Complementary Currency Open Source Software in 2010

Matthew Slater

Developer of mutual_credit Drupal module and Co-founder of Community Forge

matlats@gmail.com

http://communityforge.net

Abstract

This report briefly covers the field of non-commercial mutual credit software, discussing the issues and challenges the projects collectively face in meeting the needs of the movement. There is a clear cultural divide between commercial barter software which helps businesses exchange spare capacity within the law, and free open source projects which help neighbours to exchange under the radar of the tax man. There is almost no cross-fertilisation between nonprofit, idealistic, community projects, and the business barter. The aims of both cultures are very different, though their methods are similar.

Introduction

This report briefly covers the field of non-commercial mutual credit software, discussing the issues and challenges the projects collectively face in meeting the needs of the movement. The intention is not to make direct comparisons but to take a higher view, with concrete examples.

There is a clear cultural divide between commercial barter software which helps businesses exchange spare capacity within the law, and free open source projects which help neighbours to exchange under the radar of the tax man. There is almost no cross-fertilisation between nonprofit, idealistic, community projects, and the business barter. The aims of both cultures are very different, though their methods are similar. It seems to me that the Business-to-Business (B2B) industry is much more a part of the commercial world than part of a movement for change. No commercial software is considered here because it is not used and not available for the purpose of purpose of social change. This may change as the recession deepens.

All projects under consideration have multiple instances in use and are open source.

The term 'association' is used in this report to mean a distinct mutual credit exchange circle, using its own currency, and whose transactions add up to zero.

The Playing Field

Before getting to the issues, here is a synopsis of each of the main projects, in order of age. These projects are selected on the basis that they are open source, have multiple implementations, and support community exchange using an arbitrary measure of value. Each one consists of a community of users, who log in via a web interface to log exchanges. Users are presented with their account balances and prevented from exchanging beyond certain limits. Usually there is an offers/wants directory to help users find partners-in-trade, and sometimes there are user profiles and other social networking features such as might be found in Facebook.

Table 1: Summary of Open Source currency platforms

	Platform	Developers	Instances	Easy set-up?	URL
Cyclos	JAVA	4	Many	No	www.cyclos.org
CES	MS asp	1	200 in one	Yes	www.ces.org.za
CClite	PERL	1	few	No	www.hughbarnard.org
4th Corner Exchange	Php	1	10 - 20	Yes	www.fourthcornerexchange.com
Drupal/ Community Forge	Drupal	1	30	No/Yes	www.drupal.org/project/ mutual_credit www.communityforge.net
Opensourcecurrency	Inoshi	1	200 in one	No	www.opensourcecurrency.org

Cyclos

Cyclos is the software implementation arm of the Social Trade Organisation (STRO), based in Netherlands. It is an open source, java, comprehensive package used in increasingly large projects around the world. This a robust and flexible accounting application, which can manage complex group structures, multiple currencies, business rules, and even paper notes with serial numbers. However it is famously weak on graphic flexibility, content management, and social networking features. The project focus is on STRO implementations rather than re-usable software, and third party developers find it awkward to work with. Several 'one-off' projects have deploying it as a back end accounting package despite the lack of formal documentation. The German Tauschring network picked up Cyclos and now use it routinely, even contributing back code.

Community Exchange System (CES)

Arising from a grass-roots movement in Cape town, CES is a free web service that hosts over 200 'Exchanges', each with its own currency and separate database. Its growing popularity makes this network a very good choice. Despite still being a one-man hardly funded software project, it is hosting a global network of mutual credit systems, which are trading between each other (more on 'intertrading' later).

CCLite

ccLite is a Perl package for local exchange trading systems (LETS), banking and other alternative money systems. Multi-registry, multi-currency, web services based transactions and templated to give multi-lingual capabilities.

Fourth Corner Exchange

Fourth Corner Exchange is a family of LETS like groups in the North East USA. Their php/MySQL application was written for multiple implementations of that specific model. Although development has mostly stopped, LETSlink UK has make their own adaptations to the software and implemented with several LETS associations.

Complementary Currencies module for Drupal

A Drupal module for web developers to implement a complementary currency within a social networking framework. It provides the expected mutual credit accounting features, very flexible forms for entering exchanges, and aims to meet the needs of a wide range of innovative projects.

Community Forge

Community Forge, is a small NGO based in Geneva, offering free implementation of Drupal aimed primarily at LETS associations. It is gaining popularity particularly in French speaking Europe.

OSCurrency

Developed by members of the Austin Time Exchange, this project is now under development for the Bay Area Community Exchange. While the platform, Insoshi is not well known, much attention has been given to openness, so that the system plugs in easily to the rest of the web.

Also worthy of mention are:

- **Time Banks UK** which since introducing intertrading and hosted sites has become one very large mutual credit exchange.

- **Ripple**, a way of accounting without money by finding trust-pathways through social networks

- **Metacurrency**, an attempt to make an all embracing standard model of 'currencies' and to make software which will support it, so that communities can design and use their own currencies, but all will be somehow compatible.

The Issues

1. Making software options accessible to implementers

Most new projects at the moment are focused on the issuance of paper notes, either representing hours or national currency. Paper is a tangible and immediate form of money which the banks are seeking to phase out, useful for small, day to day exchanges, but its drawbacks are under-appreciated:

- High cost of printing secure notes

- Very hard to monitor the velocity

- Suitable only for face-to-face exchange

While paper has a role to play, it will never compete with the high tech services and convenience that modern banking offers. A digital back end offers many benefits:

- More ways to conduct transactions, via web form, SMS, point of sale swipe cards, and even automated transactions.

- Better tools to monitor economy

- Easier to tweak the rules

- Easier to extend credit (you can't hold a negative balance of paper)

- Cheaper to scale

However community organisations often find software a traumatic subject. The more courageous implementers and designers are trawling the net trying to work out what each software package does, how they compare, and which is best for them, and whether they can afford it. The only information available to them is in the form of a few poorly maintained lists on the web with no review and no

Community organisations often find software a traumatic subject. The more courageous implementers and designers are trawling the net trying to work out what each software package does, how they compare, and which is best for them, and whether they can afford it.

attempts at balanced comparisons. Implementers find themselves sifting through lists including dead projects, ready rolled services, and hard-core applications and there is almost no information available from other implementers. In practice there are ready rolled solutions, namely CES and Timebanks, but any group wanted to be remotely innovative, must choose between Cyclos, which can do anything in the accounting realm, but is unsupported, very specialised and difficult, and Drupal which is easier and offers all the community functionality, but is unsupported and under-developed.

Every CC community down to the simplest LETS has its own set of rules and/or ingrained ways of doing things, which provide barriers to the adoption of software. By contrast most of the software available was designed by and for communities who had the resources. So there is a problem of a lack of general purpose software.

We need to be building up communities of users, who support each other with design choices and software implementations, as well as handling enquiries from strangers. The Tauschringen are streets ahead in this respect with a community of volunteer developers who collaborate to manage most of the network across Germany and Austria. Regrettably there is no hard information about this in English.

2. Encouraging good governance

It's well known that complementary currency projects have a high failure rate, and widely acknowledged that this is largely due to poor governance structures being unable to sustain an initial flurry of interest. There are various ways in which software could support governing activities:

- Identifying hoarders and long-term debtors

- Identifying people who have been inactive for a while

- Rewarding the traders and behaviours which are most beneficial

- Collecting fees from every member to support the governance & management

- Helping with volunteer and task management

- Highlighting the users who most need to trade

Providers of software have an ideal opportunity to bundle in governance support to add value to the package. A delicate balance has to be struck between encouraging good governance by providing the tools and expertise, and promoting local autonomy, a vital aspect of building resilience to the present economic attacks on the middle classes.
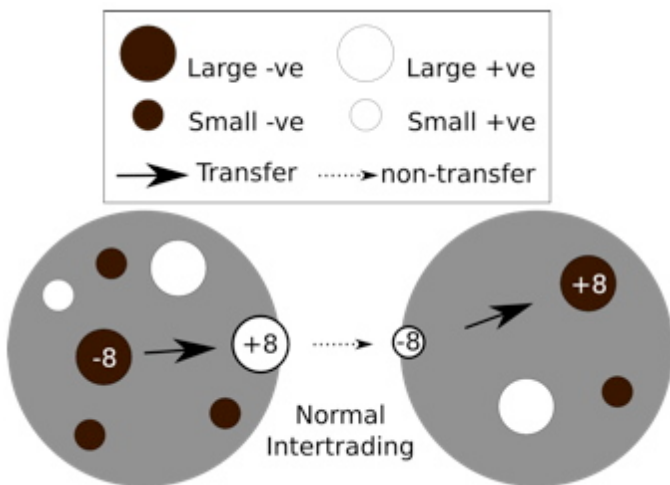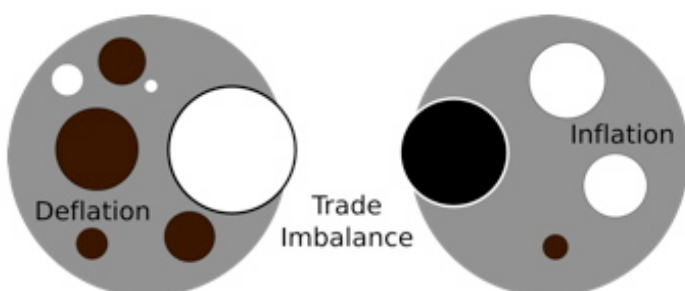
Figure 1: System intertrading

Figure 2: Inter-system imbalance

3. Intertrading

One of the major barriers to achieving scale in a decentralised mutual credit economy is the fundamental inability of associations to exchange value between themselves. However it is critical for the usefulness of the network that members be able to trade outside their local groups, across the network firstly with adjacent local groups

The most highly evolved solution seems to be that each scheme has a single 'intertrading' gateway account which holds the balance of all external transactions. In the following diagrams, each circle is an account, while the size of the circle represents its deviation from zero and the color, whether it is in credit or deficit. The grey circle represents the whole mutual credit association, who's balances always add up to zero; the *black and the white areas must be equal* in any association.

A 'virtual' transfer is when user A pays into his scheme's intertrading account, while user B is paid an equivalent from her intertrading account.

CES offered this mechanism almost from the beginning as all its 'exchanges' lived on the same server. The Tauschring network offers it as well but in a completely incompatible way. Community Forge is working with CES to define and implement a way for otherwise incompatible software instances to trade.

As the technical barriers are overcome, the main obstacle to this system spreading will be political. Local currency communities need to organise and to agree on a standard measures of value. The Tauschringen have agreed an algorithm which accounts for the value of the currency and the minimum wage.

Figure 1 shows how intertrading usually works between mutual credit clearing circles. This method is works well because both parties use their local currency, and main accounts, and zero balance is retained in principle.

Figure 2 shows what happens when the intertrading accounts get too large in either direction and cause liquidity problems. The solution is for the association to constrain the intertrading account, just as all the other accounts have minimum and maximum limits.

The Tauschring network (Germany) has been working on this with Cyclos, and made a lot of progress in this area. They are automating the intertrading between Cyclos instances on different servers, which is harder because there needs to be better authentication and a registry of participating schemes.

This mutual credit economy has balance-of-trade mechanisms designed in. Intertrading mutual credit associations must, like their members, keep the balances around zero. The Tauschring network has a rule that no intertrading account should hold more than 10% of the scheme's activity. The equity of the intertrading account is therefore a collective responsibility, since a poor balance-of-trade will impact on liquidity

They have also agreed on an exchange rate mechanism which factors in a time-value for the currency unit, and the local Euro minimum wage. Though there are some objections to using national currency as a measure of value, this system is the most advanced I know of.

A technical standard and exchange rate mechanism is needed so that associations can participate in intertrading, regardless of their technological platform.

4. Modularisation

The most used packages, Cyclos and CES are both about a decade old. That means in practice that they were coded from scratch, and are 'monolithic' and highly specialised. The sheer volume of code involved makes them very expensive to maintain. The next generation software tends to be built in open source frameworks with names like Drupal, Joomla, Wordpress, Django. This means that a whole community manages the common, or core functionality of the framework, providing regular upgrades and security fixes. Developers and implementers can often meet 80% or more of their requirements by assembling contributed blocks of code. In this way, developers are responsible for much less code, and are more able to concentrate on their special area of interest. The modern frameworks allow a wide range of applications to be quickly assembled from a vast pool of free modules.

Over the coming years, the proportional cost of upgrading, developing and maintaining the older software will go up and up. To justify this

expense, the older software will either require a complete overhaul, or will have to become increasingly specialised but pluggable to other things. I think an extremely good investment would be to connect Drupal to Cyclos. This would enable Cyclos to concentrate on accounting, as a purely back-end application, instead of trying to compete with all the bells and whistles that modern frameworks offer.

This innovation would take CCs to the next level, by distancing the economic functionality from the marketplace (matching needs to offers) and the froth of the social web. It should be decreasingly necessary to confine the CC to one web site with one meagre offers directory, because one (Cyclos) bank could do the accounting for as many marketplaces as needed.

5. Supporting innovation

Developers are aware of all these matters but progress in the movement is very slow compared to equivalent technical endeavors. This is because:

- There is almost zero investment in software itself; any investment is always directed at implementations, and most of the software is built by busy people in their spare time.

- No-one in the movement seems to be raising money, or making the case for Complementary Currencies to governments, foundations, or corporate social responsibility units. When money is raised, it is rarely invested in software.

- Perhaps because there's a tradition of web services being free, users of CCs don't expect to pay for it. The cost of their using banks are easier to hide, but whether users pay directly or indirectly, it is in the act of paying for that infrastructure that users gain or give up control over their economy and their financial services.

- Business barter software makes money because it's customers are business, and it helps those businesses run better. But communities don't monetise things in the same way. In the West there is almost no community-level governance and hence no money for investment at the community level.

Of all the software under discussion, only Cyclos is insulated from the possible demise of

its primary programmer. No investment means no staff, no reliability, no guarantees for the future, and is a disincentive to the innovators. Community currency projects, even when funded, can rarely afford to build their own software from scratch, yet no-one is funding pure software development because there is no direct and measurable impact.

Closing Thoughts

There is much talk and investment in 'virtual' currencies, especially from corporations like Facebook and Google. These may broadly fit the definition of complementary currencies, but they offer none of the benefits which we are concerned with, being mostly direct proxies for hard currencies intended to encourage spending in social networks. Someone should be looking into piggy-backing the commercial tools - using the Opensocial API to build a CC ecosystem.

If privacy were not a concern, Facebook would make an obvious platform for a complementary currency, to spread rapidly.

All the models under discussion so far assume that the currencies live on one server, in one integral database, where the same users log in and trade with each other and the governance is very clear. However, there is much room for abstraction. I would encourage theorists to consider how Paul Grignon's "digital coin" might be implemented and also to conside the implications of the Metacurrency initiative to mutual credit software architecture.

For decades now, CCs have had minimal impact, confined as they are to the margins of progressive economic experiments. The 'global' debt crisis is the best opportunity the movement will ever have to prove the impact of currency designs on their users. There must surely be opportunities now, with software and expertise, to engage with larger players. Entrepreneurs could be approaching the following types of organisations proposing CC solutions to their coming cash crises.

- Co-operative societies have always been amenable to CCs (remember the stamps?)

- Local energy generation companies have the perfect measure of value, basic commodity and community integration.

- Local food producers have assets in the ground which are perfect for monetising

- Could credit unions and similar local-based organisations better use assets with a CC?

Overall I would make the following recommendations:

1. Developers need to collaborate on an API to facilitate intertrading between associations, and networks of associations

2. Independent software reviews should be commissioned/encouraged.

3. Potential sources of long term funding need to be identified and courted.

4. The value/cost of the software needs to be better communicated to the potential users.

5. A Drupal module should be built to run Cyclos as a back end accounting package.