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THE DISTRICT CURRENCY: A NEW CURRENCY DESIGN FOR MANAGING THE COMMONS

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ABSTRACT

Most schemes of complementary currencies developed in the last 50 years are based on the "money as a means of exchange" concept, which means exchange of individual agents based on their individual needs and offers. The individual person or is an actor in a network and by establishing a market it is possible to exchange goods and services. Mutual Credit systems LETS or Timebanks support mostly this market case and many of them limit common activities to the sole operation of the system itself. Therefore, community currencies today are often currencies operating within a community but not necessary for the community. The case of a commons is mostly not recognized as a completely different kind of exchange where needs of a whole group have to be satisfied through offers of individuals and offers of the whole (commons) have to be shared among the individual members. Such an exchange asks for different features from a community currency. This was the starting point of a project in Zurich, Switzerland to develop a more suitable and effective currency on the commons idea. It is the needs and tasks of the community, the public (community) goods and common tasks which are the core and drivers of the currency. As a secondary element the traditional individual market-based system complements this common layer and strengthens its impact. Therefore, it could be seen as a two tiers model. The paper describes basics, premises and functions of the idea including some historical background and more specifically the case of Wörgel in Austria which has some interesting aspects still not widely taken into consideration. The main features of the district currency model include intended and controllable circulation, democratic decision of spending and budgeting and a commons-based value system. The currency was developed along a case study in a housing co-operative in Zurich. Experiences with the planning district-currency-game give some important hints for the feasibility and the functioning of such an improved currency model and the open questions remaining to be answered.

KEYWORDS

Community Currencies, Co-operatives, Housing Co-operatives, Special Purpose Currencies, Commons, District, Democratic Decision Making, Monetary Theory

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1. INTRODUCTION

The idea of using a complementary currency as a tool for the management of communities and their commons has always been a part of the local-currency-movement. Many of the initiatives declared a positive impact on the community as their first goal, but the results did not always correspond to these ideas. One of the reasons might be the limited abilities of the available currency models. Other economic and social reasons might be equally important for the failures, but an advanced currency model, which is really dedicated to serve the community, could nevertheless be a strong case for success. This was the background to develop a suitable model of a currency for the purpose of communities trying to improve the management of their commons. One main type of such communities are co-operatives, that have by their nature the objective to manage economic resources as a commons of their members.

In the first part, the economic foundations that lead to the consideration of a new type of community currency, the commons-based currencies, are presented and the co-operative idea and the role of currency in economy are discussed. After this, a brief overview of the current conceptions of such a system and its implementation is given by means of a look into history. In the central chapter the premises, design and functions are determined, and a currency model is derived and described in a generic form. In the closing part, the findings and possible advantages of such a currency are discussed.

The paper does not intend to cover fully the requirements of a contemporary scientific paper. The reason is its developmental character, which requires a more propositional methodology. Of course, this is based on assumptions and pre-considerations which are specified, but as the focus is on describing a new model in the first hand, an extended support with literature, methodological proof or deep theoretical reasoning is therefore put second and left to later elaboration, if the model as such gets enough recognition to be worthy to reflect further on its qualities.

A first version of this paper was presented at the IV International Conference on Social and Complementary Currencies: Money, Awareness and Values for Social Change, May, 10 to May, 14, 2017 in Barcelona. An updated and shortened version was then part of the EU-Horizon2020 net Commons project deliverable 2.6. This is the third, reviewed and fully revised version, which presents a completed picture of the district currency model.

2. TASK AND METHODOLOGICAL APPROACH

Most of the complementary currencies developed over the past 50 years are based on the individual exchange and market idea and are optimized to individuals or companies as actors in a network of exchanges of goods and services. The frequently existing mutual credit systems, LETS or time-banks, preferably support this market-centred view, and many of them limit joint community activities to the operation of the currency system itself. The metaphor of exchange as the basis of money has a long history and people in Western Europe are usually very romanticized about exchange and misunderstand it as the foundation of "the" monetary system or even of the economy as a whole. This will be discussed in more detail in the next chapters. So the very important collective dimension of money and the commons-aspects it includes, are not taken as the major issue, as they are. Consequently, complementary currencies that neglect this are limited and ineffective, as many stagnating projects and failures to date have shown. [1].

The aim of the project therefore was to develop a more effective currency model, which is intended to include the collective level. A deserved feature was the use as a tool to serve the community to manage its commons on the basis of communal democracy and attempting to reduce economic, ecological and social problems.

Another starting point to design a new currency was today 's growing domination of the monopolistic national or supranational currencies and the corresponding political and economic structures that manage them, which are constantly conquering more of the hitherto unmonetized leisure-time or volunteering areas by either monetariz-

[1] A recent study in Germany about Regional currencies showed that 39% of the systems failed, concerning all types of currencies but 65% failed if only the typical group of Grassroot/NGO based systems were taken into consideration. (Leinert, 2016, p.2)

ing former free contributions, efforts and spaces, or by occupation of resources, e.g. of the time that has to be used more and more to acquire money (i.e., national currency) (see Edgell, p.228 ff.)..

A third problem area emerged from the question of the promotion of a sustainable society. The reduction of energy consumption plays a key role, which can be decisively diminished by the relocalization of economic activities, the shortening of work and transport routes, the use of regional services and the promotion of shared resource use (sharing). The monetary system plays a crucial role, since it is the main system of our society for resource allocation. This was the practical starting point in the newly founded housing co-operative *mehr als wohnen*[2] in Zurich, which realized its first large-scale settlement, an exemplary flagship project with particularly resource-conserving, sustainable and community-promoting characteristics. This development was to be supported by a new community currency model for the co-operative and its surrounding district.

3. BASICS

3.1 Management of commons

The management of the commons was already identified as a central topic of such a new currency model (D2.4, p.40 and following.). There has been a lot of work to define "the commons" as a clear concept; elaborations and a detailed definition of the commons term can be found for example in Ostrom (2009), in Helfrich et. al. (2009), as well as in Helfrich / Heinrich Böll Foundation (2009). However, the concept of "commons" remains not a sharply delimited, but a partly contradictory one.

For the basic concept of the district currency we shall consider under "commons" all goods which are administered in the sense of a collective property of a larger number of people with a basic claim to general wellbeing. This includes, in particular, co-operative goods, club goods and jointly managed public resources. As we consider housing co-operatives that provide land and housing (a settlement) and could therefore resemble a village or commune, also public goods in their appearance in small scale structures[3] are included. Therefore, we will build our reflexion on common values and the management and administration of community owned or used property and refer to them as commons.

Ostrom has published detailed research results on the management of the commons and has also received the Nobel Prize (Ostrom 1990, 2009). The eight design criteria of Ostrom (2009B, p.85ff) have been tested and further developed by Cox, Arnold and Villamayor-Tomás (2010). The rules provide a framework in which the management of a commons can be shaped by a community of people (and institutions) involved. Production and consumption play an important role in the use of the commons, since they are either used as a production resource or means of consumption.

Here we are striving to implement these rules directly into the currency framework as this would result in optimal conditions for the management of the local economy.

3.2 Co-operative model

A core idea of the co-operative model is the common self-help, which is related to external, social or natural circumstances. Henry Faucherre formulates this as follows: *Economic and social distress, including mental suffering, are the most powerful motives that awaken the community's thoughts. Times of hardship and community building are closely linked.* (Faucherre 1925A, p.8)

Since the beginning of the industrial revolution, the economic hardship has been linked more and more closely to work in the sense of an employment workplace. For a worker, his outcome is equal to his wage, which in most cases was paid out in money. Too little or no pay in money was the direct cause of economic hardship. Conse-

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2 literally: more than housing

3 Inside a co-operative settlement there could appear public goods like cleaning, street management, waste management, security, governance of public spaces, etc.

quently, the question was addressed as a question of wages, especially by trade unions and left parties in the political sense. The owners and rulers should be compelled or agreed to hand over a sufficient portion of the production profits and capital pensions to the workers.

The co-operative approach, on the other hand, was an attempt of self-empowerment including besides self-help other important principles like equality and democracy. The "method" of co-operatives was to abandon existing production, consumption or trade structures and build up parallel such structures under the authority of the new group, united in a co-operative. Common property ownership and proper management of the communities play a decisive role in this process. A different approach to money and capital was often demanded by the circumstances and implemented naturally.

For example, the approach of the two quite different German founders of credit co-operatives, Friedrich Wilhelm Raiffeisen (1818-1888) and Hermann Schulze-Delitzsch (1808-1883), included significant changes in the money supply (savings, loans, decision-making structures). Also, consumer co-operatives had an intention to change the money flows, e.g. instead of a profit extraction by individuals, a reimbursement of the surpluses to the purchasing members was provided. This idea was already mentioned in the fifth guiding principle of the original rules of the Rochdale's co-operative pioneers: *That profits should be divided pro rata upon the amount of purchases made by each member*.[4] Such ideas probably meant a change in cash flows, rights and allocations, but they did not postulate a fundamental change in the monetary order.

Unfortunately, there are still no scientific reflections on the relations between money forms and company forms. Co-operative science (Engelhardt, 1985; Duelfer and Laurinkari, 1995) also presupposes the existence of money, as it is done in the economic and social sciences in general. Thus, in the history of co-operative ideas the co-operatives are linked only marginally with questions of the monetary order[5].

In the utopia-concept for the development of the modern co-operative system developed by Werner Wilhelm Engelhardt, the utopian designs and the concepts based on them are examined as important starting points by the pathfinders or enablers of co-operatives, and on this basis the concretization by pioneers, i.e. first organizers, managing directors, managers or other important practical sponsors (Engelhardt, 1985, p.65). A striking example is Robert Owen, who saw a solution for an adequate remuneration of the workers in a parallel trading and hour assessment system. From a new currency Owen saw the promising potential of great economic advantages and advanced autonomy for the workers' movement. In 1832, he tried in London specially issued Labour vouchers (Labor vouchers) at a new commodity exchange to set an alternative value chain. However, this failed after a short time (see Elsässer, p.190-191). Further practical approaches of co-operatives that proclaimed or introduced their own currency as an instrument of self-empowerment are found in the consumer co-operative movement between 1865 and 1930 with the various systems of consumer money or token money. Here, we also refer to the author's contribution on Freidorf's money (Martignoni, 2016) a co-operative settlement started 1919 near Basle, Switzerland. More about the historical viewpoint, see section 4.

The co-operative movement has spread over the world. There are large numbers of co-operatives of all different forms in practically every country. The main values and principles are well known and preserved by the International Co-operative alliance ICA [6].

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[4] http://www.rochdalepioneersmuseum.coop/about-us/the-rochdale-principles/ access, 10.03.2017

[5] The position and importance of money and currencies in the utopian designs will be examined more closely in the author's current PhD thesis.

[6] Co-operatives are based on the values of **self-help**, **self-responsibility**, **democracy**, **equality**, **equity** and **solidarity**. In the tradition of their founders, co-operative members believe in the ethical values of honesty, openness, social responsibility and caring for others. (https://ica.coop/en/whats-co-op/co-operative-identity-values-principles, access, 22.05.2018)

3.3 Commons-based currencies

From a sustainability perspective, the economic crisis and its negative impact, caused by systemic dysfunctions in the existing national currencies, is another important incentive for introducing alternative currencies. According to the International Monetary Fund (IMF), there were, among other things, 208 currency collapses between 1970 and 2010 (Lietaer et al., P.19). Another reason is the apparent inadequacy of a huge monopoly-money in small-scale local structures[7], and a third important reason is the increasing wealth of the rich, which in the poorer part of the population is steadily drying up the vital money flow and so the need for the establishment of a more autonomous and local source of money is becoming very obvious.

Our point is to deal with currency models, which are intended to serve the community explicitly on the basis of communal democracy and attempting to solve economic, ecological and social problems. We chose the term commons-based currencies (Antoniadis et al., 2016, p.22) to describe a new class of currencies with the following goals:

- They are based on direct (vital) common economic interests of the members,
- They use collective self-help as a central motivation,
- They are democratically organized,
- They use the currency as a means to manage the common property and to regulate the work contributions and the distribution of wealth among the members.

(See Antoniadis et al., 2016, p.26).

Commons-based currencies refer to the principles of the commons (section 3.1) and to the basic co-operative principles (section 3.2).

Direct or vital economic interests mean that there must be substantial or existential issues to which people are dependent to some degree. This is in contrast, for example, to timebased or LETS systems, which primarily promote complementary, non-existential areas as underused assets to unmet needs that are ignored by the ordinary money economy."[8]

As a first consequence of the above points, such commons-based currencies need an economically oriented membership organization as their foundation. The legal form of a co-operative is ideally suited to this since it is already designed to manage joint ownership and it includes by construction governance bodies like the board and the assembly. But other legal forms are possible too.

4. HISTORICAL MODELS

In only a few cases known, the idea of choosing a newly conceived, complementary currency as a decisive tool for the management of a commons, has been chosen and implemented since the time of the French Revolution. In the period up to 1850, in Switzerland the payment traffic was characterized by a confusing variety of coins and currencies, both foreign and domestic origin - doubloons, ducats, francs, guilders, pounds, schillings, pennies, paws, crowns, thalers, newthalers, Sonnentaler, Adlertaler, Blutzger and like they were all called. (Baltensperger, p.49). But this mixture had no conscious basis. It was not about alternative societies or economic systems. The practically used currencies were selected according to their metal content or according to the prevailing economic prospects. However, the creation of national states and increasing world trade soon led to more and more unified national currencies. At the beginning of the 20th century, this process had already been largely completed in Europe and not only abolished the various minting abilities of cities, cantons or principalities, but also monopolized banknotes issued by the various private banks in partly state-owned national or central banks. These systems often based on the gold standard. Despite some major currency crises, it was felt by many as a great advance, until the First World War shattered the system. In Germany the economy collapsed completely through an unbelievable

[7] „Reducing our present dependency on national money will be an essential aspect of achieving a new co-operative self-reliance, significantly enlarging our freedom to control our own lives in co-operation with one another." (Robertson, 2012, p.158)

[8] http://community-currency.info/de/glossar/local-currency/ (access 30.05.2018)

monetary devaluation, with the catastrophic hyperinflation in 1923. The profound deflation after the outbreak of the global economic crisis in 1929/30 led shortly afterwards to the opposite extreme of an absolute money shortage. At this point, in many places, emergency money was raised in order to have at least money available for the daily local errands. For the first time, however, new ideas emerged to provide relief by means of parallel or complementary currencies. The ideas of Silvio Gesell, who called for a different natural economic order with so called *Freigeld* (free money, Gesell, 1984), were strongly influencing many of the projects. We can actually classify such attempts by their claim to create an alternative to the existing system and distinguish them from pure emergency and bridging measures.

Two mostly known examples were the *Wära Tauschgesellschaft* (exchange company) in Germany and the *Freigeldexperiment* of Wörgl in Austria. The Wära exchange company had the goal of *...die Erleichterung des Waren und Leistungsaustausches unter ihren Mitgliedern durch die Ausgabe von Tauschbons* (facilitating the exchange of goods and services among its members by issuing exchange tokens; Onken, 1997, p. 38). It was founded in October 1929 in Erfurt, Germany, almost coinciding with the Black Friday in New York. However, the idea had already been prepared by the two co-founders Hans Timm and Helmut Rödiger since 1926 (Onken, 1997, p.38), but came into life at exactly the right time. The Wära was issued by special change offices as bills against Reichsmark, other foreign exchange or sufficient collateral to companies and individuals. The bills were equipped with a demurrage, so that every bill had to be covered with a mark of one percent of its value on a monthly basis (Onken, 1997, p.39). The Wära was increasingly successful in Germany, but got into the visor of the Reichsbank, was banned in 1931 within the scope of the emergency money ban and had to be given up.

Another interesting experiment was launched in the Austrian town of Wörgl (Tyrol) in 1932 by the newly elected Mayor Michael Unterguggenberger: a municipal emergency aid program which replaced the missing available money with the help of so-called *Arbeitswertscheine* (labour vouchers). This should induce a reduction of the unemployment. By a diplomatic masterpiece, the social democrat Unterguggenberger was able to obtain the consent of all political parties in the municipality, and on July 31, 1932, the first labour vouchers could be issued (see Ottacher, 2007, p.33-40). The success in a short period of time was impressive: the municipality was able to collect outstanding tax revenues, pay its own debts, and finance for example roadside renovations, canalization, the construction of a ski jumping hill and road lighting with this emergency aid program (see Onken, 1997, p.45). The number of unemployed fell by 11-16% against unemployment in the rest of Austria, which rose by 19%. Unfortunately, the Austrian National Bank banned the experiment in January 1933. The municipality reached a brief extension by appealing to the high court, but in November 1933 the last judgment was negative, and the experiment had to be ended.

In Wörgl we see a municipal action by the authorities for the first time, which focuses on the financing of “the commons” (public or common goods), which makes this example particularly interesting for us. The basic considerations of Unterguggenberger started at the municipality, which paid out working certificates as wages to workers who thus worked for the maintenance and expansion of communes (roads, infrastructure). These workers, on the one hand, could pay their private taxes, that is to say confirm that part of the work which they had to render to the public anyway, and, on the other hand, shop at local shops what they and their families needed to live. The shopkeepers themselves were able to pay their taxes too, ie the part they owe to the general public as their "work" (contribution), pay their employees or buy from suppliers. In contrast to the Wära or the original ideas of Gesell, the Wörgler system was enhanced into a new collective dimension. Not the private trade was the central engine of this system, but the provision of the common goods and the contribution of all in the form of community taxes. This meant that for the first time the collective and the collective services were actually included. The impressive success of the experiment can be traced back to this important extent. For the about 13 months in which the experiment took place, community works worth of about 180,000 shillings were executed (Ottacher, 2007, p.45-46). The circulation speed of the bills was many times higher than that of ordinary Austrian shillings. An approximate calculation assumes a circulation of twice a week through the municipal fund (Schwarz, 2008, p.48), which would have been more than 100 times a year. If one counted the transfer of the bills before they came back to the community, one even calculates with a number of 416 hand changes per year, or by the duration of the experiment of 13 ½ months converted 464 times. That is, the actual issued labour certificates with an average value of only 5'490 shillings, generated a total turnover of 2'547'360 shillings in the municipality (Schwarz, 2008, p.53), which explains the observed great effects of the action much better than the small number of issued notes.

During the Great Depression, more than 3,000 different local Stamp Scrip currencies also emerged in the USA, using very different issuing models. Private businessmen, others by groups or municipalities, issued them, some successfully, others collapsed quickly. The famous economist Irwing Fisher get involved and wrote the book Stamp Scrip (1933), including a practical guide how to establish such currencies. Unfortunately, scrip money was forbidden in a law of 1936.

The core idea of Wörgl was not really recognized. Until today most complementary currencies start out of an idea of supporting or boosting private exchange. The much more interesting public or collective level is not or then only seen as an enhancement of the private part.

5. PREMISES, FUNCTIONS AND DESIGN CRITERIA

This section attempts to clarify necessary preconsiderations for the design of a desired currency. We start with some aspects of the design methodology and criteria that will help to motivate the final model proposed. The design of community currency is described by different authors mostly from a very practical point of view addressing preferably practitioners (see among others Kennedy et. al. 2012, North 2010, New economics foundation 2015) and starting from a vision and a need of a group of people (grassroots). Other sources of design processes are specific case studies like Sardex, on whom some research already had been done (e.g., Litera et.al. 2017). An "official" design procedure does not exist but many contributions to a successful process are also published in this journal (IJCCR), e.g. Ruddick, et.al 2015; Greco, 2013; Brakken, et.al. 2012.

As we want to take a different approach starting with community or "the collective side", some more theoretical background is necessary to base the design.

5.1 Money is not a medium of exchange

This provocative title is intended to help us check the claim "money is a medium of exchange", which is used in practically all economics books and in the widespread definition of money. More and more scholars have been arguing otherwise. The analysis of the exchange and market conception is an important building block for an understanding of money, but even more the collective aspects of monetary structures have to be taken into consideration. Ingham (2010, p.69) makes it short: *the focus on money, as a medium of exchange, results in a categoric error in which specific forms of money are mistaken for the generic quality of "moneyness"*.

It is interesting to note that in ordinary textbooks of the national economy (for example, Samuelson or Brunetti) the exchange itself is not dealt with fundamentally but is preassumed.

A popular definition of exchange in the dictionary of business (Grüske / Recktenwald) says:

Exchange is the economic transfer of goods, the exchange of services based on division of labour. Legally, exchange is a mutual contract, which is directed at the turnover of goods against goods, in contrast to the purchase, which is turnover of goods against money due to prices.

Here even the purchase is referred to as a contrast for exchange. Also, in no other definition money gets introduced as exchange category, but as part of the purchase. While in exchange someone receives directly from the partner a product or service, which he (hopefully) desired, at the purchase he receives a payment in money, i.e. a number of vouchers for which the exchange partner is not responsible, but unnamed third parties. The vendor expects that these vouchers (when he wants and at whom he wants) can be redeemed. The decisive point is not that the exchange is now divided into two separate acts, and that each of these two acts can again be represented as an exchange, commodity against money and money against commodity (Röpke, 1979, p.114), but with the introduction of money a change of the level from the individual to the collective took place. Röpke also mentions this shortly afterwards (1979, p.116): *money has therefore also been compared with an entry-ticket to the "social product" (ie to the existing fund of goods and services), or as a "statement to the social product"*. Röpke himself, however, doubts this point of view. Nevertheless, it is easy to see that money can only exist with "many" participants, i.e. in the collective. It must be recognized by a sufficiently large number of people and institutions, voluntarily or compulsory, otherwise it loses its money-character quickly.

The first mistake in the "individualistic exchange theory" or commodity theory of money is therefore, that in the transition from exchange to money, money itself is presumed unquestioned and is taken as a commodity as it would just replace the exchanged good. Massimo Amato and Lucca Fantacci (2012, p.41) summon this up as follows: *money properly called by its name is not a commodity based on the indistinguishability of its first two functions, but an institution designed to determine their relationship with a view to payment.*

The foundation for money, however, is a collective which has already introduced the money and the simplest and most effective introduction of money must also be done collectively, e.g. by the sovereign, or more recently by the modern manifestation of the sovereign, the state. Polanyi has already established this by social and historical reason:

the state, [...] was in fact the guarantor of the value of token money, which it accepted in payment for taxes and otherwise. This money was not a means of exchange, it was a means of payment; it was not a commodity, it was purchasing power; far from having utility itself, it was merely a counter embodying a quantified claim to things that might be purchased. Clearly, a society in which distribution depended upon the possession of such tokens of purchasing power was a construction entirely different from market economy.

(Polanyi, 2001, p.205).

From this point of view, money loses all the characteristics of exchange and commodity, and is used as a means of legal remedy, primarily as a means of payment guaranteed by a community, usually to this day, by the nationalized large community called state. This is reproduced everywhere by legislation on the money and the monetary system. Elster (1923, p.42) also says that

"there is no money and no payment, as long as there is no payment community; that no payment community is conceivable, as long as the production and consumption community has not come into being."

The constitutional framework therefore does not have to be the state from this point of view. Any community with production and consumption, resp. sufficiently strong intra-economic relations, which can guarantee a minimum degree of constitution, could fill this requirement. This viewpoint could be seen as neochartalism (Dodd, 2014, p106 ff.) but does not refer to a state or todays political system but introduces organised groups of people as a lower level sovereign to be the holder of a currency.

A second important prerequisite for a currency is the ownership regulation in the widest sense[9]. Payments are now very closely linked to ownership rights: A (full) payment results in the transfer of ownership rights from the seller to the buyer in all cases of simple purchase. Only what is a person's own and is under sovereign disposition, can be the goal of such a money transaction. Only a free worker is paid for his work, a slave, along with his labour, is sold by his owner.

The third important collective aspect of money is the socioeconomic approach already deduced by Knapp and Bendixen and elucidated further by Elster. *The share of participation in the social product is the compensation given by the community organization to its individual members for their cooperation in the social product.* (Elster 1923, p. 46).

Of course, the given compensation in today's competitive economy is more often appropriated, enforced against others or self-measured compensation. However, this does not alter the fact that the share of participation in the social product is essentially regulated by the distribution of money.

[9] Property is generally the right to dispose over a thing. Ownership as a second related term means rights over and thus the physical use of certain goods or resources and is independent of whether property exists or not (Heinsohn / Steiger, 2009, p.91). Property exists in civil law not only as a personal matter (private property), but also institutional, collective and other property, much of it in historically grown terms and legal structures. We are referring to the situation today and do not go into the historically very diverse and controversial conceptions and forms of property and ownership.

5.2 Functions

In this chapter, we consider a very simplified picture of the economy as a pure production-consumption economy, without trade, investment, aging, speculation, etc. This is a useful simplification, in that it includes a big part of the basic human needs (drinking, eating, dressing, living) and historically making up the largest part of the work done by people.

As an important basic function of a currency, we have already described in Section 5.1 the regulation of the possibilities for participation of the various actors in the common social product. This is accompanied by an obligation to contribute to the common social product. For this, in a stable situation and for a certain time unit the following simplified equilibrium condition is valid:

- Total of services and products contributed equals total of purchased services and products
- This is still commodity-based and very simple: Everything that is produced could/should be consumed.

In order to make such a condition accessible, the needs of consumption must be reconciled with the possibilities of production by means of a suitable organization (management), a classical control or optimization project which is of course a gigantic one for our entire global economy.

When we introduce money to help to solve this problem within a closed time period, the idealised situation would be that all products (P) multiplied by their prices (p) could be purchased by the consumers (C) multiplied with their earned salaries (s).

(1) For a certain timecycle Δt and a "one step exchange" is valid: $$\sum_{i=1}^{n} P_i * p_i = \sum_{k=1}^{n} C_k * s_k$$

That means for an individual for example: In order to be able to get the necessary food next month, this someone has to do a "work" that is recognized by the community in the previous month. In other words, because someone has made a (working) contribution, he/she can get a certain amount of benefits from the product of all the others. Two interdependent valuation procedures are inherent: how much is the value (wage) achieved and how much is the value assessed (price). In the normal case today, this is done by means of money or more precisely by a currency and by "the market".

An example for the consumer side: A worker receives 1'000 units per month as a reward for his work and then purchases 300 units of food, spends 500 for living and 200 for further purchases in total 1'000 in the same month, so he would be individually balanced (rewards = purchases).

The production side is more complex but at the end all costs are paid as wages or rents to some kind of consumers.

These figures now are loaded with meaning in human society because they demand on the one hand a performance and on the other hand reward with respect to products (&services). Depending on who is rewarded with how much currency, then by his needs and personal choice for example, other and more or less products are produced. By means of a currency, the consumption and the resource allocation can be aligned dynamically.

The coupling from the individual to the overall system (in this simplified form) thus takes place via the two ratios:

- The salary height s_k is the assessed share of the production output
- Product prices p_i purchased are the assessed share of the consumption input.

As a result of this assessment and the required equilibrium, an accounting is achieved for both the overall system and the subsystems (individuals). It is not only calculated what is coming in or going out, but the time sequence (cycle) and the difference between "output" and "input" must also be recorded. The periodicity chosen for determining the equilibrium is therefore decisive too. The numbers that are used (units of currency) are thus no longer arbitrary but receive a systemic context. They are coupled to values and periods and subject themselves to certain rules, that is: They are recorded and expressed in a currency.

(2) $$\sum_{i=1}^{j} P_i * p_i = \sum_{k=1}^{l} C_k * s_k = \sum_{m=1}^{n} M_m$$

M_m are the corresponding amounts of money used as payments and the sum M_m is then the total amount of money (currency) that is moved inside the specified cycle and is here equal to the salaries transferred from the production to the consumers.

If we take one simplified cycle with only "one-step-exchanges" (no multiple hand-overs) then the total money supply of the system necessary to allow all transfers of the products to the consumers has to be:

(3) $$M_T \geq \sum_{m=1}^{n} M_m$$

This can be transformed into a straight equation by splitting the total money supply into static and dynamic part:

(4) $$M_T = M_s + M_d = M_s + \sum_{m=1}^{n} M_m$$

The static money M_s is "saved" money not used for payments during the cycle (a constant that could be zero in extremis). The dynamic money M_d is moved from one hand (account) to another in the cycle, therefore enabling the transactions.

These basic functions are not yet fully elaborated[10], what would be the subject of an additional article about monetary theory but are helpful to anchor the design of the desired model, as we will see below.

The district currency model aims to implement such a balanced economy for small scale communities that wish to encourage work for their commons in a democratic way, where M_s (saved money) is as small as possible in relation to M_d, the "working money".

5.3 Design criteria or institutional premises

As elaborated in section 5.1 the approach introduced in this paper is to start from a collective viewpoint or as classified in monetary theories an institutional approach (Ingham, 2010) based on original ideas of chartalism[11] (Knapp, 1905 and successors, Bendixen, 1912, Elsen, 1923) where money is taken as an institutional phenomenon and a currency as a certain institutional implementation.

Out of this mindset the design of a new currency has to be the design of a new institutional framework. This will be done here by a fourfold set of premises to define the framework of a commons-based currency:

A) Setting the overall direction
B) Setting the core values & principles
C) Setting the pillars for the structures
D) Setting the criteria for a sustainable management

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[10] A next important step would be to make a distinction between individual actors (individuals / companies / etc.) and the overall system (the community itself).

[11] In macroeconomics, **chartalism** is a theory of money which argues that money originated with states' authority to create a framework for economic activity rather than as a solution to the problems with barter.

The following sections describe 21 such premises or criteria taken into consideration along the design of the district currency.

5.3.1. Setting the overall direction

1. *Understanding the idea and role of a currency in the economy:* Without a proper understanding of the basics of money and currencies and a sound examination of the current (local) economic situation all other steps are likely to fail.
2. *Justify the reason to create really a new one:* Why a new currency, why no other measures could serve better?
3. *Determine the institution's objectives and goals:* In our case e.g. the sustainable management of local commons, a shift of values towards a community oriented low consumption economy and a high degree of resilience towards corruption from the existing financial system. Or in more details:
   A new type of community currency is sought which should be particularly suitable for housing co-operatives or co-operatives in general. The currency shall help co-operatives to strengthen their internal economy and to anchor themselves economically in the surrounding neighbourhoods. The community and the commons should be focused. The model should, where possible, also be generally applicable to neighbourhood groups and networks of other types.

5.3.2 Setting the core values & principles

For this development we took the basic principles of co-operatives as invented by Schulze-Delitzsch in Germany and adapted by scholars (Zerche, 1994, p.419 and Blome-Drees, 2015, p.13ff.). They are close to nowadays Co-operative identity, values & principles promoted by the International Co-Operative Alliance[12] but in our case the German version was easier to use:

4. *Principle of promotion (promotion mandate):* Formal objectives for the promotion of the members are the top objectives. There is a direct relation of the members with the co-operative enterprises.
5. *Principle of identity*: Carrier and beneficiary and suppliers and employees respectively are identical.
6. *Principle of self-help:* Individual objectives can be achieved better through joint actions and mutual support.
7. *Principle of democracy:* One member one vote supports the neutralization of any capital invested, goes together with point 8.

5.3.3 Setting the pillars for the structures

The following 6 premises are the central "monetary" assumptions:

8. *Definition:* A specifically designated money which is by a collective/community guaranteed, regulated and given its own name, is referred to here as currency.
9. *Community:* A successful currency is preceded a production and consumption community, i.e. a distribution community and establishes with its introduction a payment community (see Elster, 1923, p.37f.).
10. *Commons:* Such a payment community shares or owns common resources, in the strongest case as their common property or in the weakest case as their common vital interest.
11. *Commitment:* This payment community may be composed of an already constituted, e.g. political community or a specially created one, and should have a voluntary but binding commitment from its members.
12. *Participation:* A currency determines and regulates the share of participation of the different actors (persons and institutions) in the common social product.
13. *Market*: As a second subordinate element to regulate the possibilities for participation, the market element may be added.

For the initial situation, this means that according to point 9 we should have a distribution community, and that, according to point 10, a social framework (or a legal form), which can provide a sufficient degree of liability, that is able to share and possesses resources. Points 9, 10 and 11 also require an economic activity, resp. an economic exchange. Therefore the legal form of a co-operative provides a good foundation.

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[12] https://ica.coop/en/whats-co-op/co-operative-identity-values-principles , accessed 29.05.2018

5.3.4 Setting the criteria for a sustainable management

This further criteria are necessary to frame the management and the governance of a system and are derived from the eight design criteria of Ostrom (see section 3.1):

14. *Boundaries between users and resource limits:* identification of resources, defined ownership and properties, clear definition of the common goods.
15. *Consistency with local conditions (coherence):* Definition of existing or desired local economic cycles and economic contexts in accordance with the circumstances.
16. *Community decisions:* Democratic structures, both in the technical design and implementation of the currency (budget competency).
17. *Monitoring the users and monitoring the resource:* A currency offers a good deal of instruments e.g. the accounting.
18. *Tiered sanctions:* defining user and resource limits, e.g. minimum and maximum accounts, but also appropriate sanctions. In the case of a currency, this can be primarily surcharges and penalties, but it might also possible to exclude members.
19. *Conflict resolution mechanisms:* Providing conflict resolution and equalization mechanisms already in the monetary conception. An instrument could be a monetary compensatory and reserve fund.
20. *Recognition:* A complementary currency must be recognized by the authorities. In particular, the issues of taxes and duties are to be settled with them.
21. *Embedded Institutions:* Each complementary currency is involved in the ruling national currency and must define whether there should be convertibility. In addition, the question is whether and how exchange with neighbouring complementary currencies can take place. The trade balance of the respective systems must be observed.

By an adaption of these 21 criteria a specific institutional framework is given. As a next step in the modelisation the detailed requirements, structures and bodies could be defined. This was initially done according to a real situation (project). Final result then is a detailed "realistic" raw or generic model of a currency that could be finalized when implemented in practice.

6. DESCRIPTION OF THE DETAILED MODEL

The comprehensive preliminary remarks, premises and functional considerations are used to shape a currency model, named *district currency*. The basic model of this local currency was first developed for a new settlement of a housing co-operative in Zurich and has later been further developed (see next chapter). The creative design process that is necessary to create a currency model does not allow all criteria to be considered equally or without contradiction. Here, we tried to systematise this process, which has been intuitively applied, as far as possible to make it more comprehensible. For this, a highly generic model is described.

6.1 General structures and regulations

At the center of the DC are the needs and tasks of the community, the administration and maintenance of public (community) goods and common tasks. These are core and drivers of the currency. In the case of a co-operative, this is particularly clear and simple through the needs of the co-operative property (in case of a housing co-operative) or enterprise (in case of most other co-operatives). As a secondary element, a traditional individualistic market system is integrated and contributes to the effect. In fact, this can be seen as a two tiers structure around a governing centre:

Centre: Governing body, decision taking about the use and maintenance of the commons and the common tasks and needs

Tier 1: Primary currency circulation („driver circle")

Tasks, duties and projects to maintain the co-operative itself or the common work to be done for the benefit of all members (collective needs).

Tier 2: Secondary currency circulation („free market")

Individual offers and needs for the personal benefits of the members (individual needs).

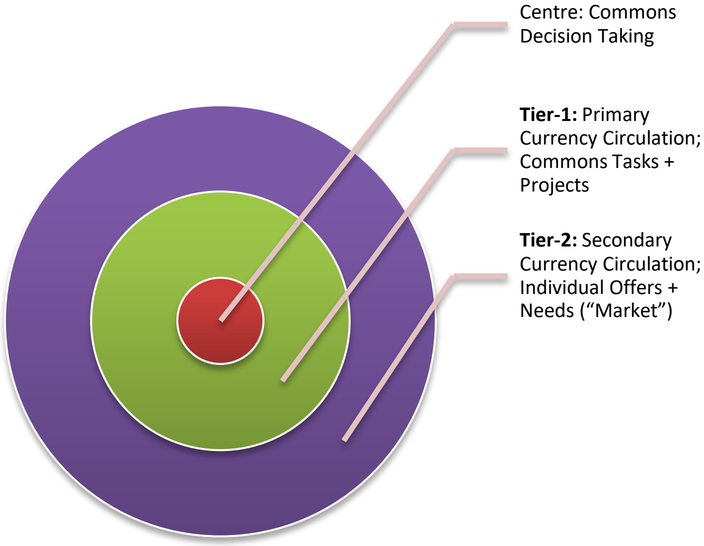

Figure 1: 2-Tiers system of a district currency (image by author)

6.2 Primary currency circulation

Derived from the discussion in sections 5.2 the primary, driving currency circulation for the commons is defined by the following steps:

1. Determination and approval of a commons budget: Democratically it is chosen and decided what work and services have to be done for the community for the next period. This is expressed in a total sum of currency and a list of tasks and projects to be done.
2. The tasks were assigned to members and due to their filling, they get their payment in currency.
3. Due to market activities a broader distribution of the currency is happening.
4. At the end of the period the currency is redeemed as a compulsory contribution ("tax") from each member.

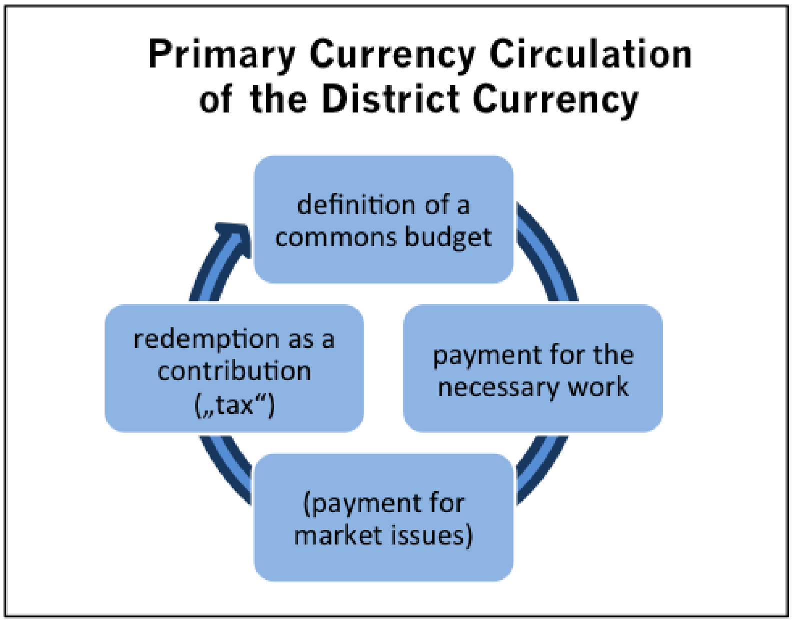

Figure 2: Primary currency circulation of the district currency (image by author)

Important is the cyclical design, which might need a different mode of thinking. Everything happens in (regular) periods in time. At the beginning new currency is brought into the system, at the end it is - more or less but ideally fully – redeemed and a new cycle can start.

For the currency (or money) supply it is important to rely on formula 4 (section 5.2) to have a dynamically working system:

$$M_T = M_s + M_d$$

The system has to have a stable ground M_s which means "saved" or stock money that is buffering the process, as every member needs a degree of flexibility in every period. E.g. every member would have a certain amount of currency on their account already from start. M_s has to be adjusted if members or economic activities are changing. In general M_s is a special kind of seignorage or "basic filling" for the system and could be used to pay for example initial costs of the system. Only if the system would be liquidated, then it has to be net out maybe against the last existing assets.

M_d is the dynamic currency flow that is used in one period to settle all activities and "drive" the commons-economy and is equal to the budget for the commons.

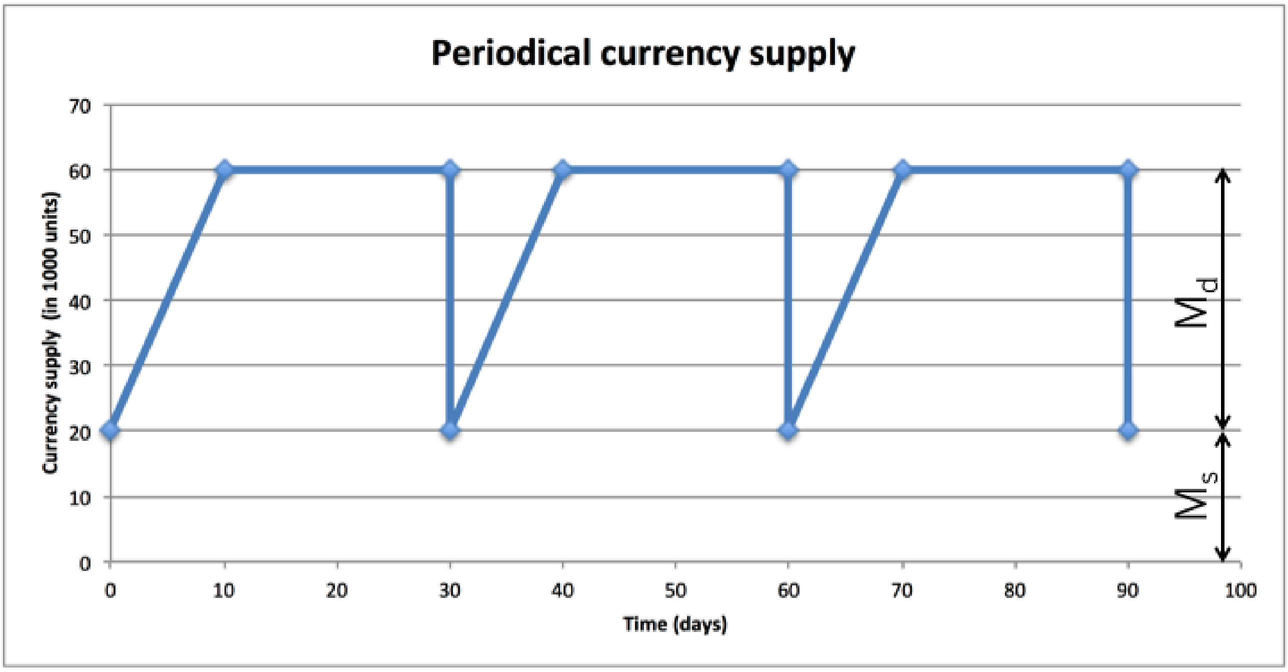

Figure 3: Periodical currency supply for a completely balanced ideal system with monthly redemption (image by author)

The above figure 3 is strongly idealized. In reality there might be every period a different budget and also the stock money might be adjusted from time to time. Also budgets could be over- or underspent and members could fail to pay their contribution, etc. What is important is the achievement of a long-term balance of the system.

6.3 Currency bodies and authorities

The main bodies that are suggested for the district currency are:

1. The commons assembly of all members as the decision taking sovereign authority.
2. The commons commission as the main executive body of the local economy, issueing orders, hiring people and ensuring that the tasks are successfully completed. Also it regulates the marketplace and provides a suitable framework for the beneficial exchange between the members.

3. The cash-desk as the body to handle the currency, the accounting and a reserve fund.
4. The social commission regulating and deciding upon weak and disabled members, exceptions for contributions and people with difficulties to participate in the common work.

Additional bodies:

5. The financial and ethical monitoring could be an additional body assuring and assessing good qualities in the above issues, like a control of stability or a economic use of the currency for beneficial and ethical projects.
6. A mediation council could be useful to be installed to handle conflict resolution and complains.

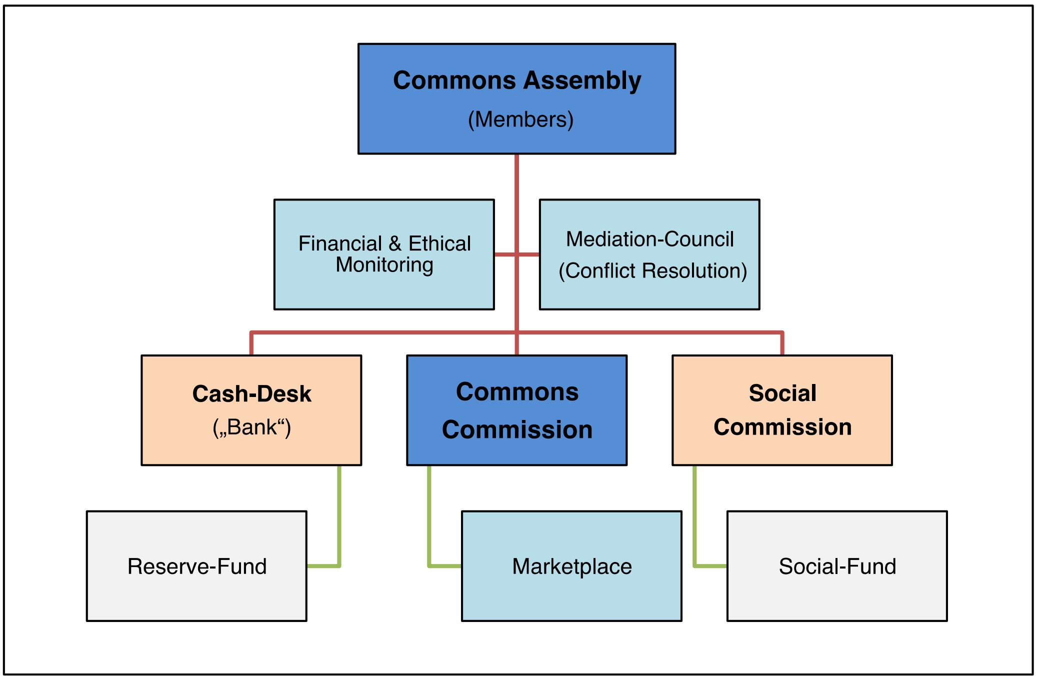

Figure 4: Structures and bodies of a fully developed district currency (image by author)

6.4 Suggested implementation process for the currency

The following steps are a firstly suggested generic process how to implement and establish the district currency into a working model. It has to be fitted with the real circumstances in case the model would be selected to become realized[13].

Foundation

- There is (or is being established) an organization of shared self-help (for example a co-operative). This should exceed a minimum size of 200 members[14].
- The members agree democratically to make an effort, in the form of work and participation in favour of the common goals.
- Legal clarifications and arrangements for the possible taxation of the currency turnovers has to be made with the local authorities.

The democratic assembly of all members (commons-assembly) defines the monetary order. This means:

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[13] In the Zurich housing co-operative mehr als wohnen there is already a „commons-commission“ in operation but with a smaller scope of duties, mainly in managing theavailable rooms for he commons.

[14] Estimated minimal size for successful local currencies supported by empirical research of the author (Martignoni, 2012 and 2012A).

- A name for the currency is selected.
- The executive bodies were elected that will manage the currency (see next section)
    - A central commission or body for the organization and assignments of the work and the market-place (Commons-commission).
    - A body for issuing, handling management and accounting oft the currency (Cash-desk).
    - A commission or body for the management of social needs and compensation of inequalities and disabilities (Social Commission).

  In case of a larger structure and high activities, additional bodies might be necessary:

- The (first) form for the currency is selected; Whether coins, notes or electronic accounts are to be used and what technical resources are initially provided for this purpose. These forms can be adapted later or supplemented with other forms. It should be noted, however, that the individual forms have different characters and the transition of currency between the forms must be well regulated.
- A standard salary level is defined and quantified. E.g. whether all activities for the community are paid with equal pay, whether there are different approaches and how the decision-making criteria should be. The value system is thus decisively defined.
- Where necessary, a differentiated contribution (tax) or duty ratio is established for the different categories of members (for example, businesses, families, individuals, elderly, disabled etc.).
- The procedures for changing this order are determined.

The decisions shall be recorded in writing in a constitution or statutes and prepare the framework for the currency.

Implementation and primary currency circulation

- The members decide in a budgetary process which and how much work, projects and activities necessary for the community should be carried out and achieved in a (first) period. A (first) periodical budget is approved.
- The contribution is calculated from this and beset on this the amount spent that will be recollected at the end of the period.
- The local currency is now issued by the organization's cash office (planned and controlled issuing), which then passes the approved budget to the dedicated commission (Commons Commission).
- This commission will advertise the jobs, projects and activities in specific job descriptions and then select suitable members who are applying for it. The commission is responsible for the execution of the tasks. After the work has been completed, the members receive compensation in the form of the local currency.
- In a second step, the currency can now be freely used by the members in order to meet their individual needs. Other members could provide services or goods according to their talents and abilities. However, each member is prompted to collect at least the necessary contribution (tax) amount within the period.
- At the end of the period, the planned amount of the currency returns to the organization (cash office) in the form of the payment of the contribution. In this way, the currency-cycle is closed.
- The cycle is restarted with a new budgetary process

This can lead to a constant and controllable circulation of the currency, which also has the potential to replace a (limited) portion of the turnover in national currency (e.g. Euro or Swiss franc).

Similar to our existing money system, members could try to produce a positive result for each period and begin to accumulate wealth. This case, however, is only possible if the currency volume grows, otherwise a lack of currency would arise for the others. Therefore, measures must be taken, e.g. by defining maximum permitted account balances.

6.5 Comparison between models

The following table provides a brief comparison of different popular or successful currency models with the district currency.

Table 1: Comparison of different currency models (Martignoni, et.al. 2018, p.31, slightly adapted)

	Euro	**LETS**	**WIR**	**Sardex**	**District Currency**
Money creation	Central bank (coins+bills) and private banks by credits	Individual payment inside credit limit (negative)	Credit to an applicant (Member)	Company payment inside credit limit	Budget of next period for the commons
Money redemption	Repayment of credits	Individual earnings to reset credit to zero	Repayment of credit	Company earnings to reset credit to zero	Collecting taxes as fees for common services
Main incentive to use it	Key to nearly all resources necessary to live, interest for temporarily getting it	Unused resources or unmet needs of individuals	Increase turnaround, increase purchasing power of company	Increase turnaround, increase purchasing power of company	Receiving and contributing to the commons
Liquidity	Mainly based on new credits and interest levels	Credit limits define total liquidity	Number and value of credits	Credit limits define total liquidity	Ratio of budget spending vs. taxing
Ledger	Scattered ledger	Centralised ledger	Centralised ledger	Centralised ledger	Centralised ledger / decentralised possible
Valuation	By world market	Different possibilities, sometimes hourly based[15]	Bound to Swiss Franc 1:1	Bound to Euro 1:1	Depending on the valuation of working hours
Conversion	Fully convertible to all national currencies.	Usually not convertible.	Not convertible.	Not convertible.	Limited convertibility might be included.

The district currency model has some really different features to all other known new currency models. It is cyclical in time and uses 2-tiers economy with a primary currency circle to close the monetary flow. Depending on the ratio of budget spending versus tax redemption, the monetary amount in the system can be regulated very accurately. This is unique and unlike all models above. But it adds significant complexity in the management of the system, which perhaps could be reduced through the advances of technology (including blockchain-based solu-

[15] Hourly based currencies define any working hour of their members without distinction between kinds of service as equal, e.g., 1 hr cleaning = 1 hr legal advice

tions). It is still a very open design that allows for many different variations, and blockchain solutions could be seen as the "supporting" layer of the concept. It is conceivable because the small by construction scale that is not meant to grow beyond a certain size could use a simplified cryptography and a small computer network.

The closest to the district currency model in operation is *the turuta*, a currency in the city of Vilanova i La Geltrú in Catalunya. The turuta was started 2009 by groups of the civil society in the city inspired by the transition town movement. One Turuta is equivalent to one Euro but is not convertible. The creation of the turuta is done by budgeting local projects that were decided democratically by the community. There are many examples from saving energy to cultivating land to producing canned goods or soaps. Each hour of work for these projects is remunerated with 10 turuta. Members get an account where transactions are registered. In the beginning this was done on paper like in the old times the savings book, but now it is essentially a cyclos hosted currency. From January to September 2012 a turnaround of 22.401,35 turutas was registered (Hirota, 2012, p.67). In April 2017, 361 members and 38 businesses were counted (Dalmau Llagostera, Alonso, 2017, p.19). The project has also a very positive impact on the voluntary work that increased because not all work in the projects is charged by the members. Meanwhile the city accepts until 25% turuta limit as valid for different local tax and fee payments[16]. Unfortunately, most material is only in Catalan or Spanish, but it could be worth to evaluate the turuta more closely to get a closer comparison of the models.

7. CASE STUDY AND PLANNING GAME

The reason for the development of the district currency model arose in 2012 in Zurich, from an inquiry for the planned and now built and related new co-operative settlement Hunziker-Areal[17] of the building co-operative mehr als wohnen. This co-operative follows high ideals and aligned the project to the goals of a 2000 watt society (Stadt Zürich, 2011) for low energy consumption and reduced impact to the environment. On the approximately 40,000 m2 area, a small town quarter with a living space for 1,200 people and about 150 workplaces was built at a cost of around CHF 185 million. These included new living models, such as satellite apartments, a reception area with a service, a guest house, restaurants, shops, as well as a mobility station (see Martignoni, 2015, p.501-502). The participation and activation of the members was a focal point. In order to promote, reward and coordinate this participation, the use of a complementary currency was explored in a first study parallel to the building process. The aim was to make a specific community currency available for the new area. The developed currency model, which was finally proposed for this situation, was given the name *Quartierwährung* (see Martignoni et al., 2013). For various external reasons, the currency was not implemented at the opening of the new settlement[18]. An internal working group of the co-operative leads the still ongoing discussions and has in the meantime carried out individual actions and efforts for the realization of a currency within the site[19].

The basic model has since then been refined by the author and further developed towards a general co-operative currency called district currency.

A special planning game was created to show the effects and possibilities of such a currency in action. The goal of planning games, educational games and game simulations, also known as "serious games", is the promotion of experience-based teaching and learning forms that contribute to the simulation of processes (i.e. economic, technical and social processes) and the development of systems. They are used in various fields of scientific research and there is an international research community that has been working on the theme of planning games for more than four decades (see, for example, Greenblat, 1988). Such games were also recently used to support the design process of community currencies (Yoshida and Kobayashi, 2018).

[16] See also the project home page at www.turuta.cat

[17] https://www.mehralswohnen.ch/hunziker-areal/quartierteil/

[18] The reasons for this were, for example, the complexity of the entire construction project and the selection of the first tenants, for whom high demands were made and thus exhausted the available resources for further projects.

[19] the group maintains a specific website, http://quartierwaehrung.kivu.li/

Figure 5: The participants of a game workshop in Barcelona showing proudly their Q-currency (photo: J. Rasch)

Figure 6: The commons assembly voting to take decisions (photo P. Antoniadis)

The game was called "district-currency-game" and is part of the Flexonomix® money learning games, a series of planning games for complementary currencies and alternative economic systems[20]. The Flexonomix® brand was created to ensure a high quality and a scientific approach for educational purposes. However, the games are published as open source or under a Creative Commons license. More about the game and some brief evaluations can be found in Martignoni, et.al. 2018, section 4 and in the appendix.

The game introduces a simplified district currency called "Q" in a played housing co-operative and provided already many interesting feedbacks. One of the most frequent feedbacks of people about the district currency is the negatively considered monetarization of the voluntary work (see Antoniadis, et al., 2016, p.61-62). It is important to understand that the district currency is used at the interface between voluntary and paid work. On the one hand, certain voluntary work is actually monetarized. In the best case, however, it would be difficult to find volunteers or insufficient quality of volunteering (e.g. due to too fast changing inhabitants or low attractiveness). An important argument is that someone would make an activity voluntarily (e.g. neighbourhood assistance), but without an organized form (for example he does not know his neighbours at all) and without trust and recognition by a group this is usually not implemented. On the other hand, the district currency is designed to put a part of the paid labour from the sphere of the national currency under the wings of the community currency economy (substitution). In this way the community gains democratic power over this part and increases its economic independence, as it is not dependent on external investors or the financial world.

8. DISCUSSION AND SUMMARY

The development of the district currency was a recursive process based on above design ideas but also involving other theoretical research as well as in depth discussions, feedback loops and a game with response out of the plays. An important insight into the model of local currencies could be extracted from the Wörgl experiment, which used the common goods and the common services as the central drivers and did include the commercial market and private companies on a second level. This was the reason for a stable circulation of the labour vouchers, which were not subject to the arbitrariness of the market. We have shown in section 5.1 that this two-tier mechanism is much better suited to the actual character of a local currency and can be actively used to regulate the possibility of participation in the social product through the distribution of currency. Small communities and co-operatives with their own internal economy can be taken as a frame for a social product and therefore as a

[20] http://flexonomix.games

payment community. A co-operative is actually looking for such a form by virtue of the given economic activity and especially by the required identity principle. Housing co-operatives are particularly good examples, since they actually provide a substantial amount of the economic turnover of their members. *Tenant households in Germany used [2016] averaged between 25% and 31% of their net disposable income for gross rent* (Destatis, p.267). Even if co-operative housing is often more favourable, housing represents a significant proportion of the cost of living for most members of the co-operative. Therefore, the topic of self-help could really matter. The money earned by the members in external employment in the general economy goes to the co-operative through rent payments, and most of the money then immediately returns to external recipients (banks, construction companies, employees who are not members), In an internal circuit by using an own currency, the effect of self-help can be increased. This is also relevant for other commons-based communities. A second case were more detailed research was made were community networks[21] (Antoniadis, et.al. 2017 and Martignoni et.al. 2018).

Of course, many conditions and limits have to be obeyed, and the co-operative has to adapt its structures so that they are also compatible with the model. For example, the cooperation and participation of the members should be already written in its constitution and an effective reduction on the part of the external paid work should be sought, for example through a reduction of rent costs in the official currency. This creates an effective incentive for the members to put time and effort into the internal, mutual economy and the regular payment of a contribution in the second currency gets an understandable meaning.

As a fundamental advantage, the district currency also opens up a third choice of consideration in the economic activity of the community and therefore enhances possibilities:

1. Payment by national currency („the“ economy)
2. Compensation by district currency (local economy)
3. Voluntary help (gift economy)

(see Martignoni, 2015, p.503)

Since no implementation of a district currency has yet taken place, the work concentrates on deepening the theoretical foundations on the one hand and, on the other hand, further specifying and defining the necessary conditions and parameters for the subsequent successful implementation by means of a planning game and mathematical simulations. The work is also part of the author's doctoral thesis and is being used to develop commons-based currencies for community networks as part of the EU Horizon2020 project netCommons.

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