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The New Frontier in Payment Systems:
*Virtual Currency Schemes, the C3 Uruguay case and
the Potential Impact on SSE*

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The New Frontier in Payment Systems: Virtual Currency Schemes, the C3 Uruguay case and the Potential Impact on SSE

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Our dilemma is that small design actions can have big effects—often unexpectedly—and designers have only recently been told, with the rest of us, how incredibly sensitive we need to be to the possible consequences of any design steps we take
John Thackara.

People who say it cannot be done should not interrupt those who are doing it.
Jack Canfield and Mark Victor Hansen

1 Introduction

Harris & Harris Group Professor at MIT Sloan School of Management Andrew Lo summarized the starting assumption from which I will define the leading perspective for the following think piece: “One of the most significant consequences of the Financial Crisis of 2007–2009 is the realization that the intellectual framework of economics and finance is incomplete in several respects.” (Lo, 2011:39). Indeed, after the crisis the international monetary system is still on the way of recovery through the implementation of conventional monetary, banking and financial policy instruments. The latter are demonstrating as poorly effective, esp. if one looks at the prospects for recovery within the productive parts of the economy, namely the SMEs sector which gives the greatest amount of jobs in advanced economies while decisively contributing to the growth of emerging ones. By contrast, we are today witnessing a prolonged recessive state of the business cycle with foreclosures and bankruptcies and the social problems they naturally beget.

However, the prognosis for the mid-term is in the form of more austerity measures justified by the need to keep credit tight and achieve deficit and inflation targeting benchmarks. Such policies impels further credit contraction with the impossibility to inject money where and when it is most needed. Thereby, both monetary orthodoxy and the exclusive implementation of modern bank money in the form of different negotiable instruments are the main catalysts for the ignition of Second Wave structural crises that we have been experiencing for the past few years, "through a ferocious circle making a victim of the real economy: Bad banking balance sheets => credit restrictions => recession => worse bank balance sheets => further credit restrictions and so the spiral downward goes". In order to contrast such contractive trends of the money supply, the main instrument that orthodoxy offers is to bail-out banks at the expense of the average taxpayer (cf. the TARP Program in the US or the ESM in the EU).

Indeed, monetary authorities are responding to the crisis with the only way in which the dominant paradigm prescribes, i.e. after the crash, the system is being repeatedly re-inflated for building, this time, a sort of ‘debt bubble’:

“The irony is that, as soon as governments borrow these large sums from the financial system to save the system itself from bankruptcy, the financial system concludes that governments are now too indebted and need to be ‘disciplined’. [The] fiscal cost of bailing out the banking system is added to output losses with an automatic drop in tax income. Governments thus have no other option than to increase their indebtedness. This, in turn, results in the downgrading of the creditworthiness of affected countries and makes their debt more expensive. Where does all this lead to?”(Lietaer, Arnspenger et al., 2012: 56)

This leads to an unsustainable fiscal pressure that will not be bearable in the mid-long-term. According to a study conducted by the Bank for International Settlements entitled *The Future of Public Debt: Prospects and Implications*, “fiscal problems confronting industrial economies are bigger than suggested by official debt figures that show the implications of the financial crisis and recession for fiscal balances. [The] recent sharp rise in risk premiums on long-term bonds issued by several industrial countries suggests that markets no longer consider sovereign debt low-risk.” (Cecchetti et. al., 2010: 16) And this becomes a problem, esp. in those countries whose economies simultaneously experience recessive downturns.

How is it possible that after what the IMF identified as a total of 425 systemic crises since 1970, i.e. the sum of banking (145), currency (208) and sovereign (72) crises - an average of 10 countries affected each year (Lietaer, Arnspenger et al., 2012) - the only solution by mainstream monetary theorists and policymakers is to repeat at a global scale, in substance, the same procedures that demonstrated as flawed for hundreds of times in the past few decades? The answer perhaps lies in what Lietaer and Arnspenger call a ‘monetary blind spot’ at the epistemic and methodological levels within the dominant monetary paradigm and affecting almost everybody. The metaphor of the monetary blind spot is particularly significant in that the human eye presents indeed ‘a small portion of the visual field of each eye that corresponds to the position of the optic disk (also known as the optic nerve head) within the retina.’ In the same way, our average awareness of the monetary paradigm in which we are immersed and that define almost every facet of our life, i.e. our ‘sight’, does not allow for a full acknowledgement of the structure of the paradigm itself and to appreciate the extent to which his modification could impact on one’s socio-economic life.

According to Lietaer and Arnspenger, the phenomenon has three layers: first the “hegemony of single-currency thinking” that corresponds to the traditional monopolistic and top-down system of debt at interest, which accompanied humanity for the past few millennia (Graeber, 2009). Secondly, the ideological war between capitalism and communism: in this case the political antagonism funneled the attention of the masses on the political arena, rather than the monetary one. A usually understated datum that demonstrates this point is the fact that both the ideological wars between USA and Soviet Union in the twentieth century or that one between USA and China in the twenty first

century see two countries that differed in everything but the monetary systems. In all cases the latter reflects the same blueprint as prescribed by the principles of central banking. Indeed, today representatives of the central banks of all these three countries meet regularly at the BIS for coordinating policies at the international level. Third, an institutionalized *status quo*, in which a professional tax bureaucracy can cause significant damage to the institutionalization of innovative monetary vehicles.

The very exit and solution to all these problems at once is attainable only with a sort of quantum leap in the evolution of our relation with money and the ways in which we can conceive them. In other words and in parallel with what happens in other dimension of the information society, ICT can be used for increasing the possibilities of communication of the medium of exchange of information about economic matters, roughly what we all mean by 'money'. What I claim from the outset is the necessity to adapt to change that all the sectors of the economy have experienced with the informatization of the productive processes has to follow also for socially sustainable practices promoted by monetary and financial innovations. For instance, the development of high frequency trading documents this in a free-market oriented fashion (Aldridge, 2010). As I will argue more in detail in the following, not only within orthodox monetary economics and finance, but also as a new set of tools for the enhancement of best SSE practices, currency design needs to be developed sustainably.

This is already possible thanks to a sort of stigmergic mutation of software design principles for the innovation in the world of payment systems that are coming from efforts of the Complementary Currency Movement, which tangles instances such as the needs to insulate regional economies with new developments in ICT. As the Governor of the Bank of England, Sir Mervyn King stated in a speech in 1999, "the heirs of Bill Gates would have out the heirs of Alan Greenspan out of business" (King, 1999 - quoted in *The Guardian* - <http://bit.ly/MBncya>). Indeed, King stated that "the digital age offers commercial parties to emit a digital means of payment backed by private financial arrangements" (*Ibid.*). In effect, signs of a paradigm shift in the monetary domain are more and more evident today and also central authorities cannot anymore ignore them: for example, The European Central Bank as produced a paper as for October 2012 with no juridical prescriptions on Virtual Currency Schemes (ECB, 2012) while the new regulatory 'guidance' for Virtual Currency Systems enacted in 2013 by the FINCeN (the US based Financial Crimes Enforcement Network - <http://1.usa.gov/YOl6R3>) gives sings of a wish to charter the legal territory for these new type of moneys.

Within this sketchy scenario, I will now unfold the latest developments in the field with a particular attention to giving the reader a general overview on the main issues at stake while focusing on a peculiar case study whose features allow for a cross sectional analysis of the topics of interest for the audience at SSE conference. Indeed, by taking the pace from the Commercial Credit Circuit or C3 designed for the Uruguayan economy in the

aftermath of the last financial crisis, I will touch upon the underlying technologies that allow for this alternative, or heterodox, approach to currency design and the advantages that they bring for the economies adopting them. In turn, I will present the bulk of problems relating to the implementation of the C3, in particular with an analysis deeply concerned to the structural difficulties that the new currencies impel more in general on the traditional systemic configuration of the monetary and economic system. Finally, I will present my vision on the steps to take for filling the gap between the present non-optimal systemic scenario to a more desirable one. In a nutshell, it makes sense to invest in the development of digital payment systems that can help communities to use the desirable aspects of the digitalization of money. Although they are still under-researched, Virtual Currency Schemes / Systems (hereafter VCS, interchangeably) are promising innovations that, if conscientiously designed, can give desirable outcomes to socio-economic contexts in which SSE is being implemented.

2 The emerging VCS World and STRO's (Social Trade Organization) Cyclos

Advantages of innovation in payment system technology in the form of Virtual Currency Systems beg the question of increasing the choices we have to deal with the transfer of economic value among parties in an economy. POS and card readers such as Square or iZettle, NFC (Near Field Communication technology), and IVR (Interactive Voice Response) are innovations that, if properly implemented, can increase the possibilities for realizing SSE precepts such as alleviate poverty, counteract recession, or still offset the scarcity of purchasing power in regional contexts. In general, VCS present the following features:

(1) They are technologies that can deliver a better tradeoff between effective transfer of value and transaction costs to achieve it. In a SSE perspective, this means banking the *unbankable* and increasing the access to financial services for enhancing the general level of Financial Inclusion. In particular, VCS accounts can be activated directly on the Internet, on mobile phone networks, or still by smart card. In any case, the cost of activation is fairly cheap. A VCS account also offers offline advantages when compared with a conventional bank account: less queuing and a better mobility (e.g. from 'faster' to 'closer'), together with a more efficient administrative control on the side of the payment system provider. All these elements contribute to enhance the degree of socio-economic sustainability in a way that goes beyond the mere access to money.

(2) As Marshall McLuhan would have noticed, the medium of communication through which economic value is exchanged influences the nature of the transaction itself and allows for new possibilities in currency design to manifest. According to the Bank of International Settlements, "once money is completely in the form of digital data, the possibilities to manage transactions and design currencies increase dramatically. In particular, different e-money schemes will vary according to their technical implementation, the institutional arrangements required to support them, the way in which value is transferred, the recording of transactions

and the currency of denomination" (BIS, 1996). As the BIS admitted at the dawn of e-money design "electronic money is difficult to define because it blends particular technological and economic characteristics" (Basel Committee 1998). Thus, also digital money enjoys the most characteristic feature of money in general, i.e. the indeterminacy of money (Dodd, 1995) in that it leaves open a bigger and bigger space for innovative experimentation, esp. as VCS, whereby the currency acts only within a closed digital environment and does not have a direct link with conventional money.

(3) VCS can be designed in order to increase the Local Multiplier Effect in regions wherein a higher velocity of circulation of money is most needed, be that in a national economy or in a macro-regional one such as the European Union. Indeed, either the Uruguayan case study under examination in this think piece or the proposal for a *Geuro* for Greece on August 2012 goes exactly in this direction.

(4) VCS can be designed in order to lessen the burden of the costs of credit in a conditioned way: with conventional money, the costs of credit becomes part of the product's price while VCS allow for a re-distribution of costs within the supply chain.

(5) The possibility to surgically condition the behaviour of currency flow within a VCS enable users to sustain and foster intra-systemic volumes of trade and this can generate additional sources of profits for the commercial sector together with an increased tax revenue for governments.

In the one-dimensional currency thinking of conventional monetary and banking orthodoxies, there is no space for theoretical and concrete / virtual innovation with ICT unless it is oriented to profit making interests. The shift, I will argue in the following sections, should conversely be toward the formalization of an exit strategy from the conventional paradigm imbued of market fundamentalism (Stiglitz, 2009). The issue is in turn of interest also for the operators of the monetary and financial system themselves, since the system is not insulated from the very shocks that it contributes to elicit as the fate of the "securitization food-chain" in subprime crisis has extensively taught (Morris, 2009). The main innovation in these respects is today the fast prototyping of VCSs. A Virtual Currency "is a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community". (ECB, 2012). Virtual Currencies are effective in achieving specific economic objectives, in opposition to what happens with the one-size-fits-all approach of authorities managing conventional money. The issuance is decentralized, and their ontology and legitimation might not be more than a series of contracts stipulating an obligation by a party to transfer value to another as for a pre-agreed set of juridical conditions. As King argue already in 1999:" ... the idea that two individuals engaged in a transaction could settle by a transfer of wealth from one electronic account to another in real time... Pre-agreed algorithm would determine which financial assets were sold by the purchaser of the good or service according to the value of the transaction". (King, 1999)

One instance of such pre-agreed algorithm is STRO's Cyclos (<http://project.cyclos.org>): it is an Open Source software for online banking purposes, in particular purposed for microfinance institutions, local banks - located mostly in developing countries - and

complementary currency systems. (LETS, Barter Systems and the like). The new generation of VCS run on more sophisticated algorithms in comparison to software developed in the last decade: not only the new algorithms track and register transfers, but it is also possible to administrate, execute and deliver programs expressing monetary ruling of the system in the form of fees and/or rewards. This allows for the conditioning of the flow of money in a more precise manner toward specific sectors or clusters of the targeted economy. In a SSE perspective, VCS can be designed for co-ordinating win-win solutions to all participants as the C3 system allows to do.

In a nutshell, VCS can increase the supply of means of exchange. Further, they can re-shape the pattern of money's velocity of circulation for enhancing local economic activity by coupling the Local Multiplier Effect with the Plugging-the-Leaks approach. Indeed, by focusing on the increase and concentration of transactions, viz. turnover, within a pre-established local economic area, it is possible to increase local output. This economic strategy is then mingled with a value system akin to SSE in that it prescribes the support of community members coupled with an approach to local and regional development that elicit a more sustainable impact of the targeted economy if compared to the outreach of conventional monetary policy. Hence, through these means, VCS can become a new policy instrument designed to increase purchasing power in specific sectors or classes of the economy, or still counteracting unemployment, something that conventional money is *not* designed to do.

3 The Original Design of the C3-Uruguay: an Instance of the New Monetary Tools for SSE

According to Van Arkel, "some governments, such as the authorities in Uruguay, and some international organizations such as the Inter-American Development Bank (IADB), have looked upon the potentials of VCS as public policy tool in particular to promote employment and lower access to credit in relation to SMEs" (Van Arkel, 2013 – upcoming publication). Indeed, the C3 has been conceived as an innovative policy instrument for structurally addressing unemployment. In effect, the primary driving mechanism for the functioning of the conventional monetary system is fiat-money central banking. The booms and busts impelled by such systemic configuration drive economies toward full employment in booming periods, but then, during busts, they create significant unemployment. In contractive stages of the business cycle such as that one initiated with the credit crisis of 2008, at the macroeconomic level C3 aims at creating more liquidity in the local market of SMEs.

The C3 has got its first recognition by the Uruguayan government as an instrument to stimulate credit for SME's that hardly have access to bank credit. The result of such

stimulation of credit is the increase of local trade, especially for counteracting adverse market dynamics at upper economic scales, which tend to extract wealth from the territory without re-circulating it. Originally, according to a report from STRO, the main goal of the implementation of C3 in Uruguay was "to supply credit-worthy businesses with short term means of payment that serves as transaction capital and that does not depend on a monetary bank- loan and is thus cheaper and more readily available" (STRO Report 2009). C3 credit-units are therefore a complementary currency, because they are a means of payment used by the Uruguayan SMEs community as credit for boosting the liquidity at their disposal. Moreover, C3 credit-units are designed in view of lessening the costs for the easing of loans when compared to those charged by the conventional banking system. The main outcome is a decrease in the national level of unemployment in force of a lower number of businesses foreclosures and bankruptcies. The C3 Uruguay is one specific application of a Commercial Credit Circuit, in which the invoices of companies are being processed into a liquidity of claims on money. Last, the C3 Uruguay has been designed as an effective network aimed at complementing the conventional Uruguayan currency.

In the original layout of the Uruguayan C3, the credit-unit is in the form of Value Claims: "this means of payment can be rooted in a mix of backings, as long as there is an ultimate guarantee of a capable third party, such as trustable financial institutions, guarantee funds or credit insurances" (*Ibid.*). In the case in which an Uruguayan business company of small or medium size faces liquidity problems in terms of Pesos (\$, UYU), the firm will be allowed to get a line of commercial credit to spend within the C3 network. Such credit in the form of Value Claims is defined as "the right to obtain products from all other participating companies up till a certain value" (*Ibid.*). For instance, if a business company obtains a credit of \$10,000, it will automatically have an account on the internet with \$10,000 in Value Claims to spend in the network. It is worth noticing that no tangible money circulates within the system. Thereby, Value Claims are theft-proof. Furthermore, the loan must be re-paid in conventional national currency. In turn, the money flowing in the C3 network is passed to the supplier of goods and services that "have a positive balance of Value Claims and are in need for money" (*Ibid.*)

Commercial Credit Circuit (C3)

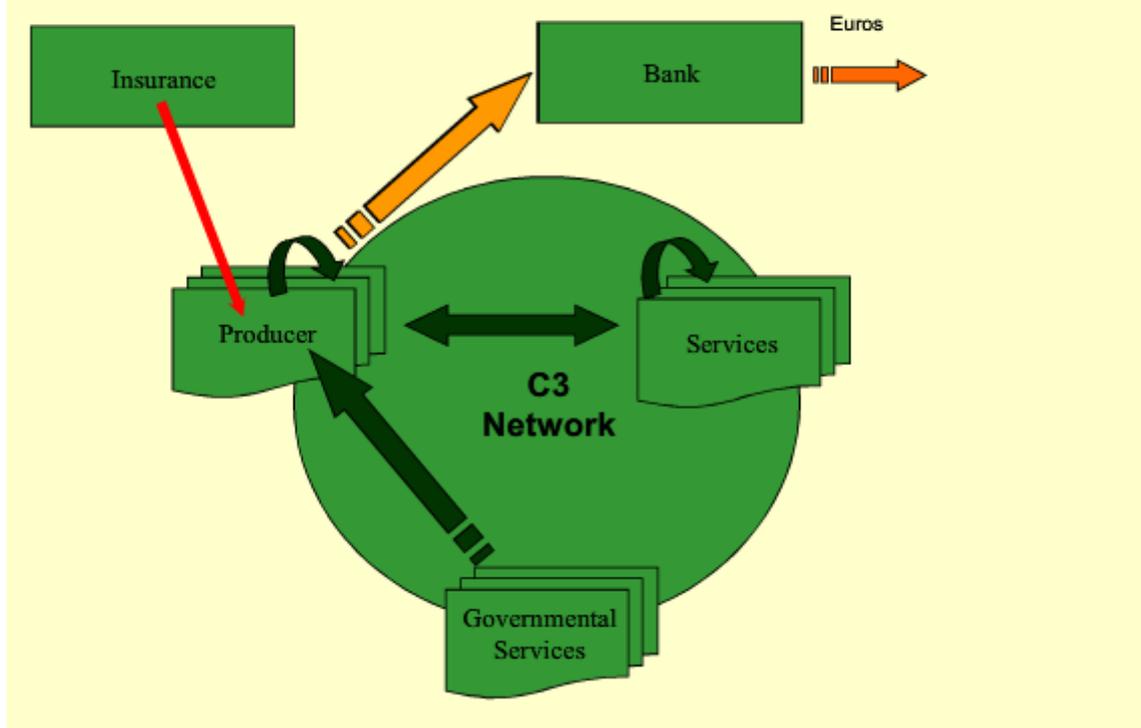


Figure 1: The Dynamics of the C3 Network (Courtesy of Bernard Lietaer in collaboration with STRO (2010))

The new agreement is such that Value Claims can be spent within the C3 network or exchanged for money. The result is as follows: depending on the financial situation that it is facing, a SME owning Value Claims can rely on at least two different options and such possibility of choice structurally enhance whole systemic resilience, because economic actors have a wider set of means of payment, which allows them to better cope with adverse financial situations. The compounded product is a more sustainable monetary system. In straightforward financial terms, if a member chooses to exchange Value Claims for conventional money, the only requirement for redeemability in national currency is that commercial credits must have been paid to the circuit. By contrast, if suppliers want to cash their Value Claims before maturity of commercial credits, they will have to pay a bank fee and associated interest costs for the period between the date of redemption and that one of Value Claims' effective maturity. In the case where a member becomes insolvent, suppliers owning Value Claims exchanged with the defaulted SME will receive the equivalent in conventional national currency from the insurance company or bank insuring the Value Claims previously loaned to such failing SME.

In order to effectively run all inputs from users, the system needs to use software with the capacities such as Cyclos presents. Cyclos tracks all the flow of Value Claims transacted among members of the C3 network. In particular, "[Cyclos] informs the system and its

users of the amount of time the holders of positive balances will have to finance if they want to cash their Value Claims at a certain moment" (STRO Report 2009). The holder of Value Claims is thus informed in real time about the options that s/he is currently allowed to select for maximizing the performance of her/his business company. Holders of Value Claims can thus either choose to spend their Value Claims at face value within the C3 network, cash them now and pay the costs, or wait until the credits backing Value Claims are compensated with conventional cash and the national currency is hence freely available. The C3 network is therefore an organic framework with a very effective power to structurally address the problem of unemployment by enriching the diversity of any single currency environment through the introduction of an *ad hoc* currency. In counter-cyclical terms, this is what has been accomplished by the introduction of WIR more than seventy years ago in Switzerland. However, C3 is a different network if compared to WIR: in the Uruguayan case there is the possibility to exchange one currency with the other - albeit at certain conditions. Moreover, Value Claims have also legal tender power and in principle the government have the role of constantly supporting the demand side by spending for services.

A series of benefits would be the main result of a *full* adoption of C3 for complementing the conventional monetary system of a currency zone that contains huge disparities like the Euro. First, the national monetary system would be structurally less brittle if compared with the traditional one resulting from the exclusive focus on the efficiency in processing conventional national currency (Lietaer, Ulanowicz, *et. al*, 2010). The shortcomings of the latter were indeed the main factor, which fostered systemic fragility in the form of monetary instability and concomitant credit tightness following the path prescribed by a Second Wave type crisis as I mentioned above. By contrast, C3 allows to increase total liquidity through the circulation of Value Claims in a defined area with underuse of capacities in companies and in terms of labor. The main result is a correspondent increase in the circulation of goods and services in the national market of SMEs with a direct relieving effect on unemployment.

Secondly, participating businesses would be able to strengthen their access to credit by means of the second currency, which is loaned at costs that are underneath conventional interest rates. Indeed, higher levels of liquidity in the form of Value Claims compel lower rates for accessing short time credit of conventional national currency. Therefore, SMEs could build on their working capital and maximize productivity. More in general for 'commercial credit', it is noteworthy that authors of a publication from STRO point out: "the C3 opens a way that allow buyers to pay immediately (within the circuit), regardless of the payment schedule in money, injecting substantial liquidity at very low cost in the entire SME network. So, while the buyer has postponed payment facilities, the seller meets immediate payment, as long has he can also spend within the network" (*Ibid.*).

Third, the government itself could experience advantages by full adoption of the complementary currency nearby conventional money. Thus, Value Claims would structurally allow governments at different levels (for instance, EU, national, regional) to "contribute to a guarantee mechanism. Such a guarantee mechanism is considerably cheaper to fund than subsidies or other traditional approaches to reduce unemployment" (*Ibid.*). Whereas subsidies may trigger distortions in market mechanics, C3 offers a counterbalancing mechanism for adverse market conditions. And this is true also at the fiscal level: the increase in the volume of trade significantly enhance tax revenues.

Fourth, C3 benefits also banks and the financial system at large, once SMEs become a profitable sector for banks which are used to profess the *credo* "bigger is more profitable". Further, "the credit lines are negotiated with the entire clearing network, providing the financial sector with automatic risk diversification among the participants in the network" (Lietaer and STRO, 2010). Therefore, more diversification means an increase in the sustainability of the system and this is of interest for every agent operating in the system. Moreover, banks can expand their portfolio of financial services with the inclusion of insured credit markets as the upper level of their set of products for SMEs and, eventually, microfinance.

Finally, C3 has *also* the potential to re-structure the European monetary system through a design that frames an economic win-win situation for all participants. The best scale onto which operate the network is certainly the regional one. From this main operational tier, the mechanics of the C3 network "systemically contributes to the stability of employment and of the entire economy, which is helpful for the overall solidity of the banks' portfolios" (*Ibid.*). Hence, complementary currencies are different agreements designed for specific monetary scenarios as the C3 documents. The leading principle is that when modern bank money structurally fails or is not satisfyingly operative, it is possible to restore a viable monetary system by adding complementary agreements. By virtue of the analogy with process ecology, I will conclusively argue that Value Claims flow in the C3 network as a ductile financial instrument whose implementation modifies systemic interconnectivity and, in turn, it desirably enhances the performance of the system as a whole.

The system is thus very flexible and variations are being tested in other South American countries. For instance, in El Salvador Groppa researched the barter-C3 *Punto Transacciones* which started a few years ago and it is focused on the SMEs sector (Groppa, 2012). In such research there are indications of the potency of a C3 to affect the inflow (creation) of purchasing power within the supply chain. Moreover, in Brazil, "for several years *Credimicro*, a microcredit organization based in Porto Alegre offered micro credits that were emitted inside the local C3 CompRas (<http://instrodi.org/>) to test how these would run together. No formal research has been done, but from the daily facts InSTROdi, the Brazilian representative of the STRO-group, concluded that this approach would be feasible for any C3 that passed the 'chicken and egg' threshold, i.e. reaching the local

critical mass for kicking-off the system." (*Ibid.*) However, The Fomento model that STRO implemented with Banco Palmas in Fortaleza, which contains both flows of local currency and national currency in a program for poor communities nowadays is promoted by the Central Bank of Brasil and the number of cities copying this Community Bank model now passed the 60.

4 The Shift to a Bottom-up Approach

In order to speed up implementation for the C3 Uruguay, STRO decided to partially change strategy: from the top-down approach fostered by public authorities to a bottom-up one for building momentum by involving *also* private actors. The first approach lately resulted in a growing number of welfare payments for food being transferred through a Cyclos-run payment system. This is being achieved at present through a *"pilot with the provision of welfare payments for food with 500 people has been a success and the minister said that he would have it seen upgraded this year to 15.000 users (daily expenditures and weekly payments) Next year it is intended to grow to 50.000. (we do this together with Accor group for Ministry of Labor) Next will follow the program that allows tax free lunch remuneration that is run by Accor."* (Van Arkel, March 2013 – personal communication). In the latter case, STRO is working on different sides of the Uruguayan economy, which are not entirely sympathetic with SSE principles and values. However, in my view STRO correctly proceeds with the types of resources at disposition, with specific projects that all run within Cyclos the small companies that are transporters of Coca Cola and Pilsner, restaurant tickets, taxi-payments, etc.

Hence, from a public policy tool that has the potential to increase the State's ability to foster SSE in the society at large without conflicting with traditional monetary policy, the C3 is now being implemented through a stronger participation of the private sector. The main negative consequence may be appreciated, if one looks at the issue from a fiscal perspective: from a virtual currency with legal tender power to a tax free digital voucher, the objective obsolescence of the bureaucratic system is the primary drawback for an advantageous structural change that could include SSE values in the toolkit of governmental policymakers. Indeed, to have C3 Value Claims equipped with legal tender powers would be desirable for all the players, esp. those who usually enjoy less negotiable power, i.e. SMEs - and the people running them in these critical times. In particular, by allowing for the anticipation of future income, Value Claims in the C3 network are an instrument that boosts co-operation among the actors inside an economy and this increases the trust among members of the network thanks to belonging to a web of connections with like-minded peers. The latter indeed choose to respect pre-agreed monetary economic rules that have been designed for the advantage of all the members at once, rather than rewarding by default the most competitive at the expenses of more

solidaristic economic relations.

Finally, the experience in Uruguay and new technologies developed in CompRaS are now being introduced in the Eurozone where cities, companies and other institutions in the regions of Catalonia, Sardinia and Bristol are joining a cooperation to make existing flows of money circulate more often into these communities in order to fight the effects of the crisis. Another spin off of the C3 activities in Uruguay was a conference held in April 2013 with high representatives of the welfare programs of Mexico, Brazil, Uruguay, Paraguay and Chile as well as the World Bank, CAF (Corporacion Andina de Fomento) and IADB that discussed pilots with C3 as a tool to improve the economic multiplier effect of the welfare payments into poor regions. Therefore, it is not an exaggeration to argue that although the original framework of both design and implementation saw changes for adaptability issues, such dynamic apparently strengthens and helps to spread the model in other similar socio-economic scenarios.

5 Conclusive Thoughts: Institutionalize VCS such as the C3 – Top-Down and Bottom-Up Strategies Together is the Necessary Condition for a built in Win-Win Solution

As I roughly showed in the sections above, VCS in the form of C3 can be a very effective innovation for boosting the stances coming from SSE practitioners in collaboration with governmental authorities *and* without interfering with conventional policy strategies. The complementary nature of the C3 documents this as a precise design choice: the C3 is a system that does not aim at competing with the conventional one, because it is designed to run in parallel with - as a complement to - the conventional monetary and economic systems or even to condition existing monetary flows in order to optimize their effects on regions or target groups. This is possible by virtue of design choices based upon SSE values and a pluralistic approach to the nature of money. True, conventional money is the only type of money that everybody is used to engage with. However, this does not necessarily mean that conventional money can serve for meeting all the needs of very diverse economies within the same currency zone. It is simply not designed to do so. Therefore, VCS implementations such as the C3 are instances of a new way to approach economic problems from a monetary perspective sensible to socio-economic issues.

By contrast, public authorities are not following the evolutionary steps demanded by the current Information Revolution in that they are *not* adapting quickly enough to change at the expenses of the socio-economy at large. The reasons for this are multifaceted and this is not the place for discussing them at least for obvious reasons of space. That said, it would still be desirable that policymakers acknowledged the necessity to re-orient their choices at the light of new findings from both pure academic research and payment

systems' software development. Such a desirable acknowledgement may reveal as extremely advantageous for those who set the policy agenda together with those who have to follow it. What I conclusively argue for is, therefore, the urgent necessity to design *new governance structures* that both the public and the private sectors should encourage to make blossom in favour of the civil society. Indeed, by continuing to network with the Ministry of Labor's welfare payment program, while looking for a modular approach to bottom-up implementation of the circuit, STRO is showing high adaptability without a change in the nature of its commitment.

What's more, public authorities and central banks need to start to collaborate with the Complementary Currency Movement, since this would enable governments to enjoy the features of VCS without losing effectiveness of conventional monetary policy. In particular, VCS are able to allow governments to influence the behaviour of economic actors in ways that reinforce the local multiplier effect, thus increasing local economic activity. Indeed, by giving better economic infrastructures via VCS implementations, both governments and central banks can create positive externalities such as local employment opportunities, for example in the form of lower interest rates for cross-sectorial clusters of the economy. The only price to pay for such positive payoff is in the form of investments and cultural adaptation. The former may be probably found through lobbying and networking while the latter requires civic education and monetary literacy for society at large. These are, in my humble opinion, the ingredients for realizing full Financial Inclusion, esp. in peripheral regions of the G/Local economy everybody is immersed in. This shift is already underway, if one looks at the pluralistic new manifestations of money: Such variations of the theme around diversity of currencies will include the Complementary Currency Approach (Lietaer, 2001, 2010, 2012), Socialist Money (Lapavistas, 2003), Direct Credit Clearing (Greco, 2009) and Commons Currencies (Qulligan, 2009), among many others.

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