Forge

After building open-source modules and a web application for SEL du Lac, the LETS in Geneva, Matthew Slater and Tim Anderson set out to provide free LETS and more broadly, online tools for local communities. 'Community Forge' was a platform formed in 2009 and soon partnered with a cluster of Belgian LETS who helped with testing and specifying software. In 2010 they published their software distribution. In 2011 they built a custom site for Route des SEL, a house sharing network for SEListes. In 2012, there was enough need and interest to start a support team which manages all technical matters day-to-day.

Community Forge now hosts well over 200 active groups, runs software training workshops, helps organise the LETS summer camp in France. It is funded only by donations.

CES Australia

The platform is run by an unincorporated, volunteer-run organisation. Directors Annette Loudon, Tania Brookes, Alison Bird and Belinda Moore, all have extensive experience running community exchanges in Australia. An annual budget of \$2000 (AUD) comes from donations by trading groups, supplemented by a community currency budget of approximately 6000 credits. CES Australia is focussed on building awareness of community exchange, promoting best practice, supporting group administrators, and redeveloping the online trading platform.

CCC Management Team

Tim Jenkin

Proposed Policy Director of CCC; Founder, CES, South Africa

Tim Jenkin graduated in sociology and economics at the University of Cape Town, South Africa. As an anti-apartheid activist in the 1980s, he developed a unique crypto communication system that was critical in the realisation of the new democratic dispensation in 1994. In 2018 a major Hollywood movie will be released that focuses on his activism, with Daniel Radcliffe playing him in the lead role. From 1994 until 2014 he ran his own IT company, assisting the fledgeling government into the internet era.

In 2003 he launched the Community Exchange System, the first mutual credit platform on the internet. CES also pioneered inter-trading between exchange groups, creating the first global, alternative exchange network, which now links several similar systems.

Annette Loudon

Proposed Managing Director of the LocalPay Project; Coordinator, CES, Australia

While completing her Creative Arts degree, Annette Loudon had the good fortune to find herself dabbling with web technology at the beginning of the first dot-com boom. Co-founder of Construct, one of the first web design companies in San Francisco, Annette has over 20 years of working on web projects for clients including Microsoft, Sony, and Macromedia.

Annette has developed and maintained WordPress and Drupal websites at the Powerhouse Museum, Historic Houses Trust, ChildFund Australia, and the University of Technology Sydney. Annette also provides tech support and leadership for CES Australia.

Matthew Slater

Proposed Technology Director of CCC; Co-founder, Community Forge, Switzerland

Matthew Slater graduated in theology in 1993 and understanding the growing importance of technology, taught himself multimedia programming, briefly making online arcade games for clients like Ben & Jerry's. He then worked for five years with nonprofits before starting to program community exchange software and living almost without money for several years.

Since co-founding Community Forge in 2008 he has built and maintained its open source software single handedly. He has travelled extensively, building relationships across the alternative currency movement. In 2015 he created the Money & Society MOOC with Prof Bendell, and now occasionally teaches about money.

Professor Jem Bendell

Proposed Communications Director, CCC

Jem Bendell is a Professor of Sustainability Leadership and Founder of the Institute for Leadership and Sustainability (www.iflas.info) at the University of Cumbria in the UK, which co-delivers a sustainability-themed MBA programme with over 2000 students online from around 100 countries.

Jem provides strategy, leadership and communications support for chief executives in business, politics and civil society. Previously with the United Nations, he has since served on the boards of international investment funds and small charities. With over 20 years of experience in promoting innovative action for sustainable development, Professor Bendell has written over 100 publications on related topics, including five books. His latest book is titled "Healing Capitalism." In 2012, the World Economic Forum appointed him a Young Global Leader for his work on sustainability.

Stephen Demeulenaere

Chair of Technical Advisory Council, CCC

Stephen DeMeulenaere is a pioneer in the field of complementary and digital currencies as a visionary, system designer, administrator, researcher and educator for the past 25 years. He works in Europe, Africa, Latin America and in Asia, where he has lived the past 20 years.

Involved with early digital currency projects, he collaborated with programmers working on cryptographic currency ideas many years before the more famous Bitcoin was invented. He also advised on the concept of Ripple before it was coded (Ripple is a payment infrastructure for the internet and allows money to be sent across payments networks).

Stephen has published interviews, articles and research in this field over the past 25 years and has spoken at conferences around the world.

Current Software Situation

Each of the software packages we use are 100% dependent on their founders for maintenance, which is unsustainable and undesirable.

Since its founding in 2008, Community Forge has used the open source content management framework, Drupal. Since then Drupal's utility for small nonprofits has declined as development has reoriented towards enterprise grade use cases. We have published our Drupal distribution as open source software, see <http://drupal.org/project/cforge>

Starting in 2002 CES software has been continuously developed using Microsoft's ASP. It has numerous more or less useful features and has never been significantly refactored. The software now is so old that it will soon require specialised hosting.

Both of these existing software platforms have very similar functionality.

- Member profiles, search and contact forms.
- Currency configuration
- Payments, with permissioned control over editing and confirming payments.
- Visualisations of transaction activities
- Offers and wants noticeboard, with categories
- Automatic expiry of offers and wants with notifications.
- Photo gallery, events and news feed
- Simple document library, with privacy settings and categories.
- Member with permitted roles can configure or administer content.
- Broadcast feature to notify all users of urgent content
- Configurable automated emails showing new content.

We have developed an API for most of these functions, and augmented our platforms to serve this Community Exchange API (Commex API) This means we can all share the same mobile app. Over 2017 we have been developing such an app which is currently in Beta.

Finally we are working on a web service (SolSearch) to index offers and wants stored on various platforms. The index stores each ad with a global location and can be interrogated to find ads regardless of the community they were posted in or the software it used.

Workstreams

Workstream One: Establish Collaboration Systems and Common Software Architecture

For the three organisations to work together technically as a federation and to handle other networks who might join, we must establish common communication systems and software delivery mechanisms.

A brand or badge is needed to identify this service visually to the hundreds of local groups within the founding organisations' network and explain the services provided to their members, and to assist transfer with others.

A website would be needed to explain what LocalPay offers its partner networks, and to pull together data about network activity to demonstrate impact.

The same or another site would host the task management system for the Credit Commons Collective (CCC).

Once in post, the LocalPay team members and technical advisory board members will need to convene for a two day project workshop (within the first 4 months of the project) and then again after 12 months of the project.

Implementation Workflow:

1. Utilize a set of collaborative working tools for the CCC team to facilitate collective decision-making covering video conferencing, diary and task management, document review and storage.
2. Create a common 'Visual Identity'
3. Set up staff, volunteer and contractor management systems
 - a. Formalise management of current volunteers pre-fundraising
 - b. Develop formal 'onboarding' or induction program for volunteers, to ensure their understanding of organisational goals and values
 - c. Develop contract & control systems for contractors and freelance staff.
4. Data management and impact assessment
 - a. All platforms currently generate data in different ways. Therefore a data reporting protocol must be created to ensure usage and impact assessment can be provided in a common format to track development of the network
 - b. Create and display on CCC member sites a badge to show participation in data exchange system
 - c. Track usage, trades and engagement levels on an agreed frequency
 - d. Map users and types of trades geographically
5. Develop & implement a 'case logging system' to track impact of upgrades and features desired by users
6. Bring together the team members with technical advisory board members for a two day project workshop within the first 4 months of the project and again after 12 months of the project (to coincide with the biannual global community currency summit on September 11-15, 2019, Takayama, Japan).

Workstream Two: Migration to a Common Platform

All CCC federation Platforms should be upgraded/migrated to the Drupal 8 software framework. This will halve the cost of backend maintenance and development henceforth.

To ensure that the CCC federation can work to an agreed schedule while completing existing support services to the founding organisations, we hope to recruit Drupal professionals to build the migration for the two platforms to Drupal 8.

Once the migration process is ready, our team will be trained to upgrade sites one by one. They will create training materials and documentation to ensure community administrators can upgrade confidently and get the support they need in the new system. It would be reassuring and quicker if this whole process were overseen by a professional.

Implementation Workflow:

1. Create Code to ensure all Local Groups in a Platform can be upgraded Simultaneously
2. Test Migration Software on a selected number of Test Groups infrastructure (dummy run only not implemented for real users)
3. Debug as required
4. Create support Training materials and work instructions
5. Train for all Founding Platform Support Teams
6. Phased rollout of training to Local Group Administrators as agreed with Founding Organisation Support Teams
7. Phased rollout of upgrades for Local Group servers
8. Support and training of Local Group users as required

Workstream Three: Community Development

We will build stronger relationships with our 30,000+ end users to invite them into a new, more dynamic community.

Currently, end users have little awareness of the CCC member platforms and the services they provide to their local groups. By building that awareness, we anticipate much more support from them and more referrals into the CCC, when they have confidence in recommending the initiative to others in their individual networks.

We will also build stronger relationships between the 300+ administrators of the local groups so they can support each other, covering a range of matters from user support to legal compliance.

Community development should help in three ways

1. Make possible a coherent 'Needs Analysis'. This process creates a deep understanding of how users think the system should work. It defines who the users are, their tasks and goals, the functions they want and need from a system, and the information they want and need to interact with it. We will use this knowledge to plan and prioritise further IT development.
2. Give users a sense of ownership and responsibility for the software, which should increase their engagement in the long term.
3. Increase long term financial contributions from member groups, reducing our dependence on donors.

We posit that providing a range of services and educational tools to support members will increase their commitment to their existing community group, local currency creation and a collaborative sharing economy in general.

There are more than three languages spoken in this community, but the main ones are English, French and Spanish. Materials will need to be translated to reach all parts of the community.

Local groups do not have any permanent staff or expert technologists. Therefore training is going to be important to bring them with us on this technology shift. The CCC federation wants to recruit a 'Community Support Manager' to assist local groups with training and setup support. This individual will offer training face to face and online to local groups.

They will also help develop training materials including videos, webinars, work instructions, FAQs and call scripts to assist local administrators and committee members.

Our Audiences

We have three internal audiences:

Group administrators have the power of configuration of each site. They are trusted to tweak the look and feel, edit the taxonomy, and switch features on and off.

Group committee members have the power of content management. They are trusted to create edit and delete members, content and transactions. This initiative has the potential to be a significant part of the development of community economies. Most local projects have similar challenges and issues. We wish to provide groups' committee members with tools to share wisdom about best practice and tools to share knowledge between themselves.

- A mutual support forum for group organisers to share ideas and resources.
- Multilingual short courses, e.g.
 - When to balance and when to issue unlimited tokens?
 - Exchange rates & currency conversation
 - Writing for the web
- Repository of PR materials and resources developed by local groups
- A step-by-step process for nurturing new groups and procedures in place to rapidly connect them to a nearby group for mentoring and sharing

Group members can post content, comment, and create transactions with one another. Ideally they would also be able to vote.

Often they are not web savvy, or have difficulty articulating their offers and needs, or in finding a match. They need support and training at different levels from the CCC federation itself, from the group or from their peers within the group. Train-the-trainer materials are already frequently requested, and we hope to develop those materials for local groups.

We have already created a mountain of training content for our Drupal 7 platform. Video tutorials for end users and their distribution are needed. Screenshots, voice-overs and animation will be combined to develop common educational materials which then will be translated into local languages.

Implementation Workflow:

1. Create a communication platform
2. Create common support services tools
3. Fundraising support services
4. Create impact training
5. Share data between local groups
6. CSM to visit at least 6 larger groups that can host others
7. Three regional training camps, in French, English and possibly Spanish

Workstream Four: Web Services for Interoperability

One of the main objectives of this project is to integrate local groups, so they have the autonomy that goes with being local but the connections that go with being global. We will create two new web services to which each local group can voluntarily connect to share their members' adverts between groups and to make transactions across groups. The APIs of these services will be published and other networks invited to participate. We plan to retain control of (our instance of) these services which means, for example, being able to exclude undesirable content such as spam.

Inter-Group Advert Index Service

To begin the process of creating a global exchange system for local group members to make exchanges outside of their immediate area, a back end communication system is needed.

The most basic need is to be able to see what is available outside the local group and to trade with those people who have offers of interest.

To find those people you need a search function, which has a listing of the available offers, which can be searched by location. This function will allow users to find services that are relevant to them and answer questions like 'who is available within ten miles/kilometres'. To answer that question you have to 'geolocate' the place where an offer was made and to be able to provide listings of offers which you can sort according to both the type and location of the offer.

These functions require information to be exchangeable between groups organised in such a way that the other group can display your group's offers or 'ads' complete with a consistent set of geo-positioning information so users can sort them based on their location.

The new 'Solsearch API' will allow 'advertisers' or users globally to 'post' their adverts or offers and allows any user to list and search all placed ads. It will have the following features:

- provide a minimal implementation of an 'ad' that provides baseline functionality but enough flexibility to be used by advertisers for any product or service (making use of a keyword feature)
- allow advertisers full control over their adverts

- provide public search and list features - where all advert data is pushed from local Group services into 'public' space that is outside
- This functionality will achieve this through a single API that allows writing, listing and searching as a service on the basic Mobile App.

Clearing Central review

We have a Web service already which validates and logs exchanges between local groups, called Clearing Central. Eventually (outside the scope of this proposal) we plan to replace this with a blockchain as described in our white paper on <http://creditcommons.net>.

This is key to the long term plans of the network to become a more serious financial tool, capable of improving the lives of millions of people, enabling them to exchange without money.

A first step towards this is to audit Clearing Central and make a version 2 with a new API and better defined functionality. This would build confidence in the service and smooth migration to a blockchain iteration later on.

Implementation Workflow:

1. Publish our 'Solsearch API' which is a new back-end server service to store and retrieve geo-positioned ads.
2. Implement Solsearch in Drupal 8
3. Implement Solsearch in Commex app
4. Build a Central Solsearch website promoting the API, allowing browsing of content, and showing usage stats.
5. Encourage other networks and Groups to index their ads or offers with the 'Solsearch' API
6. Audit Clearing Central software
7. Design new Clearing Central v2 API.
8. Build new Clearing Central v2 backend
9. Build new Drupal 8 Clearing Central v2 client

Workstream Five: Scaling Up

Formal community exchange has been working in an ad hoc way in developed countries for some decades, but one entrepreneur after the other has failed to build large-scale communities around the notion of exchange. We could advance many theories about why this practice hasn't become much more widespread but suffice to say, almost no money has been invested in strengthening existing grassroots communities and infrastructure, and almost all new software created is based on only one business model or monetary ideology.

Given our observation of these failures, LocalPay aims to achieve massive scale with the following two strategies.

Free software code and standards

Local communities have very little money on their own, and usually little expertise for managing software, though they often have people with time to tinker and to learn. Over the last decade these communities have mostly aggregated onto a handful of platforms which they trust. All of these platforms are free and nonprofit, but most of them are not robust projects who can be guaranteed to still be around five years from now. Most of these platforms are not open source, but even if they were, they would likely be too big and too difficult for communities to manage without continued input from the benevolent developers who created them.

LocalPay.tech will solve this problem by leaping to the next software paradigm, in which web services store and provide data, and client applications present and manipulate data, and the two ends communicate using standard protocols. We will publish a suite of APIs aimed at community groups, web services which do one thing well, and code which can be tweaked and redeployed. Introducing these as new standards will invite local communities to be interoperable with each other.

APIs:

- Commex API for community exchange specifies the most common operations a community member might perform from their phone or tablet.
- Ad-storage API specifies how a community can store and retrieve ads like offers and wants.
- Ad-index API specifies how a community can store and retrieve ads like offers, and wants in a space common to other communities, allowing global searches.
- Transaction Storage API specifies how a community can store collaborative credit payment records, retrieve balances and configure automated contributions.

Web services:

- The collective will run an authentication service. Authenticated members will be able to access other services we build.
- Ad-storage service - a database of member offers and wants served via the ad-storage API.
- Transaction storage service - a database of transactions and some configuration served via the transaction-storage API.

Client applications:

- The default LocalPay app will connect to the above services and perhaps more.

For more information on the software ecosystem envisaged, see workstream six, 'Decommissioning the platforms'.

Global Outreach with Key Networks.

The LocalPay Technology Project is a global endeavour, with people, communities and organisations able to adopt and adapt its tools for their own use. Therefore we aim to make our approach and tools known to relevant global networks to enable awareness and uptake in locations that are currently unknown to us. For many projects such an idea is wishful thinking, but the nature of our offer - with free open source software - and our experience of groups joining our platforms from different corners of the globe shows us that connecting with global networks will be an important approach to scaling our impact.

Our internal strategic review on which networks to engage has identified the following five communities and their relevant global networks, each for different reasons that we will explain.

International networks of the Open Source Software Sectors. This sector includes Networks focused on specific software such as Linux, Drupal, Joomla or Wordpress, as well as the importance of Open Source software in general. We have identified this community as key to influence and engage due to the potential for shared values leading to collaboration. In particular successful engagement would lead to increasing numbers of organizations and programmers supporting the ecosystem of standards and code that would continue to maintain the LocalPay software and its variants over time. This would reduce donor dependency in the long term and enhance the technical infrastructure for local currencies. The proposed Technical Director Matthew Slater has knowledge of this sector.

International networks of the Blockchain and Cryptocurrency Sectors. This sector includes a range of newly-formed organizations which seek to promote or regulate Innovations in this field. It also includes a range of specialist media. We have identified this community as key to influence and engage due to their interest in new approaches to value exchange and the role of technology. Successful engagement would lead to More time and investment from Professionals in this sector being channeled into truly local alternatives which do not involve speculation or volatility. The proposed Communications Director Jem Bendell is organizing the United Nations first full day conference on blockchain and cryptocurrency in October 2018. Outreach to this sector would include the reworking and promotion of existing free online course (see below).

International networks of the Alternative Livelihoods Communities. This Is the name we give to a device field old people and organizations who are practicing approaches to economic life informed by concerns for the environment and social justice. It includes transition towns networks, cooperative organization networks, social and solidarity economy networks, Eco Village networks, permaculture networks, and other community-based economics networks. We have identified this community as key to influence and engage due to similar values and their likely interest in free and efficient tools for local sharing and exchange. Successful engagement would lead to many organizations in these networks adopting or adapting local pay software and standards to Improve the lives of their members. Each of the current Credit

Commons Collective team members have some knowledge and networks within some of these Alternative Livelihoods Communities.

International networks of Local governments and cities. This includes initiatives such as Resilient Cities, the World Cities Summit, as well as UN-convened networks of local governments. We have identified this sector as key to influence and engage due to their budget constraints yet interest in leadership on sustainable development. Successful engagement would lead to local governments adopting or adapting LocalPay software and standards to improve the lives of their citizens. The Proposed Communications Director Jem Bendell is a "young leader" of the World Cities Summit and can therefore attend the World Mayors' forum.

International networks of Faith-based Organisations. This community includes Multi-faith organizations such as the World Council of Churches (WCS) as well as networks focused on many denominations of single faiths, such as the World Christian Student Association. We have identified this community as key to influence and engage due to their huge membership, global reach, and interest in values beyond commerce. Successful engagement would lead to some religious institutions either creating local groups using the local pay software, for customizing and rebranding it while retaining interoperability. Two of the proposed LocalPay team members have relevant contacts in this community at a global level.

For each of these five target communities or sectors, the LocalPay project team would undertake a multi-faceted outreach, including drafting media articles for targeted audiences, making conference presentations, recording short videos, face to face engagement, and hosting workshops with potential partners. For the blockchain and cryptocurrency sector in particular, the successful Money and Society MOOC Would be reworked and redeployed on a suitable platform to reach this audience. Since 2015, hat MOOC has been developed and taught for free by two of the members of the proposed LocalPay Technology project.

Implementation Workflow:

1. Research and prepare evidence base and narrative for Open Source Software sector and the Blockchain and Cryptocurrency sectors
2. Development and launch of a new MOOC targeting the Blockchain and Cryptocurrency sector
3. Multifaceted Outreach to the Open Source Software sector and the Blockchain and Cryptocurrency sectors
4. Research and prepare evidence base and narrative for Alternative Livelihood Communities and Networks of Local Governments and Cities.
5. Multifaceted Outreach to the Alternative Livelihood Communities and Networks of Local Governments and Cities.
6. Research and prepare evidence base and narrative for International networks of Faith-based Organisations.
7. Multifaceted Outreach to the International networks of Faith-based Organisations.

Workstream Six: Decommissioning the Platforms

The founding members of the CCC federation depend absolutely on two software developers who have proven hard to replace. LocalPay aims to break up this technology into smaller, more specialised pieces which will be easier for individuals or ideally, small groups of less specialised developers to maintain.

This work will only be complete when the two platforms, Hamlets for Drupal, and CES, can be replaced with an alternative infrastructure and decommissioned. In Workstream Four we described the published components of that infrastructure, and in Workstream Six, we would build those components and eventually migrate away from our platforms.

The nature of this work stream will be developed as a direct result of consultation with local groups and form part of the formal 'needs analysis'.

There will be a tricky intermediate stage when we will have two data backends, the platforms and the LocalPay app; It will be necessary to build a temporary bridge to synchronise the two data sets.

Implementation Workflow:

1. Design and build ad-storage service
2. Design and build Build transaction-storage service
3. Build REST services for other content types.
4. Setup authentication service
5. Convert the Commex App into the LocalPay app which connects to the above services
6. Build synchronisation mechanisms between our platforms and the above services.

At this point we will be able to announce that there will be no more platform upgrades. Drupal 8 Framework will continue to be supported until around 2022, after which the LocalPay set of apps and APIs will still be current, along with hopefully some compatible implementations maintained by other networks.

Project Sustainability

It is our strong intention to utilise the considerable expenditure of this project to create a paradigm shift in the scale and utility of these systems, and then enable these networks to continue independently of such rare cash injections.

Thus all the money will be spent on building and setting up structures and processes which can be maintained by volunteers. Our outreach efforts in the Scaling Up workstream are also shaped by this intention. Costs associated with maintenance should be met in the future, as they are now, from within the network. We have identified the following cost recovery mechanisms:

- In workstream 3, community engagement will be ramped up, so that members better appreciate the infrastructure on which they depend.
- As groups exchange more and more with one another, we will be more able to accept contributions in community currency, which can be used to compensate skilled contributors and volunteers who would spend them back into the network and into those communities.
- We will explore the potential for organising regional expos to celebrate and build community economy trading relationships. These areas and other opportunities for revenue generation will be developed during the second year of this work programme.

We also aspire to a high level of engagement from activist developers and innovators who appreciate the limitations of the 'trustless' approach embodied in cryptocurrencies. By building an ecosystem of developers, community networks and users, LocalPay should have no trouble covering its costs.

Impact Assessment

The ability to generate anonymised data on groups and their activities will inform the growth of the CCC federation's networks and allow academics and others to monitor the development of the new economy.

The kind of data which would be available over time would be:

- Number of currencies declared
- Number of groups using solsearch
- Number of users with global ads
- Number of global ads
- Number of local ads
- Number of participating networks
- Number of local transactions
- Number of transactions between groups.
- Number of accounts with overridden balance limits
- Volume of transactions per group
- Number of visits per groups
- Number of alternate implementations of the LocalPay app

Scale of Funding Required

The aims of the project require funding over a two year period. A draft budget has been prepared and is accessible upon request. It amounts to just over 460,000 euros over 21 months, including a 7% administration fee for the host institution.

Contact Information

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