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## RESEARCH ARTICLE

# COMPLEMENTARY CURRENCIES AS A SOCIO-TECHNICAL INNOVATION

## Evidence from a Local Clearing Union in Italy

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**ABSTRACT:** The paper points out the importance of considering how the technical solutions adopted in the development of a complementary currency (CC) are related to all the other ingredients required for the establishment of a monetary institution. In particular, the authors aim to shed light on the social implications deriving from the choice to adopt a specific monetary architecture, and how this choice interacts with the other institutional conditions of economic transactions. In doing so, they present the results of empirical research on a clearing-based currency project, showing that monetary tools are likely to produce effects which, far from being a smooth projection of pre-existing social dynamics, are the result of a dialectical process that is also influenced by the way they are technically designed. Even in the case of top-down CC projects, new forms of sociality can emerge from a process of “learning by doing”, where monetary innovations serve as a laboratory allowing its users to experiment new ways of combining social and economic interactions. For this to happen, currency projects must be sustained by a whole set of relational, educational and economic resources, but the way they are technically designed deeply affect the conditions required for their institutionalisation.

**KEYWORDS:** Complementary Currencies, Local Clearing Unions, LINX, Money, Mutual Credit Systems

## 1. Introduction

Money is an extremely enigmatic phenomenon whose concrete nature and functioning are still object of intense debate (see Tymoigne and Randall Wray 2007). It is however clear that in a *monetary economy of production* (Keynes 1963), such is capitalism, money is far from being just a facilitator of exchanges<sup>1</sup>. Indeed, the way our official monetary systems is designed has deep social and economic implications, as well as some specific limits which have become particularly evident after the outbreak of the 2007 crisis (Fama, Fumagalli, and Lucarelli 2019; Amato and Fantacci 2012). This is one of the reasons why an increasing number of projects that aim to rethink money – variously labelled as complementary, community, social or local currencies – has emerged over the last few years (Amato and Fantacci 2013).

Complementary Currencies (CCs) are generally understood as grassroots experiences oriented towards a set of collectively defined goals (Fare and Ahmed 2014; Blanc 2011). Coherently, the existing literature tends to be primarily focused on the social dynamics which underlie their development (Bindewald, Nginamau, and Place 2013; Seyfang and Longhurst 2013; DeMeleuneure 2008; Kennedy and Lietaer 2004). Great attention is paid to the quality of the participation processes, to the motivations of the actors involved and to the institutional conditions required for enhancing their socio-economic impact (Boonstra, Klamer, Karioti, Do Carmo, and Geenen 2013; Dittmer 2013). Much less is said about the possible social implications of the diverse technical options available, these often being confined to discussions about efficiency, scalability and control (Fare and Ahmed 2014; Martignoni 2012; Bode 2004).

This article points out the importance of considering how the technical solutions adopted in the development of a currency project are related to all the other ingredients required for the establishment of a monetary institution.

Our starting point is that money is always the result of a complex process of social construction in which a whole set of pre-existing symbolic, political and economic elements come into play (Gómez 2019). As such, money is not a simple economic phe-

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<sup>1</sup> Contrary to the mainstream idea (Menger 1892), money is not a simple “veil of exchanges” which has emerged as a cost reducing innovation to replace barter. As stated by Augusto Graziani (2003, 26): “money is never neutral [and] is, at the economic level, a source of profits and, at the social level, a source of power”.

nomenon, neither is it a technical instrument. It rather represents an example of what French anthropologist Marcel Mauss defined as a “total social fact” (Aglietta and Orléan 2002). All the ingredients that constitute money, however, are concretely translated into tools whose specific technical features, by acting as rules informing human interactions, have an impact on the existing social structures. In other terms, money is a complex institution hinged on a combination of inextricably merged social, economic and technical factors whose interaction remains largely unexplored.

In this respect, ongoing experiences of monetary innovations can serve as a laboratory for understanding how technology can be integrated into institutions for providing responses to specific social needs and dilemmas (see Forsberg 2018). At the same time, they can be used as a lens through which to gain new insights into the general phenomenon of money, especially with regard to the following questions: How does the choice to use a given monetary architecture affect the institutional conditions of economic transactions? Are there any specific social effects related to the way a payment instrument is technically designed?

In seeking to provide an answer to these questions, the article focuses on CCs projects based on the principle of clearing, these representing an example of monetary innovation which has proven to be particularly resilient and scalable (Lucarelli and Gobbi 2016). The second section illustrates the functioning of the clearing mechanism, shedding light on some of the potential solutions this offers in order to bridge the gap between *money as we know it* and *money as it ought to be* – to use John Maynard Keynes’s words. The main goal – as explained in the third section – is to clarify why, when analysing the effects produced by money circulation, it is important to pay attention to the way monetary instruments are designed and to how innovations in the monetary field are related to the other institutional dynamics underpinning social transformations.

In the fourth section our theoretical considerations will intersect with the results of empirical research on LINX, a local clearing union which operates in the Italian region of Lombardy as part of the well-known SARDEX network (Littera, Sartori, Dini, and Antoniadis 2017; Motta, Dini, and Sartori 2017; Dini and Sartori 2016). What makes this case particularly interesting is the fact that it represents an example of a top-down project explicitly focused on the achievement of economic goals. Unlike many other CCs, which can be portrayed as bottom-up experiences oriented toward collectively defined goals, LINX is based on a business-oriented model in which participation is mainly driven by purely instrumental motivations. Yet, our research revealed that the CC is enabling the diffusion of new forms of sociality and trust that are, in a sense, directly inscribed in the underlying clearing mechanism (see Doria and Fantacci 2017).

This suggests that the way a payment instrument is designed has significant social implications, affecting the other conditions required for the institutionalisation of a CC. It also shows that the possibility of monetary innovations to trigger processes of social transformation is not necessarily linked to the existence of a well-defined community in which people are willing to use a given payment instrument in the light of shared meanings, goals and values. These can also emerge as a result of a process of “learning by doing” in which monetary innovations, according to the way they are designed, serve as a laboratory which allows people to experiment new ways of combining social and economic interactions.

## 2. Money as we know it

As has been widely shown by historians and anthropologists, the nature of money, as well as the role played by it, has deeply changed across time and space (Graber 2011; Le Goff 2010; Polany 1977; Mauss 1969 [1914]).

To be sure, our current notion of money is firmly anchored in the specific role that this plays in a capitalist economy, to be understood as a *monetary economy of production* (Keynes 1963). Unlike other forms of social organisation, capitalism is a system in which goods and services are produced and exchanged in order to obtain a quantity of money greater than the one invested at the beginning of the production cycle. Consequently, the accumulation of money is one of the driving forces of economic decisions, as well as a key element in the determination of social behaviour as a whole. This is not to say that the circulation of capitalist money is completely unrelated to the satisfaction of social needs. These tend to be met through market exchanges, which are facilitated by the role played by money as unit-of-account and means-of-exchange. What technically distinguishes capitalist money, however, is the fact that it functions above all as a store of value which “lulls our disquietude” (Keynes 1936) against the uncertainties which characterise our economy. This is a major cause for economic instability, provided that the tendency to hoard money negatively affects exchanges and market equilibrium.

The technical limits of our official monetary system have become increasingly evident with the burst of the 2017 financial crisis, although they were already largely described by Keynes, who used to distinguish *money as we know it* from *money as it ought to be*. In order to overcome these limits – as also observed by scholars and activists inspired by Keynes’ ideas – an interest-free currency is necessary which, by design, is not suitable to accomplish the store of value function, such as a demurrage-based

currency or a currency which is meant to exclusively work as a unit of account in a clearing system (see Braga and Fumagalli 2015).

Clearing can be described as a mechanism of multilateral compensation that allows the members of a given circuit to settle their mutual obligations while exchanging with each other, without having to resort to external credit. As is well known, payments that a company makes to its suppliers are generally deferred. This implies the establishment of a bilateral debt-credit relationship between the buyer and the seller. In a clearing system, credits and debts are towards the network rather than between the transacting parties, and their total amount always equals zero. When a member sells something to another she automatically acquires a purchasing power that can be immediately exercised within the circuit. Simultaneously, the buying party acquires a debt that can directly compensate through its selling to the other members. Since the mechanism is interest-free, negative balances can be used as a free source of credit that allow members to preserve their liquidity, especially when they are experiencing negative cash-flow fluctuations.

All transactions taking place in a clearing union are registered in a centralised ledger by a managing institution, which may also work to facilitate the matching between demand and supply. Provided that a positive balance does not confer any interest, and that it may be affected by inflation in the long run, members are motivated to spend their credit as quickly as possible, keeping their accounts close to zero. Hence, the unit of account employed in a clearing system can be regarded as a sort of money which, by design, is not convenient to hoard. As such, its velocity of circulation is higher, which in turn implies an increase in the intensity of the exchanges.

From an economic perspective, the tangible benefits deriving from the diffusion of a monetary system endowed with these features have been widely discussed. By enhancing the velocity of money and preventing it from hoarding, it is argued, a clearing-based currency would allow to foster the creation of wealth, as well as to stabilise the economy (Amato and Fantacci 2012)<sup>2</sup>. Clearing unions operating on a local level could also serve to foment processes of sustainable development and to increase the resilience of the communities, enhancing local exchanges and providing better responses to the specific needs of any given territory (Lucarelli and Gobbi 2016).

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<sup>2</sup> It is worth stressing that the principle of clearing was at the center of the project of monetary reform elaborated by Keynes, who proposed the adoption of a supranational currency – called Bancor – to be used as a unit of account within a multilateral clearing system in order to regulate international trade imbalances. The principle of clearing is concretely applied by some complementary currency projects such as *Wir*, in Switzerland, and *Sardex*, in the Italian region of Sardinia, on which the case here analysed is based.

Less is said about the deepest social consequences of the possible spread of an interest-free monetary system. These cannot be grasped by referring to the current dynamics of the capitalist economy: it is not about understanding how money should be redesigned in order to overcome the malfunctioning of the market economy, but whether, and how, new forms of interaction between the economy and the society can emerge as a result of the diffusion of new monetary tools.

### **3. Monetary tools as a socio-technical infrastructure**

In addressing the aforementioned issues, Luigi Doria and Luca Fantacci (2017) offer an interesting reading of mutual credit systems, understood as a social technology which allows a peculiar form of sociality to emerge. Monetary circuits based on the principle of clearing, they argue, create a complex network of interdependencies, since all the members – be they debtor or creditor at a specific moment – share responsibilities and obligations towards the whole community of users. In the “monetary game” they play, new shared meanings gradually emerge which, rather than being a smooth projection of pre-existing values or ideological inclinations, are a direct consequence of the way the monetary infrastructure is designed.

As we are going to discuss, some of the empirical evidence we collected can be used to sustain this argument. What makes the case here analysed particularly insightful is the fact that it represents a top-down business-oriented project which originated from the intention to replicate an existing model – SARDEX – within a context considerably different than the original one. Despite these differences, our research showed that many of the strengths and weaknesses which were already identified in the case of SARDEX (Littera, Sartori, Dini, and Antoniadis 2017; Motta, Dini, and Sartori 2017; Dini and Sartori 2016) are also characterising the experience of LINX, being directly related to the design of the underlying monetary architecture.

Considering the above, our argument is that the choice to adopt a particular technical solution has precise social implications which should be considered when developing a CC project. It is not our intention to embrace a “techno-centric conception” that ends up “underestimating the amount of relational/social/educational effort needed to promote a complementary currency” (Dini and Sartori 2016, 14). Indeed, our research revealed that LINX’s sustainability, as in the case of SARDEX, relies on the capabilities of those who manage the circuit to mobilise a whole set of relational and economic resources. Yet, the point we want to make is that those institutional conditions which are generally identified as a prerequisite for a successful CC project can,

*vice versa*, gradually emerge as a consequence of the choice to use a well-designed monetary architecture<sup>3</sup>.

In the vast literature surrounding CCs, technical analysis concerning the operational mechanisms – such as issuing procedures, space of circulation, convertibility to the official currency, format, etc. – are not rare. To a certain degree, impact evaluation models also focus on the economic implications of the diverse technical options available, especially the most innovative and sophisticated ones (Place 2018; Seyfang and Longhurst 2016; Moyer 2015; Place and Bindewald 2015; Nakazato and Hiramoto 2012; Seyfang 2006).

Here, what we want to highlight is the need to pay more attention to how technology interacts with all the other institutional conditions of economic transactions.

As a matter of fact, the diverse accounting solutions which have been adopted over the course of history are a concrete demonstration of the fundamental role that technology, as integrated into monetary institutions, can play in providing responses to specific social needs and problems (Forsberg 2018). At the same time, they reveal the great potential that monetary innovations have to transform the existing social structures.

From a historical point of view, innovations in the monetary field and in accounting systems have been fundamental to complete the transition towards new techno-economic paradigms (Davies 1994). This is certainly the case of the invention of the double-entry bookkeeping system first codified by Luca Pacioli in 1494, but also of the solutions that have emerged to avoid the debasement of coins or against counterfeiting. Looking at the current scenario, electronic payment systems have been fundamental for the development of platform capitalism, not to mention the key role that the possibility to move money rapidly from place to place provided by ICTs has played in the globalisation and financialisation processes<sup>4</sup>. If technical innovations are a funda-

<sup>3</sup> This is also consistent with Georgina Gómez' (2019) reading of CCs as an example of a "hybrid form of institution". While institutions are usually defined as the rules used to prescribe and mediate social interactions (Ostrom 2005), there is no consensus on how they originate. Some accounts tend to present them as the result of a centralised process, in which negotiations are highly affected by authority and power asymmetries. Some others move from the idea that institutions are the product of an "evolutionary" process, according to which they tend to spontaneously change as a reflection of the diffusion of practices and solutions which prove to be more efficient. CCs can be read as a hybrid institution in which pre-fixed rules – in our case the rules inscribed in the technology adopted – intersect with evolved practices.

<sup>4</sup> To be sure, the history of money is much more complex than that of the form it has assumed over time (Grierson 1977, 12). Regardless of the specific form it can assume – may this be a gold coin, a piece of paper or an electronic bit – money is, above all, an abstract unit of account. In Geoffrey Ingham's (2004, 12) words, "money is a *social* relation of credit and debt denominated in a unit of account". Accordingly, a

mental ingredient in the development of capitalism, being the cornerstone of the process of “creative destruction” described by Joseph Schumpeter (1934), innovations in the monetary and credit field are even more disruptive, this representing the main infrastructure of the contemporary economic activities as a whole.

A key aspect is that while technical innovations cannot be considered as a neutral and exogenous force – as they tend to emerge in response to social needs which are overwhelmingly politically determined – their overall effects are largely unpredictable and the possibilities they open up can also pave the way for bottom-up processes of transformation (Vercellone, Brancaccio, Giuliani and Vattimo 2017).

Under these premises, monetary innovations can be read as socio-technical infrastructure which set the conditions of possibility for the emergence of new forms of interaction between the economic and social spheres. Their concrete outcomes, as well as their possible institutionalisation, will depend on a combination of factors that, as we are going to show, are also influenced by the way they are technically designed.

## **4. Money as it ought to be?**

### *4.1. Methodology*

The following paragraphs present some of the results of a two-year quantitative research on LINX, a clearing-based circuit which operates in the Italian region of Lombardy. A preliminary study was carried out in order to acquire knowledge of the socio-economic context in which LINX is based, collecting a set of ecological data (Pintaldi 2003). Thereafter, twenty-five semi-structured interviews were conducted with members<sup>5</sup> and representatives of the circuit. The questions posed were aimed at exploring the following dimensions: biographies, experiences and perceptions of the persons involved in the project; social and economic impact of the circuit; strengths and weaknesses of the model. The arising contents were analysed by encoding the transcription of the interviews to identify recurrent patterns, themes and narratives.

monetary tool is a conventional sign, which has somehow to be registered, of the fact that “something is due to someone by somebody else”. In this sense, it can be regarded as a technology which allow to “objectify” the creditor-debtor relationship that is intrinsic to the concept of money (Graber 2011), and that is used to established a common space of evaluation by the individuals of a given community.

<sup>5</sup> These were selected reflecting the variety of the companies involved in the circuit, based on the following criteria: business sector, turnover size, location, enrolment date.



Additional information was gathered through a screening of online and offline LINX-related resources<sup>6</sup>, informal conversations with key actors and the direct participation in a set of meetings and networking activities, including: 1 working-session with the brokers; 3 face-to-face meetings with the management; 2 seminars; 3 social events attended by an average of 50 between current and potential members.

#### *4.2. The commercial credit circuit LINX*

LINX is a B2B mutual credit system operating on a local level since mid-2015. It constitutes one of the eleven regional circuits which form part of the SARDEX network (<https://www.sardex.net>). Like the other twin circuits, LINX is the result of a partnership between local entrepreneurs and SARDEX, on which its operational model and ethical rules are based.

As of September 2019, the circuit has 1.265 enrolled companies (including cooperatives and NGOs)<sup>7</sup>. 43% of these are small enterprises with a turnover of less than € 100.000, while only 14% report an income volume of more than € 1.000.000. Enrolled companies belong to a range of different sectors, including restaurants, marketing, training and automotive<sup>8</sup>. Potential members are engaged by a network of “trade advisors” which work for the circuit, or are invited to join it by already involved commercial partners. Candidates are selected according to their creditworthiness, market segment and potential to meet the demand expressed by the other members.

LINX monetary architecture is entirely based on the mechanism of clearing as described in Section 2. Once in the circuit, members get access to an electronic platform where they can exchange with each other, while settling their mutual obligations. All

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<sup>6</sup> To be more precise: 11 issues of the magazine “Mondo Linx”, edited by LINX; contents posted by LINX on Facebook and Twitter during the last two years; ethical code, financial statements and membership contract.

<sup>7</sup> All quantitative data reported here are based on estimations provided by the management of the circuit.

<sup>8</sup> Members are divided into the following business sectors (as reported in “Mondolinx”, 11, September 2019): Hotels&Restaurants - Grocery Stores - Spa&Holidays (Nº 200); Health&Wellness - Hobbies - Clothing - Accessories (Nº 116); Freelance professionals - Human Resources - Training (Nº 218); Construction - Electrical Systems - Real Estate (Nº 173); Automotive - Insurance - Transport - Shipping (Nº 112); Services and Office Products - Cleaning Companies (Nº 54); Business associations - Non-profit - Co-working (Nº 36); Marketing - Advertising - Publishing - Graphics - Gadgets (Nº 122); Computer Science - Hi-tech - Energy - Telecommunications - Security (69); Printing - Typography - Bookbinding - Packaging (Nº 50); Furnishing - Restoration - Furnishing Accessories (Nº 115).

transactions made are registered in a centralised electronic ledger as debt and credit positions, with total amount always equalling zero. Negative balances must be settled through selling within a set time frame. Likewise, companies with a positive balance must spend their credits as soon as they can, buying goods and services from the other members.

In 2018, 27.029 transactions were realised within the circuit, for a total value of goods and services exchanged corresponding to € 10.004.440. LINX is also the name of the unit of account used by the circuit, albeit the value of the products exchanged within the network is fixed according to their official price in Euro. One LINX nominally correspond to one Euro, but they are not convertible. According to the rules, however, companies which decide to leave the circuit with a negative balance might be asked to compensate their debts with official money. As reported by the circuit's managers, this only happened in a very few exceptional cases. More often, companies that intend to leave are helped to find new exchange opportunities in order to allow them to previously net their positions.

Members pay an annual fee in Euro that is calculated as a portion of their turnover size. In exchange, they get access to a personal electronic account, as well as to the other services and opportunities offered by the circuit. Among these, there is the possibility to maintain a negative balance for a certain period of time, until reaching a given floor – which is calculated according to each company's turnover and tends to increase over time. This way, the companies gain access to a sort of free source of credit which they can gradually repay by selling their products to the other members. Exchanges worth less than € 1.000 must be compensated entirely in LINX. The members also have to officially declare a minimum percentage of LINX they are willing to accept for transactions that exceed this threshold.

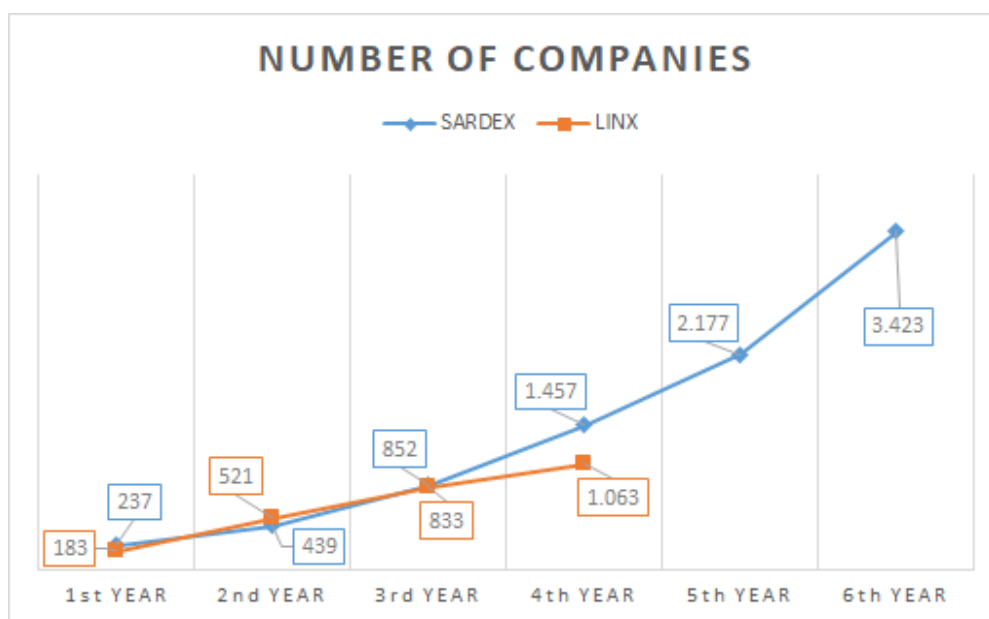
The clearing house employs 8 brokers which work to facilitate the matching between supply and demand and to maintain members' positions close to zero. According to the estimates provided by the circuit managers, LINX has a velocity of circulation of 8,7. This would mean that the intensity of the exchanges made inside the circuit is much higher compared to that of the official monetary system.

It has to be stressed that the region of Lombardy, as one of the richest areas in Europe, is thoroughly different compared to Sardinia – where SARDEX is born –, this being characterised by a much weaker economy mainly composed by small and micro enterprises. Reasonable doubts have been expressed regarding the concrete possibility to successfully replicate the SARDEX model in much more export-oriented economic contexts such as Lombardy, less affected by the crisis and with a less marked regional identity compared to Sardinia (Sartori 2017). Contrary to most sceptical predictions, the

available data show that LINX performances are, in absolute terms, similar to those registered by SARDEX in its first four years (see Graph 1 and 2). It must be stressed, however, that Lombardy houses 5,7 times more enterprises than Sardinia (ISTAT, 2018). Furthermore, as clearly emerges from Graph 2, SARDEX has gone through a long trial process, needed to improve the model and to develop the underlying technology which after have been adopted by the other regional circuits of the network with minimal changes (see Littera, Sartori, Dini, and Antoniadis 2017).

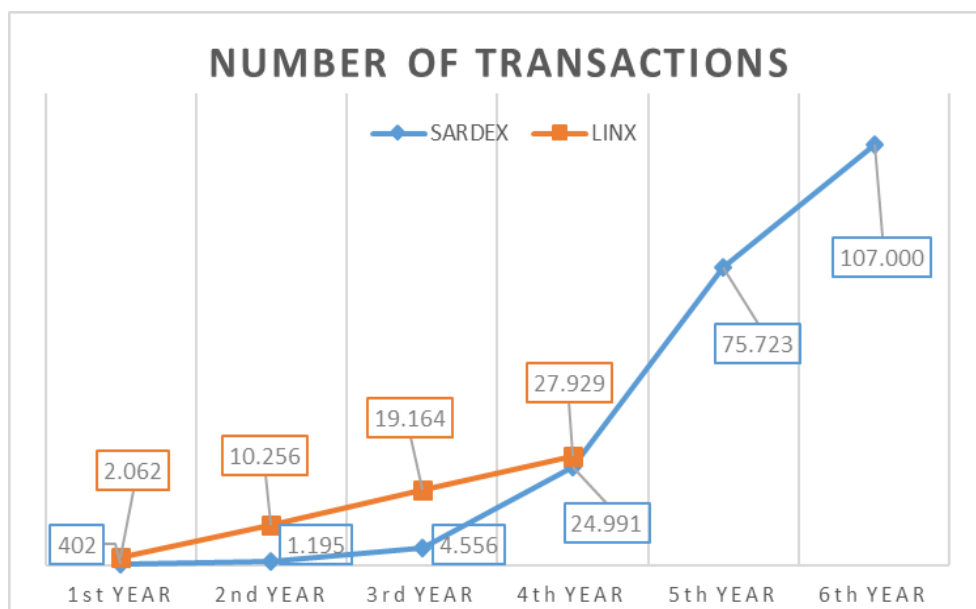
In any case, both performances show that the sustainability of the model is not necessarily related to the existence of specific territorial conditions or economic conjunctures. On the contrary, they suggest a connection between the CC's growth and the improvements which have been made in the design of the monetary architecture.

Graph 1: LINX vs SARDEX number of companies



Source: our elaboration on data declared by the circuits

Graph 2: LINX vs SARDEX number of transactions



Source: our elaboration on data declared by the circuits

#### 4.3. Vision and management

LINX's management model is inspired by an openly stated social mission combined with a strong business-oriented approach.

The discourses reproduced by the representatives of the circuit tend to empathise the social outcomes of the project. The management stressed the positive externalities which would derive from the circuit in terms of community building, as well as the role that this can play for overcoming the limits of the official monetary system:

The triangle between the free market, the single currency and the dismantling of trade borders is generating major economic imbalances. Differences between rich and poor are increasing, creating a sharp slowdown in monetary flows. This is due to the fact that those who would like to buy do not have the financial availability and those who have it tend to save for fear or as a way to improve their rent position. This produces a currency that is no longer functional to the exchanges but becomes exclusively an instrument of power [...] There is no chance to speculate in LINX, and, above all, there is no incentive to hoard LINX, which is, and should remain, a credit to be consumed as soon as possible. These are the values that this circuit implements: it stimulates spending and investment,

it renders the financial flows among companies more flexible, it fosters local spending, retaining resources in the territory that, otherwise, would tend to leave our borders.  
(Gianluigi Viganò, CEO of LINX)

The circuit is portrayed as an example of a “linking economy” which, by connecting people and enhancing trust, is fostering processes of wealth and social value creation more tied to the territory:

What we have noticed is that in the circuit the idea is growing that we must abandon the selfish attitudes oriented toward the search of products and services merely on the basis of the price. There is an increasing awareness that our choices must also take into account other factors. In particular, when selecting a supplier, we must also consider the territorial impact, because this becomes an important element in safeguarding a community. [...] Within Linx, we are regaining the awareness that alone we are doomed to fail. Together, on the contrary, we can rediscover that sense of belonging that has historically made our territory strong [...] Trust is the real leaven of a healthy market economy. And it is precisely the lack of trust one of the major problems of our economy. Trust is the fuel that powers the LINX engine. LINX is alternative experience that fits perfectly into this context. Because it values the community and the network, it is based on trust, and is an example of a circular economy that really works, and that leaves no one behind.  
(Gianluigi Viganò, CEO of LINX)

It has to be noted that the aforementioned social outcomes are not identified as primary goals, but rather described as a sort of by-product of the economic activities facilitated by the monetary architecture. The same managers seem to be much more focused on the circuit’s growth and on its economic impact. They pay great attention to the economic outcomes of the model and to the tangible benefits which would derive from the involvement in the circuit:

LINX is, above all, a fully market-based initiative, because it allows registered companies to work more and better, to improve their turnover, and to allocate their resources efficiently, maximising the cost-benefit ratio and minimising waste and unsold products. It is an economic model that focuses on the individual, the entrepreneur and his collaborators, and that considers money, and credit, as a means of exchange. All this translates into one word: sustainability.  
(Gianluigi Viganò, CEO of LINX)

This narrative, apparently tailored to the needs of the circuit target, also reflects the biographies of the managers. As entrepreneurs, these repeatedly indicated the circuit’s “economic sustainability” as one of their main short-term goals, as a way to prove the viability of the model, and to attract and remunerate new investments.

In fact, the company that manages LINX has already reached the break-even point (in its third year of activity), unlike SARDEX, which seems to be projected over a longer

term. The managers also declared that they had to adapt the SARDEX model to the Lombard context by developing a strategy which they defined as "territorial marketing". This strategy is aimed at "increasing visibility" and "unfolding the unexpressed potential" of the members, rather than at addressing concrete problems concerning the lack of liquidity or other specific local emergencies.

To be sure, unlike other CC experiences, LINX did not originate from a grassroots experiences oriented toward the achievement of collectively defined goals. According to the narrative developed by the managers, the project can probably be portrayed as an example of what Nobel laureate Muhammad Yunus (2011) defines as "social business"<sup>9</sup>. Indeed, the managers are highly aware of the limits of the official monetary system. They describe their project as a concrete example of how new monetary instruments can be used to "enable the transition toward a different socio-economic paradigm". Yet, LINX itself relies on the fees paid by the members in legal tender, being the result of a business initiative whose long-term sustainability depends, above all, on the achievement of external market goals.

#### *4.4. Actors' motivations and experiences<sup>10</sup>*

Most of the members declared being highly affected by the economic crisis, the increasing competition in their market segment and the declining spending capacity of their customers. It has to be noted, however, that the circuit took its first steps in a period characterised by an easing of the credit crunch and a partial recovery from the 2007 crisis<sup>11</sup>. This is a remarkable difference between LINX and SARDEX, which was born in the midst of the crisis. As a matter of fact, LINX members are companies which were already able to cope with the immediate consequences of the crisis, and are now searching for new market opportunities through which to regain and overcome their

<sup>9</sup> For a critical reading of the development practices inspired by this concept, such as microfinance, see Fama 2017.

<sup>10</sup> The interview excerpts reported in the following paragraphs have been completely anonymised for privacy reasons.

<sup>11</sup> From 2007 to 2015 the GDP per capita of Lombardy fell by 7,9 %. All of the main economic variables have been deeply affected by the crisis, also as a consequence of a prolonged rationing of the bank credit, especially towards SME. From 2014 onwards, however, the economy of Lombardy has experienced a stable, although moderate, recovery driven by exports, an overall increase in productivity and a growth of bank loans to the business sector. While it has not yet filled the gap with the other richest areas of Europe, Lombardy is performing much better compared to the average of the Italian regions (see Bank of Italy, 2019).

previous operational capacity. Coherently, our interviews revealed that members tend to conceive LINX as an instrument to reach new customers and to expand their business network, rather than as a concrete alternative to bank credit. Yet, in the case of start-ups and smaller companies, the possibility to rely on an additional source of liquidity played a key role in determining the decision to join the circuit:

M.22 - We have entered the LINX circuit with the intention to gain access to credit, since it is a debt at no cost. Of course, everything must be decided at the table with the manager of LINX, but the idea is to have the possibility to make an investment or, at least, to spend first and then gradually repay without any interest thanks to your sales.

As for the other reasons for joining the circuit, a clear prevalence of purely instrumental motivations emerged. Whether to leave or remain is a decision largely made on the basis of a simple comparison between the cost of the annual fee and the tangible benefits perceived from the participation in the circuit:

M.11 - At the end of the day we are entrepreneurs. You ask yourself: "how much did I pay to be part of this? What did I get? Is it really worth it?"

M.14 - We are very focused on what we produce, on our business. We decided to join the circuit because the mechanism is simple and cost-effective from an economic point of view.

M. 19 - LINX is just a way to try to get new customers and to find them without making great sacrifices, without needing to have a lot of sellers.

Topics such as mutuality and participation in the building of a different economic paradigm were barely mentioned in the answers provided to questions that related to the reasons for joining the circuit. On the contrary, in two cases the interviewees reported having joined the circuit with major "social expectations" that have not been met:

M.7 - We thought that in this circuit there was a different behaviour and a different interest [...] more a construction of relationships of sharing, while instead it is very traditional, tied exclusively to the value of your supply. This was another element that did not make us take a step forward.

As already said, LINX cannot be portrayed as a collective action pursued by highly motivated individuals with a great sense of belonging to the project. It rather is a business-oriented initiative which is growing, above all, thanks to its ability to ensure tangible benefits to its members. This is not necessarily a weakness, according to the words of Michael Evans (2009: 1037-1038):

Market success for money systems may depend on aligning, rather than opposing, social values and economic relationships [...] It appears that some minimum level of economic benefit is required to sustain a local currency, along with the legal, regulatory, and administrative infrastructure to support it. Without any economic benefits, systems fail completely, irrespective of social values motivations.

Indeed, there are many examples of CC experiences which remained highly marginal and eventually failed as a consequence of their inability to ensure tangible benefits to the participants. In this case, this ability is acting as a driving force of LINX's growth. Most of the members, in fact, declared having found a concrete opportunity to increase their visibility and their turnover, to connect with new customers and suppliers and to benefit from the possibility to access free loans.

Some criticisms were also reported, regarding the misconduct of some of the members (for example, non-compliance with the official statement concerning the minimal proportion of LINX accepted for each payment; prices in LINX higher than those applied outside the circuit) and the limited availability of goods and services, due to the still modest size of the circuit.

Three of the interviewees decided to leave the circuit, reporting difficulties in selling their products or spending their credits in LINX. As we observed, these difficulties are to a large extent directly related to the specificity of the sector in which underperforming members operate.

In seeking to solve these problems, the circuit's management is implementing a members' engagement strategy aimed at increasing the range of goods and services available and oriented towards avoiding the risk of uncontrolled internal competition. The managers also tend to censure misconducts by providing major visibility to compliant members and marginalising the others:

Of course, there are members who don't understand the concept of US and tend to adopt the same "cunning attitudes" that they have in the Euro world. Too bad, but it's not a problem. In a closed network such attitudes are not overlooked and a natural self-regulation takes place. We also tend to reward the virtuous and to isolate the others.  
(Gianluigi Viganò, CEO of LINX)

In this regard, the crucial role played by the brokers must be mentioned. They facilitate the matching between supply and demand and stimulate members to explore new business opportunities. Interviewees describe them in highly positive terms:



M.3 - The fact of having a personal broker who follows you in all your needs helps you a lot. That is, instead of working hard in seeking to reach a new market and then looking for new customers, there is this person here who is already working to find you new business opportunities. That's a lot already!

Simultaneously, most critical interviewees reported that, despite their overall positive opinion about the project's mission, they decided to leave it because they were badly supported by the brokers. Ultimately, members' judgments regarding the circuit are greatly influenced by their personal experiences with the brokers, who can be regarded as an integral piece of the circuit's monetary architecture.

In accordance with the existing literature on SARDEX, the points illustrated so far show that the LINX operational model entails the mobilisation of a whole set of relational and economic resources, and that the existence of a regulatory and administrative infrastructure with the ability to enforce rules and provide general guidance to the project is fundamental for the well-functioning of the model.

Taken separately, however, none of these factors can explain the longevity of the model and its engraftment within a socio-economic context considerably different than the original one. A key aspect to consider is that currencies only circulate as long as they are sustained by a combination of different forms of trust (see Aglietta and Orléan 1998). This is particularly true in the case of centralised CC projects, as they are exposed to problems of efficiency, control and transparency. Furthermore, a CC that is not backed by shared meanings and values may lose appeal in the long-term, especially when economic conjunctures improve. As we are going to discuss, it is in these cases that the way CC projects are technically designed can play an important role.

#### *4.5. The clearing mechanism as a laboratory for the discovery of a new form of sociality?*

As previously mentioned, people who join the circuit tend to be guided in this choice by purely instrumental evaluations. When directly asked about the social impact of LINX, however, the interviewees dwelt on a long list of unexpected outcomes and intangible benefits obtained from their involvement in the project. They reported that the participation in the circuit has given them the opportunity to make new friends and to discover new interests:

M.5 - Friendships have been made. I have especially become friends with the people of LINX, with other members, with the owner, with his daughter, with my broker, with the person who follows me. I met new people and new environments, we went out of our narrow one.

M. 3 - The other members are commercial partners, but we get along swimmingly. Because then we get to know each other also personally, in a very intense and beautiful way. We meet in the events; we talk about our problems. We sell and buy, but we all have a very direct relationship with all, from the smallest to the largest.

In conversations held with the members, a clear tendency emerged to describe the circuit as a tool that also enhances cooperation among local companies and increases the resilience of the territory:

M.24 - Entering this extraordinary network has been like discovering a parallel reality at your fingertips. Something you always dreamed about, but that you never thought could really exist. A group composed of people who share the desire to value their territory, something unthinkable in today's hyper-technological and globalised society.

M.22 - The thing that I liked the most about this circuit is this idea of going a little bit against the discourse of globalisation, of going back a little, working with local companies, trying to create a network again. [...] The fact that the circuit allows you to make contacts and to gain a different credibility in a smaller space in my opinion is important. This is the thing I liked the most. Within the circuit, you share the idea to value your territory, knowing that you are making products linked to the place where you live.

Perhaps, the most interesting finding of our research is that as their use of the clearing mechanism increases, the members also start to describe the exchanges they make inside the circuit as if they were imbued with different meanings, compared to the exchanges outside the circuit. They even begin to consider the other participants as members of a broader community, instead of as simple commercial partners:

M.23 - For lunch, when I can, I go to the restaurants of the network. It's nice to come in, to introduce yourself [...]. The phrase "I'm from Linx" works a bit like a pass. Distrust disappears, you're no longer just a customer but a special person and this is a pleasure.

M.12 - LINX has been a great opportunity for me and, as a company, I had much more advantages compared to the fee I paid; but the thing that fascinates me most is that while I am following my own interests, I am also following those of my community. Amazing. In practice, WE replaces I.

M.11 - LINX is an alternative to the traditional real economy. There are human relationships, personal, physical relationships that do not exist in the classical economic circuit and I think this is important. I also see more personal trust among the companies that belong to the circuit, and toward those who manage the circuit. I also believe that LINX is different in the sense that in the traditional

economic circuit there is a lot of dispersion, there is not a force that keeps together the companies, not only for economic convenience, but as part of a community. Another strength is that the companies that are part of the circuit share the same principles, are motivated to collaborate without cheating. And then there is the aspect of trust. And the lack of interest in the credit they give you allows you to open up new perspectives, to think about things you can do now while you couldn't before.

Trust was one of the most recurring words used by the interviewees. The circuit was often described as a “fluidifier of trust”. Interviewees reported that in the search for new commercial partners, participation in the circuit is considered a synonym of reliability, as well as an indicator of the potential existence of shared meanings and values. This can be regarded as a natural result of the close relationships arising from the prolonged participation in the circuit and in the related events. At the same time, it is important to note that the mechanism of clearing automatically function as a repayment guarantee, providing sellers with a purchasing power that they can exercise immediately within the circuit. This way, credit and debt relationships are reinterpreted in multilateral terms, allowing the emergence of a particular kind of trust which is directly inscribed in the way the monetary infrastructure is designed:

M.2 - In Italy, the problem is that whatever you do there is a risk of not getting paid for your work. Instead, in the circuit there is less risk. And you do not depend too much on the banks. [...] in the circuit I repay my debt with my work, I do not have to work just to repay the interests of the bank. One thing that brings us together is to work as less as possible with the banks or not to work with them anymore<sup>12</sup>.

M.16 - It can happen, in the professional environment, that you meet unknown people and their presence in the circuit can be considered as a sort of reference. The mere fact of participating in the circuit. Because, even if for me he is a new customer, he is in any case a member of the circuit. So for me it's a new customer, but he is known within the circuit. Let's say that I feel more protected.

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<sup>12</sup> The increasing mistrust in banks can be explained with a number of reasons. Some of these are certainly related to the deep transformations which affected the banking sector over the last decades. Many of the smallest financial institutions more tied to the territory have been acquired by big investment banking, ruled according to the logics of financial speculation. The significant decrease in the number of branches, and their replacement with online banking services, also played a role in undermining the relationship between banks and the territory. Furthermore, SMEs have been particularly affected by the fluctuations in interest rates and the credit crunch which followed the 2017 financial crisis. Some of the interviewees also declared having being badly supported in their investment strategies by the banks, as these were merely interested in their compliance with prefixed and rigid legibility criteria. On the contrary, they placed great emphasis on the higher flexibility of the circuit, as well as on the close relationship that they have been able to establish with the LINX's brokers.

Another pivotal aspect which emerged is that members are much more willing to spend their credits in LINX, than to sell their products within the circuit. This is a consequence of the fact that LINX credits are weaker than the legal tender<sup>13</sup>. This tendency, whether or not driven by the unwillingness to renounce to official money, in a way, reverses the logics of the official monetary system, which make people more inclined to hoard than to spend.

The most insightful aspect is the way the members are starting to make sense of these new practices. Initially, they consider the circuit just as a further means to acquire visibility, as if the fee they pay was no more than an additional item in their advertising costs. Most of them are not even aware of how the clearing mechanism works. Thus, they need some time to understand the monetary rules, effectively applying a “learning by doing” approach. While doing so, they also start to realise the importance of the “monetary game” they are playing. They acquire knowledge about the limits of our official monetary system, and how innovative monetary tools can be used to better link economic and social values, and to re-embed the economy into social relations.

These results suggest that, in spite of the original lack of a well-defined community kept together by pre-fixed values and goals, LINX have the potential to foster the diffusion of new forms of trust and new practices oriented toward shared meanings. They also show that the choice to adopt the clearing mechanism is playing an important role in creating the conditions for LINX to acquire a social legitimacy and to be recognised as a new form of monetary institutions. These conditions, in fact, are strengthened by the unfolding of a set of social dynamics which are strictly intertwined with the clearing’s ability to engender both tangible and intangible outcomes.

## 5. Conclusion

Money is a complex institution rooted in a combination of inextricably merged social, economic and technical elements. However, the way technology, as integrated into money, is related to all the other factors which affect economic transactions remains largely unexplored. Even in the case of projects which aim to rethink money, technology is an often neglected actor. Analysis on the diverse technical options available tend to remain confined to discussions about efficiency and scalability, while less attention

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<sup>13</sup> By definition, a currency is “strong” or “weak” according to the dimension of the community that accepts it for its payments.

is paid to the social implications deriving from the way a monetary architecture is designed.

As a matter of fact, technical innovations in the monetary field have historically been a driver of socio-economic transformations. Furthermore, as explained by Keynes, the limits of our official monetary system are to a great extent directly related to the way this system has been technically conceived. To fill the gap between *money as we know it* and *money as it ought to be*, it is therefore fundamental, above all, to technically change money in its capacity to function as a store of value. This would imply the creation of an interest-free currency which is *unhoardable* by design.

Local clearing unions could fit for the purpose, but for them to be successful other institutional conditions are necessary. The case here analysed showed that these conditions are, to a certain degree, directly inscribed in the clearing mechanism.

The case of LINX is particularly insightful since it did not originate as a grassroots experience oriented toward collectively defined goals. Its members are not held together by a great sense of belonging to the project. Above all, LINX relies on its ability to ensure tangible benefits to the participants. Nonetheless, the circuit is increasingly acting as a vehicle for the diffusion of shared meanings and new forms of cooperation. People participating in the circuit are experimenting new ways to combine economic and social interactions, stemming from a process of “learning by doing” in which the clearing mechanism is functioning as a laboratory for the discovery of new forms of reciprocity.

Generally speaking, local clearing unions seem to have a great potential to foment processes of community and trust building, to enhance the resilience of the local economies and to allow new forms of sociality to emerge. Nevertheless, they fail to provide an alternative answer to the question of “what brings people to use money”. They also rely on highly centralised systems where outcomes are not the immediate result of a collective decisional process, but largely depend on the relational and management skills of those who run the circuit and the decisions they made. Lastly, their sustainability rests upon the achievement of external market goals that reproduce the logics of the official monetary system.

Each of the aforementioned strengths and weaknesses is deeply linked with the design of the underlying monetary architecture. To be sure, as for any other CC, the future outcomes of LINX will depend on a whole range of factors, including the personal skills of those who manage the project. Yet, our study provided a set of reasons for arguing that the way a CC is technically designed – may this be a top-down or a grassroots experience – has important implications, deeply affecting the other conditions required for the institutionalisation of a currency project.

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