What Can HCI do for Local Currencies?

Abstract
Today’s unstable economic situation has given rise to grass-roots initiatives emerging to keep their local communities thriving. Such initiatives include introducing local currencies but these are relatively young and use is still evolving. Sustaining alternative currencies at the local, regional level relies in varying degrees on digital support, yet very little is understood about the digital infrastructure required for maintaining a successful local currency. We propose that with in-situ studies of communities who use local currencies, we can gain insights into the role of digital technology in supporting and extending the currency in a way that aligns with the values and aims of its users.

Author Keywords
Local; currency; infrastructure; in situ; economy; technological; design

Introduction
As in the past, alternative economies emerge in times of hardship when the existing economic structures are unable to meet the needs of the population. In light of the ongoing economic turmoil and debates around what should be done to address this, alternative currencies on a local, regional level (i.e. local currencies) are becoming increasingly visible [e.g. 1, 4]. To date there is no definitive evidence relating to the impact of local currency on the local economy, or of its sustainability in the longer term. For HCI researchers, these local currencies, the mediums of exchange, the users, the groups that administer the currencies within the wider social and economic contexts are of interest for two reasons: i) local currency systems are just starting to integrate technology in their everyday practices and ii) the role of digital technology in this arena remains largely unexplored in the academic literature. While it is evident that technology is a part of such local currency systems at various degrees of integration, very little is understood about the digital infrastructure necessary for supporting and maintaining a successful local currency. The relative early stages of technology integration means HCI designers are in a good position to shape how local currency works and to impact debates around use and best practices. We propose that it is necessary to consider local currencies within their particular circumstances and that with in-situ studies we can gain insights into the applicability and role of digital technology. Informed by in-situ studies we can create designs for digital technology that align with the current practices, values and aims of its users.

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Three examples of local currencies

We briefly outline three local currencies in use today, not as representative of all local currencies but to illustrate some of the social, technological and historical aspects at work in local economies.

The Bristol Pound

Bristol (UK) is a city with a population of approximately 432,500, which makes it the most populous city in the South West of England (based on figures from the Bristol City Council released August 2013). The city has been awarded the European Green Capital of 2015 Award in recognition of its investments in efficient energy production, transport infrastructure and natural resource management. The Bristol Pound (£B) was launched in Bristol in September 2012 as a partnership between a community interest company known as Bristol Pound CIC and the Bristol Credit Union (http://bristolpound.org/). The currency is both paper-based and digital (see Fig. 1). Transactions occur in printed notes (in denominations of £B1, £B5, £B10 and £B20), texts on any mobile phone, or online via an electronic account similar to a bank account. Printed notes are accessed from a number of businesses at various locations in the city (access points) and there are no restrictions on who can exchange sterling for £B notes. £1 sterling is equivalent to £B1 and businesses in the city trade in Bristol Pounds on a voluntary basis. According to reports, there are currently (September 2013) around £B200,000 in circulation and over 600 businesses are listed in their directory as members. Payments by text and online require an electronic account. Access to electronic accounts is granted by the Bristol Pound CIC, subject to certain rules: businesses can become members, and hence maintain a Bristol Pound account, if they are locally owned and operated. £B10 note (top); A demonstration of payment by text from a video explaining the Text2Pay system (middle and bottom). Source: www.bristolpound.org

Individuals may become members and granted accounts if they reside or work within a specified geographical location. While transactions in printed £B are similar to printed sterling transactions, transactions via text are somewhat novel in their interaction. A buyer enters their user name and the amount of the transaction in text form and sends that to a mobile phone number. All text transactions are sent to the same number, which is managed by The Bristol Credit Union. Confirmation texts that payment has been received are sent to both the seller and the buyer.

The TEM

TEM (which in Greek stands for ‘alternative monetary unit’) is a local exchange trading system/network used in the region of Magnesia in Central Greece and particularly in the town of Volos (est pop. 144,449). The TEM network was founded in 2011 as an independent initiative from local people aiming to address the difficulties citizens faced due to the economic crisis in the country. As stated in the official website (http://www.tem-magnisia.gr/), it was created for people who are having difficulty or are incapable to cover their needs only by means of their principal income (such as pensioners, people who work part-time or are unemployed) but are able to ‘pay’ alternatively for products or services by offering their services or products (new and/or second-hand). The network also invites traders that would like to broaden their clientele and take advantage of the provided services to include TEM in their businesses in addition to Euro. By using the TEM, members are provided with an alternative way (barter) to make means (buy goods or services), but are further supporting each other and strengthening community bonds.
TEM is in practice a unit used to depict the transactions taking place between members whether these involve products or services. For simplicity one TEM equals one Euro but there is no print denomination. TEM is geographically bound to the region of Magnesia and one has to be a registered resident or business in the area to become a member. All transactions are recorded in a dedicated electronic system so each member of the network can keep track of their status (debit/credit). Every time a transaction takes place the seller’s account is credited in TEM units while the buyer’s account is debited the same amount. For members that don’t have digital access there is a paper payment form similar to a check that needs to be filled and signed by both involved parties - the person offering and the person receiving the services/goods (see Fig. 2). This form is then submitted in person to any of the TEM centers and the accounts are updated to the electronic system (see Fig. 2). Traders can choose to substitute part of the services’ price in TEM; for example if something costs 50 euros, the trader can offer it to TEM members for 30 euros and 20 TEM (indirect form of barter). The online system is also used to advertise products or services that members offer in the form of ads that are posted free of charge. Currently there are approximately 800 members in the TEM network [2].

The Calgary Dollar
The Calgary Dollar (C$) is a local currency in Calgary, Alberta, Canada (est. pop. 1,214,839). It was founded in 1996 as a community support/economic development project of the Arusha Centre (http://arusha.org/). Originally it was called the "Bow Chinook Hour" and operated as a time-based exchange system but in 2002 it became Calgary Dollars and included both a barter and print currency system (http://calgarydollars.ca/). Currently it comes in denominations of 1, 5, 10, 25 and 50 C$ and the bills are printed on a plastic material in the same dimensions as the Canadian Dollar (Fig. 3). The print notes are decorated by art from local painters and apart from the aesthetical aspect, serve an added purpose of trying to engage people into thinking how things have changed in the past 50 years and what are the implications of those changes for now and the future (one side shows an old representation of Calgary and the other a recent). In addition to the print currency, there is an online system where companies and individuals can advertise their services/products for a fee.

Joining can be done online or in person in the Arusha Center or during any of their events (e.g. markets, potlucks) and is free for individuals and companies but they have to live or work in the city of Calgary and the surrounding area. Today there are 80,000 Calgary Dollars in circulation, 500 members advertising at the association’s website and approximately 200 local companies accept the currency. For companies it functions as a coupon system for a local circle of customers and they can chose to make 25-100% of the price of their goods and services payable in C$. For individuals it works as a way to earn extra money and support the local economy by using the currency in local businesses. Participating businesses cover a broad range of services such as restaurants, grocery stores, theaters, as well as a car-sharing program, accepting 100% local currency for car use and rental and a 60 unit housing co-operative which accepts local currency for a percentage of rent. Local biodynamic farmers and
shops are connected to the system, as is Calgary's public transport.

Understanding local currencies in situ
What the above examples illustrate, albeit briefly, is that alternative local currencies, despite their similarities in terms of the motivation for their existence and the aims they are working towards, differ in terms of how these aims are realized in everyday use and practice. The mediums that are used for the everyday transactions, how accounts are being monitored or updated within each system as well as the social practices around use are distinct to each of the local currencies. For example, both the £B and the C$ have a print denomination while the TEM does not. The C$ and the TEM both support bartering as a means of exchange while the £B does not. A form of check is accepted as part of TEM transactions but not as part of the other two. More examples can be drawn but the point we wish to emphasise is that alternative local economies are complex systems with economic, cultural, social, physical and digital interdependencies. To understand better how to support them by means of technological design, we need to look closely into the rich details of their everyday practices with qualitative in situ studies.

Similar approaches have been successful in studies of mobile money (such as MPesa [3]) and virtual currency in gaming (such as QCoin in China [5]). These studies have provided a better understanding of the community of users, of the meanings people assigned to artefacts and interactions, and informed designs of novel systems. Local currency differs from both MPesa and the virtual currency of games in that (1) it is tied to geographic locations, (2) tied to values around ethical economic models, (3) tends to emerge from and develop around relatively low cost infrastructure, and (4) its exchange can take both digital and non-digital forms (paper, time, physical goods and services). These four differences warrant in-situ studies of local currencies in their own right, as such differences will uniquely shape strategies for opening up their services as well as for the integration of digital solutions to better support their services.

Future Work
In the studies proposed, we work toward two aims. The first is to better support the existing alternative local currency systems by designing technologies that fit with the contextual factors of that particular local community of users. The second is to extend the possibilities for use that the local currency and its infrastructure already offers. In supporting the currency we include implementing solutions that help the administrative group connect with their community, that help the community connect with each other, and that enable users to conduct transactions that are meaningful to them. To illustrate what we mean with extending the possibilities of use, the example of Bitcoin is most illuminating. The technological innovations of the Bitcoin platform are being applied in new ways. For example, in multiple projects Bitcoin’s blockchain is being extended to allow for the control of ownership of cars, property and shares – what the Bitcoin wiki calls “Smart Property” (https://en.bitcoin.it/wiki/Main_Page). It is possible that technology developed for the exchange of local currency can similarly be appropriated for new uses.
References