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# Sharing within a city in crisis: Two ICTs-supported P2P economic networks in Thessaloniki, Northern Greece

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## ABSTRACT

The paper focuses on two emerging networks of sharing economy, the *Trapeza Chronou* time bank and the *KOI.NO* alternative currency in Thessaloniki, Greece. Both initiatives utilise open source ICTs to facilitate urban economic networking as means for enhancing local resilience, social inclusion and community self-management. Based on interviews with network members and participant observation, the paper discusses the socio-economic and technical characteristic, functioning and governance of these networks and evaluates their potential as pathways to radical socioeconomic change.

## KEYWORDS

*ICTS/Commons/alternative economy/collaborative networks/P2P urbanism/open platforms/local resilience*

## INTRODUCTION

Sharing of resources, labour, ideas and knowledge plays an increasingly more prominent role in emerging economies of solidarity. The practices of collaboration, redistribution and horizontal resource management that make up sharing economy (Mason, 2015) and peer-to-peer (P2P) economy (Bauwens, 2014) are enhanced by distributed use of ICT infrastructure. Since 2008, economies of sharing have proliferated in European societies affected by the financial crisis. The re-emerge of barter economy networks in many European cities (Leontidou, 2012) illustrates this resurgence of sharing economy and exemplifies the potential of P2P economic practices to generate alternatives to the mainstream market within cities in economic recession (Bauwens and Kostakis, 2014). This – largely unexplored – territory of sharing economy in many European cities is also reflected in worldwide projects, referring to ‘sharing cities’ initiatives (McLaren and Agyeman, 2015). <sup>1</sup> Initiatives in San Francisco, Seoul, Copenhagen, Medellín, and Amsterdam illustrate tries of contextualizing existing discussions on sharing economy and scaling up the “sharing paradigm” through city governance in order to promote collaborative action and justice within the cities (see Shareable Project <http://www.shareable.net/sharing-cities>).

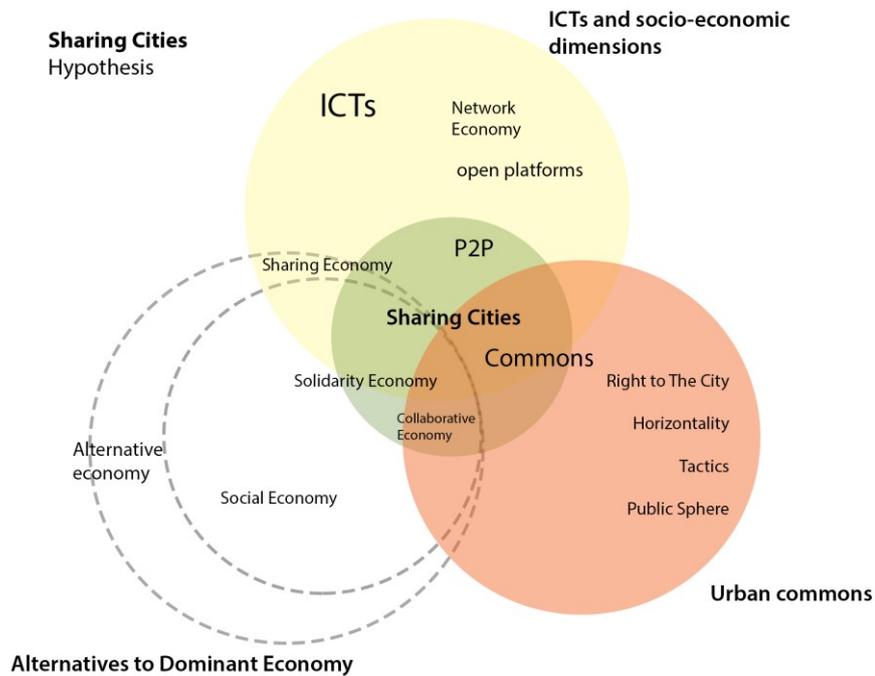
In the transitory conditions of the Greek economic crisis, approximately 150 networks of economic solidarity (see Solidarity 4 All database) that emerged in the last five years (e.g. barter economy, community currency networks, free bazaars, local market cooperatives), posit themselves as alternatives to the dominant neoliberal economic paradigm. Many of these networks aim to become examples of economic restructuring and resilience at the local grassroots level, thriving in many larger or smaller Greek cities, towns, even villages, with the

majority of them located in Athens and Thessaloniki (see <http://www.theguardian.com/world/2015/jul/17/solidarity-economy-greece-mixed-fortunes>, [http://www.nytimes.com/2011/10/02/world/europe/in-greece-barter-networks-surge.html?\\_r=2&pagewanted=all](http://www.nytimes.com/2011/10/02/world/europe/in-greece-barter-networks-surge.html?_r=2&pagewanted=all), <http://www.neweconomics.org/blog/entry/alternatives-emerging-from-the-greek-crisis>). Many of these solidarity economy initiatives make use of ICTs as a crucial means for forming, managing and sustaining distributed networks of economic activity, management and political action in parts of the city or city-wide. These networks thus constitute a fertile ground for research on how sharing and *P2P* hybrid practices of exchange within digital-cum-spatial communities can re-shape and enhance inclusivity in local economy.

This paper focuses on two emerging networks of sharing economy in Greece's second largest city, Thessaloniki (population: 1.500.000): *Trapeza Chronou*, a time bank, and '*KOI.NO*', a community-currency network, both supported by open platform ICTs. The research methodology employed qualitative social research methods. These include open and semi-structured interviews with the most influential agents and members of these networks, participant observation of events and initiatives of those communities and participation in the exchange process. The analysis of the interviews addressed: a) the value system and exchange processes of each network; b) the democratic and inclusive participatory structures; c) the role of ICTs; and, d) the relationships between participant members with each other, between each member and the overall network and with the local social context.

The two networks are approached as tactics that have the potential to generate socioeconomic change through bottom-up participation and ICTs-supported citizen engagement. These tactics inform the way(s) governance is implemented (see Foucault, 1991) and provide blueprints of participatory co-management of local resources. Drawing on the theoretical framework of *P2P* techno-economic paradigm (Benkler, 2006, Bauwens and Kostakis, 2014) and the wider significance of the latter in urban theory (*P2P* urbanism), the paper emphasises the role of citizens in shaping and maintaining resilient economic networks, parts of the citizen-managed urban commons.

Figure 1. Sharing cities paradigm situated at the intersection of the commons, sharing economy/P2P economy and solidarity economy.



## P2P ECONOMY: FRAMEWORK, STRATEGY AND VALUES

Commons-based *P2P* production (*P2P*) is an established economic paradigm of production and distribution of goods emerging within digital economy (e.g. open source in digital economy; Benkler, 2006, 2011; Bauwens, 2005, 2009)). *P2P* is framed as a form of human network-based organization which rests upon the free participation of equipotent partners, engaged in the production of common resources, without recourse to monetary compensation as key motivating factor, and not organized according to hierarchical methods of command and control (Bauwens, 2014). The paper will particularly analyse *P2P* as a mode of governance and equal distribution and access in common property (Bauwens, 2014).

Successful *P2P* communities are characterised by free and open membership, equal participation and transparency (Coffin, 2006). *P2P* projects operate in heterarchical horizontal power structures, allowing the presence of multiple teams of participants working simultaneously in a variety of - possibly opposing – directions (Coffin, 2006). Finally, *P2P* networks are *holoptical*: each and every peer is able to have a horizontal perspective of processes in the network and, also a vertical perspective, of the aims and scope of the project (Bauwens, 2005b).

The use of both social cues and decentralisation of authority to motivate and coordinate participant agents in *P2P* practices (Benkler and Nissenbaum, 2006) generates distinctive social, political and ethical characteristics, such as their reliance on – and reinforcement of – relationships based on trust. Trust between peers is necessary for the mild operation of *P2P* networks since there is absence of top-down control securing the liability of each peer and the safety on exchanges within the network. Trust and decentralisation of control are realised through digital voting systems. No majority group can enforce their decision on any minority who may find some other options, networks, actions, or policies more attractive (Benkler, 2006). In this way, *P2P* illustrates a viable complementary alternative to centralised, top-down governance. Although dynamic and decentralised, *P2P* systems appear to be stable and sustainable in the long term: good connections persist, while those that produce undesirable effects tend to be severed (Benkler, 2006). Finally, *P2P* allows for distributed action, enhancing self-management within systems, allowing flexibility, self-regulation and adaptation to external conditions (Benkler, 2006).

The dependence of *P2P* economy on ICTs and the Internet constrains and at the same time broadens the spectrum and means of economic exchange. Reflecting on Lessig (1999), the technological conditions for enabling open provisioning of goods, services, and resources are already in place. Wanting are appropriate practices and political frameworks of ICTs use (these may include, but are by no means restricted to legislation). Policies that reinforce the role of *P2P* networks and enable them to operate in parallel with the dominant market can result in wider production and distribution of goods and services within the network economy and more equitable access of *P2P* network peers to economic and social resources.

Referring to sharing economy, collaborative consumption and *P2P* economy, they are all overlapping modes of ICTs-supported economic practices that coexist, more or less seamlessly, with the dominant market. At the one end of the sharing economy spectrum, there are privately owned, profit-seeking companies: online platforms such as Airbnb, Dropbox and Lyft that operate as commercial intermediaries, bringing together peers to share resources, access goods, and provide services, while at the same time aggressively promoting commercialization of previously free resources. At the other end, there are *P2P* economic networks that embrace broader, and often explicitly radical, anti-capitalist social and political values. Free-cycle- a platform for free exchange of goods- for instance, illustrates how sharing economy is not restricted to monetary transactions and material exchange: social, cultural and political practices that differentiate it from the workings of the mainstream market are integral to it. The question is what actions, policy frameworks, legal infrastructures and technology uses could prevent dominant economic interests from subsuming and undermining the activities of *P2P* economic initiatives and what conditions would favour the co-development of both horizontal and top-down participatory and collaborative economic practices?

First, trust between persons and collectives (legal entities, NGOs, informal groupings) involved in P2P networks may be as fundamental for P2P economy as capital and legislation is for the mainstream market. Digital sharing networks, voting/feedback systems and applications may enhance trust in the hybrid world, but, in the physical world, policies and political action that promote participatory models of co-ownership, co-development and co-management of resources are necessary. It is thus imperative to develop tactics that generate trust in both online and physical settings, involving people in decision-making, bottom-up and community action. P2P practices that realise the notion of ‘commons-based’ economy (commons-based peer production: Benkler, 2006, 2011; Bauwens, 2005, 2009) often rely on extant inclusive structures at the local level. For instance, structures such as the ‘semi-commons’ (institutional arrangements that involve combinatory property-based market arrangements and commons-based social agreements upon the same resource: McLaren and Agyeman, 2015) serve as starting points. Such structures can empower the local economy and broaden the economic base by including transactional frameworks that also involve parts of the huge social economy that remain unpaid.

Figure 2. Based on Botsman and Rogers' categorization of aspects of sharing economy, the panel connects modes of co-production, prosumption (active consumption and collaborative and (or co) consumption) with collective participation and the shared processes and services that are produced.

What is being shared	Concept	Examples	Participants (typically)
Material <i>tangible</i>	Recovery and recycling	Glass and paper banks, scrapyards	Many suppliers, few users
Product	Redistribution markets	Flea markets, charity shops, freecycle	Single provider to single user
Service	Product service systems	Zipcar, Netflix, fashion and toy rental, libraries	Single provider to many users
Wellbeing	Collaborative lifestyles	Errand networks, peer to peer travel (eg AirBnB)	Many single providers to many single users (P2P)
Capability <i>intangible</i>	Collective commons	The internet, safe streets, participative politics	Collective providers to collective users

Bauwens and Kostakis (2012) suggest that *P2P* has the potential to result in structural transformation in production, exchange and distribution of goods and services, as described in four combinational scenarios: a) *netarchical capitalism* (NC); b) *distributed capitalism* (DC); c) *resilient communities* (RC); d) *global commons* (GC) (Figure 3). *Netarchical capitalism* (NC) refers to the fraction of capital which enables and empowers *P2P* structures through proprietary platforms that are under central control. Under NC regime peers will directly create or share use value while the monetized exchange value will be realized by the owners of capital, where the hyper-exploitation of peers occurs. Under *distributed capitalism* (DC) regime, *P2P* structures allow the autonomous participation of many peers, but personal motivations are driven by exchange, trade and profit. Various *P2P* developments can be seen within this context, striving for a more inclusionary, distributed and participative capitalism – i.e. Airbnb platform as an example- can be based on the principle that ‘everyone can become an independent capitalist’. The *global commons* (GC) illustrate a paradigm of a pragmatic new societal vision beyond the dominant capitalist system. Commons are neither private nor public (The Ecologist, 1994, p. 109), referring to shared resources where each stakeholder has an equal interest (Ostrom, 1990). These may include natural gifts such as air, water, the oceans and wildlife, and shared ‘assets’ or creative work such as the Internet, the airwaves, the languages, cultural heritage and public knowledge (Bollier, 2002, 2005, 2009). The Commons signify the absence of state, corporate and/or individual control, in favour of distributed control based upon non-exclusionary, *P2P* property regimes (Boyle, 2003a, 2003b; Bauwens, 2005).

Focusing on the scenario of *resilient communities* (RC), it explicitly regards the research in this paper illustrating how *P2P* structures can empower community control upon local economic resources. In RC scenario, communities use *P2P* practices and technologies to support the physical and psychological well-being of their members by generating a positive sense of place, localizing the economy within ecological limits and securing community stewardship of the local commons (Wilding, 2011; Bauwens and Kostakis, 2012). Policies that aim to built resilient communities support a *P2P* economy of social solidarity, involving empowerment of local governance and local control; optimization of assets; and development of sustainable infrastructures (e.g., affordable housing, interest-free credit, community land trusts, autonomous energy production, etc.: Wilding, 2011; Lewis and Conaty, 2012).

Figure 3: *P2P* techno-economic paradigm as a hypothesis for four combinatory future scenarios (NC: *Netarchical Capitalism*, GC: *Global Commons*, DC: *Distributed Capitalism*, RC: *Resilient Communities*) around two main axis which refer to centralized-distributed control and capital accumulation- common regimes ( Bauwens and Kostakis , 2012).

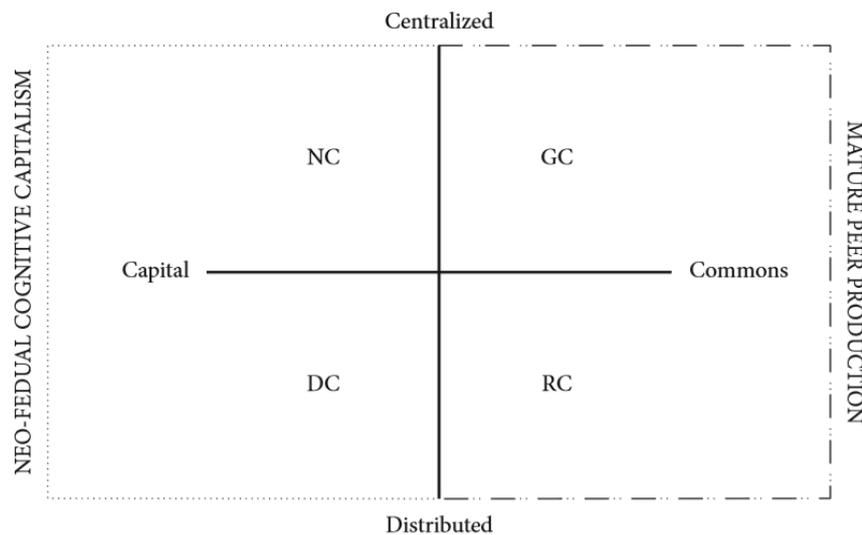


FIGURE 3.1 *Two axes and four future scenarios*

The paper argues that *P2P* could compose a sustainable model for local economy and governance to be promoted complementary to existing centralised models. The challenge of *P2P* urban economic networks is to achieve a dynamic equilibrium between horizontal and vertical control and decentralised and centralised decision-making, seeing these as processes that complement each other.

*P2P* urbanism reflects on the notion of governance as a synthesis of heterogeneous tactics and bottom up processes, providing a paradigm of collaborative local economic growth and participatory governance through distributed ICT infrastructure based on common property regimes. Foucault's (1991) insights on governmentality – the semantic linking between governing ("*gouverner*") and modes of thought ("*mentalité*") on the study of the "autonomous" individual's capacity for self-control – bring to the fore the importance of introducing bottom-up tactics in the processes of local governance. Governing people is always a dynamic equilibrium, with complementarities and "*conflicts between techniques of coercion and processes through which the self is constructed or modified by himself*" (Foucault,

1993). The difference between the envisioned aims of an economic or political program and the effects of its actual implementation, therefore, does not arise from a contrast between (an imaginary) purity of the program and impurity of reality, but from the meeting of disparate realities and heterogeneous strategies. Struggles and bottom-up reactions are not mere intervals between programs and their realization; rather than “distortions” of the “original” program, they are integral parts of the program itself, actively contributing to “compromises”, “fissures” and “incoherencies” inside it. Far from signs of failure, “breaks” or “gaps” between program and technology are thus the very condition of governance (Foucault, 1993).

The case studies *Trapeza Chronou* time bank and the *KOI.NO* currency illustrate the dynamics of tactical approaches in local governance and parts of the ongoing struggles to establish participatory, inclusive socioeconomic alternatives within crisis. The crisis of existing economic regimes creates opportunities for *P2P* urban tactics to establish local alternatives with particular characteristics which are analysed critically in the following sections.

## **CRISIS AS AN OPPORTUNITY FOR RADICAL SOCIO-ECONOMIC RECONSTRUCTION**

It is argued that the current economic/financial crisis in peripheral European economies (see PIIGS: Portugal, Italy, Ireland, Greece, Spain) resulting in a reconstruction of a North/South and central/peripheral divide within Eurozone (Afouxenidis 2012, Leontidou 2012b, 2015) serves as a profitable operation that benefits neoliberal economic regimes through extensive privatization of public wealth (see Klein, 2007; Z. Bauman, 2013; N. Chomsky, 2015). Greece is perhaps a paradigmatic locus of this crisis (Leontidou 2015), which, in the last year, has been further compounded by massive influx of refugees from Syria and other zones of conflict and impoverishment in Asia and Africa (see [http://www.theguardian.com/world/2016/mar/12/refugee-crisis-greeks-strangers-migrants?CMP=share\\_btn\\_fb](http://www.theguardian.com/world/2016/mar/12/refugee-crisis-greeks-strangers-migrants?CMP=share_btn_fb))

As great parts of the population become unemployed, homeless and/or excluded from the dominant economy, while the state becomes increasingly less able to provide organized relief, people turn for help on each other. The emergence of numerous barter economy networks (e.g. *Peliti* in Larisa and across Greece; *Ovolos* in Thessaloniki and Patras; *TEM* in Magnisia; *Kaereti* in Crete; *Maidi* in Kos; *Fasouli*, *Scoros* and *Swap not Shop* in Athens), alongside other solidarity economy initiatives (time banks, ethical banks, community supported agriculture, transition towns, de-growth initiatives, open bazaars, see <http://www.theguardian.com/world/2015/jul/17/solidarity-economy-greece-mixed-fortunes>), illustrate on-going efforts to develop practices of solidarity and establish socioeconomic alternatives based on non-monetary and/or non-capitalist economic models. By matching use and exchange values of goods and, balancing offer-and-demand pressures, these projects strengthen community relations.

The question is how these alternative economic networks could be more than spontaneous reactions of local relief and establish valid economic alternatives operating within interconnected localities. If these new economic networks are built for the purpose of social transformation rather than surviving through the times of crisis, they can lead to radical changes through establishing sharing economic cultures able to continue to flourish even after the hypothetical end of economic recession. This is where the concept of sharing cities could be seen as a broader strategy of empowering alternative economic activities, connecting existing initiatives and most important, sustain sharing cultures as a new economic, political and social consensus- in opposition with the neoliberal individualism. If considering crisis as not a fleeting but a rather permanent condition which will be intensified in the next decades, we should then argue that thinking upon emerging networks as viable alternatives can be the only solution to the long term dimensions of the problem. As a political tactic, by encouraging local political action, making extensive use of ICTs and strengthening local communal control over resources, solidarity economy projects create opportunities for democratization of local institutions. A critical mass of local initiatives may form the basis for even more extensive/interconnected *P2P* networks. This burgeoning of solidarity economy networks amidst economic, financial and social crisis forms the context of *P2P* economy in Greece.

## **DEVELOPING A QUALITATIVE RESEARCH STRATEGY**

To gain critical insights into the operation of the two networks - '*Trapeza Chronou*' time bank and '*KOI.NO*' community currency - and the ways participating individuals relate with each other, qualitative social research methods were used. These included open and semi-structured interviews with the most influential agents and members of these networks, participant observation of events and initiatives and participation in the exchange process. Not all these methods were employed in each study: particular characteristics of each network, limitations in time, and variable responses from network members (e.g. how approachable/generous with their time they were) compelled us to be selective.

Six interviews took place in July 2015. Research questions aimed at understanding the power structures within each network – referring to the 'micro' operation of the network – and its relations with the broader socio-economic context – referring to the 'macro' operation of the networks in the city. Interviews with network participants addressed four thematic categories:

- a) Value system and exchange processes: values, economic function of each network and its relationship with local economic context;
- b) Democracy and governance, referring to decision making processes, network management structures and power relationships;
- c) ICTs and their role within the network;

d) Relationships between the network's members and between the network and the local social context.

## **THE 'TRAPEZA CHRONOU' TIME BANK**

The *'Trapeza Chronou'* time bank was established in October 2013 as a co-funded initiative between the Municipality of Thessaloniki, and the NGOs PRAKSIS and ARSIS. *'Trapeza Chronou'* is part of the program *'Social Structures for Coping with Poverty in the Municipality of Thessaloniki'*, co-developed alongside other social empowerment structures, such as homeless shelters, a social kitchen and a social pharmacy. Based on the principles of solidarity and collaborative economy, *'Trapeza Chronou'* aims to create a socially inclusive, ICTs-supported alternative system of exchange of goods and services. *'Trapeza Chronou'* operates through an open platform where all participating members upload posts of services and products they offer or request. Each exchange within the system is charged in time currencies, based on use values of products/services (see <http://arsis.gr/en/time-bank/>). This system does not seek to substitute existing economic structures, but to provide local-level alternatives that enable people of low income to participate in the exchange activities and find employment. Additionally, the time bank aims to enhance trust and social cohesion by establishing a spatial/digital community space (see <http://arsis.gr/en/time-bank/>). *'Trapeza Chronou'* has several branches in the broader metropolitan area of Thessaloniki. Our research focused on the central branch, which serves most of the city centre.

Taking into account that an informal bartering economy operates anyway in the city in times of financial crisis, *Trapeza Chronou* tries to legitimise and broaden the scope of such transactions and facilitate their conduct with a P2P exchange ethos. It does this by building spatial and digital networks of non-monetary exchange, not mediated by professional organisations, but provided from citizen to citizen. *Trapeza Chronou* thus constitutes a P2P urban economic network with distributed control over the exchange processes enabled through digital tools such as voting feedback systems (see <http://arsis.gr/en/time-bank/>).

### 1. Value system and exchange processes

*'We time-evaluate services; but what is time in relation to service provision or product? How does it relate to the quality of service? Does it include preparation of the service or transport to the place of meeting, or just the time [in which] we offer or receive a service? And how could this evaluation of services with time avoid capitalising upon service values, simply through a different, more abstract currency?'*  
(Natasia Anastasiadou, leading member of *'Trapeza Chronou'*, 09/07/2015)

The economic model of *Trapeza Chronou* is based not on exchange value but on the use value of services and products. The use of euro, the dominant currency, is rejected as it is considered

to perpetuate unequal distribution of wealth and to generate profit. A time currency is used instead, called TEM. TEM is a digital currency which is used to enable exchanges only within the time-bank network. TEM currency is built upon evaluation of time that is required to produce and offer a service/product (1Tem=60mins). Since time is a universal good, it can underpin transactions that are much more inclusive than those of the monetary market. Time currency can provide vital support to the social economy by allowing people to make contributions and enter into transactions independently of their current monetary income. Moreover, TEM currency boosts P2P economic exchanges by charging those based on use-values and not exchange values of services/products. This keeps the prices within the network stable and under peer control independently of offer and demand pressures.

But is time module a viable form of currency that can fully substitute for the euro? There are indeed many difficulties with the use of TEMs, related to entrenched notions of currency and financial transaction. Many members find difficulties in trusting an immaterial time-based currency that has no relation with formal currency and no real value outside time-bank networks. Other difficulties relate with coping with emerging demands within the network and with the coexistence of different levels of capacity and specialist expertise within the *Trapeza Chronou* network. Obviously, some members are more available and/or capable to offer services than others, while some services- i.e. medical support - are much more popular than others. These differences often create difficulties: no-one blocks 'weak' members from participating, but overloading of the most capable peers is unavoidable.

*'[Our] hope is that balance will naturally emerge within the network as newcomers relieve the burden of overloaded peers, while weaker peers gradually empower themselves by using the network services. Within these cycles [of network activity], there are periods of stagnation, but as the network works as an alternative to the dominant one, these are not regarded as problematic, while they are predicted to become shorter as the network grows.'* (Natasa Anastasiadou, leading member of 'Trapeza Chronou', 09/07/2015)

## 2. Democracy

The *Trapeza Chronou* network is conceived as a political intervention that enhances local democracy and decentralises decision making in the city. Yet, the *Trapeza Chronou* permit members' involvement in decision making on core issues such as event organisation/advertising, ICT infrastructure management, introduction of new members to the network and control of mild network operation- i.e. health/psychological examination of members and coordination of services based on the voting outcomes; members can only make decisions related with the transactions they participate in. The management of the network operation is controlled centrally- management group is consisted by 5 appointed members that get funded for securing time-banks function- while the type, method and arrangements of service provision are controlled horizontally. The platform supports a

voting/feedback system for services, which network members generally rate as well functioning. The absence of members' involvement in decision-making processes and events organisation does not further enhance community bonds, sense of co-ownership of the network and trust between peers.

*'It would be a gamble, if you like, opening up decision making to members. There are huge social gaps. Moreover, there are needs to be covered that are more urgent than [the need of] certain members to participate in Trapeza Chronou. This counterbalances any political expediency [...] The fact that there are many social groups involved makes relationships of trust harder to develop. They see it [Trapeza Chronou] as a service provided by the public sector, and not so much from one to the other, although they do become involved, inevitably.[...] Trusting an alternative currency which is based on time is a huge step on its own: understanding the economy as something different from the dominant notion of it ...and then contributing to that. You understand that there are a lot of issues that people have to grapple with.'* (Natasa Anastasiadou, leading member of 'Trapeza Chronou', 09/07/2015)

### 3. The Use of ICTs

'Trapeza Chronou' operates both spatially and digitally. In the digital dimension of the network, participants create an online account in an open platform managed by appointed members. The platform is developed based on existing software that supports similar time-banks as well as community currency networks in EU broader area. It consists of a digital space where all services are posted as tags, enabling members to describe what services/goods they seek and/or offer. It also provides tools that enable peers to manage their accounts and change their demand/offer parameters, follow their transactions and vote on the quality of services they have received. This goes some way to compensate for the spatial limitations of the *Trapeza Chronou* network, as people can connect or work from home and conduct transactions from a distance as long as they have Internet access.

The system is supported by ICTs – an open platform- in order to allow distributed action by peers coordinated by a central community. Voting systems serve as mechanisms for strengthening trust between members and for eliminating antisocial, racist, anti-environmental behaviour, harmful behaviour towards other members, and the use of money (forbidden in *Trapeza Chronou* transactions).

Discussing how the physical and digital dimensions of *Trapeza Chronou* relate to each other, members pointed out that it is the digital platform that enables the network to operate city-wide. Moreover, the anonymity ensured by the online platform makes transactions smoother, as renders social differences between participants invisible. Yet, the ICTs platform is something immaterial, something people cannot readily relate to, while access to the Internet remains a challenge for many elderly people.

Scenarios for the future development of *Trapeza Chronou* and similar time bank initiatives thus envisage development of even more sophisticated and ‘democracy-promoting’ digital infrastructure – voting systems, online decision-making platforms and similar applications, while others call for a better ‘rooting’ of such initiatives in the local economy and community action.

*‘If there is no connection with community action, Trapeza Chronou will remain an emergency, state-funded structure and will never develop as a self-managed network in the city.[...] Although the potential of the [Trapeza Chronou] system lies exactly in this hybrid dimension, there has to be a physical, spatial connection and a certain type of locality.’ (Natasa Anastasiadou, leading member of ‘Trapeza Chronou’, 09/07/2015)*

#### 4. Trust

While the obvious motivation for involvement with *Trapeza Chronou* is to address individual economic needs, interpersonal relationships and trust between members are of cardinal importance for the smooth functioning of a system operating outside the legally regulated monetary market. In *Trapeza Chronou* all members are responsible for their conduct and for any goods and services they offer or accept. In this way the system tries to encourage responsible exchange behaviours, trust bonds between members and (a degree of) network self-management.

One of us (E.M.) had the opportunity to participate in a service exchange series in July 2015. The main issues discussed during the transaction were trust and the evaluation of the services, and how the digital platform relates to and impacts on the function of both. Asked whether she finds the network trustworthy, an interviewee, Konstantina, responded as follows:

*‘In the network I can always call the central office and enquire if someone is trustworthy. I can always report it if I feel that the exchange wasn’t worth it at all – there is the voting feedback system too. Of course it depends on what you’re after, for instance, if you’re asking for professional help or just assistance you have different criteria. But I think that, for a great amount of services, it is a reliable way of making exchanges while you connect with people as well.’ (Konstantina Chronaiou, member of ‘Trapeza Chronou’, 15/07/2015).*

Konstantina felt that younger members of *Trapeza Chronou* perceive the network in a very different way to older ones. To her it appears that younger members find it easier to conduct transactions without the use of money, or by using alternative currencies, and to trust fellow members they may have never met in person. This may be due to their familiarity with other online platforms, such as *Couch-surfing* and *Free-cycle*. For Konstantina, the fact that *Trapeza Chronou* operates digitally makes things much easier. She did understand, nonetheless, that digital ‘illiteracy’ of older members may be resulting in a generational gap.

*'I think that young people will gradually start thinking like this: [that] this is a nice way to have more alternatives, which otherwise you wouldn't be able to afford. There are other networks like this, for instance Couch-surfing etc., which are becoming more and more popular. I think that, as the network grows, there will be more services offered, which will make it more attractive as an alternative.'* (Konstantina Chronaiou, member of 'Trapeza Chronou', 15/07/2015).

## **THE KOI.NO CURRENCY NETWORK**

*KOI.NO* (common) is a bottom-up initiation that begun in April 2012 as a try to create a model of *P2P* economy operating through digital community currencies in the area of Kalamaria, eastern Thessaloniki, Greece. *KOI.NO* refers to common currency, illustrating a huge try to establish alternative currencies in order to address poverty in Western and Eastern peripheral Thessaloniki (see <http://koino.com.gr/index.php>). *KOI.NO* cooperative is an initiative between three grassroots citizen collectives: the *Kalamaria Citizen Movement*, the *Active Citizens of Kordelio-Evosmos*, and *SPAME: the Cooperative Movement for Products without Market intermediaries*. *KOI.NO* is framed as a social currency by agreement of network's founding members, reflecting its political and social character. Members are residents of Kalamaria and broader area and products of exchange are any services and products they wish to offer, varying from educational courses, professional services (i.e financial consultant, law services) and product exchange- i.e. homemade products. The contribution of *SPAME* cooperative through open bazars of local farmers products boosts the network popularity. There is an open platform to support the network, where *KOI.NO* currency is used as the sole means of exchange in all intra-network transactions. All *KOI.NO* visitors and network members can view anytime the list of services offered and wanted (see <http://koino.com.gr/prodnserv>) and what events or assemblies are running within the network. The platform is decisive in how the network operates, creating an inviting interface towards the city.

### 1. Value, Exchange means and use of ICTs

The *KOI.NO* network is also supported by an open platform – a standard interface such as those used by time banks, adapted to accommodate differences in member registration and the exchange process. The *KOI.NO* currency is a digital module which value is equivalent to the *Euro* currency. Apart from the occasional use of vouchers, there are no printed banknotes; just modules in the system. This legalises the operation of the network within local limits. An important difference from 'Trapeza Chronou' is that *KOI.NO* evaluation does not refer to time

but has a direct analogy to dominant currency: 1 *KOI.NO* is equal to 1 Euro. Although no exchange between Euro and *KOI.NO* is allowed to take place, this mutual relation builds *KOI.NO* as a more familiar and successful – although still immaterial – medium for exchange, thus contributing to its appeal to different age groups and enabling competition with market prices.

Each user has an online account in the platform, where *KOI.NO* modules are collected and exchanged. The network encourages the flow instead of accumulation of modules within the network with many ways. First, there are upper and lower limits of credit and debit with zero interest for all accounts. In periods of ‘stagnation’, when many people get reach low credits, members are encouraged to offer or request new services. Temporary jobs related with the network’s function are also created, so that some accounts can be credited and the operation of the network thus becomes unblocked. Since *KOI.NO* prices are often cheaper than euro prices, the network is financially attractive. Moreover, there is the opportunity of bargaining on prices as a way to promote healthy competition. Voting feedback systems enable participants to evaluate goods and services. This results in price control by peers and the development of trust within the network.

As with *Trapeza Chronou*, here there also are differences in how younger and older members relate to the network. For this reason a response help-desk is available everyday at the *KOI.NO* offices for anyone experiencing difficulties with connecting to the Internet and using the platform.

## 2. Democracy

As one of the network founders explains, *‘the KOI.NO initiative doesn’t have a legal status; it is established as an informal union between individuals.’* Although lacking a legal status, *KOI.NO* is widely seen as legitimate at the local level, in the Thessaloniki neighbourhoods where it operates. Another important characteristic that firmly situates *KOI.NO* within its local community is that it operates through open assemblies that make decisions collectively and elect the network managing committee. In this way *KOI.NO* is not merely a local-level economic alternative, but a means for establishing democratic structures in neighbourhoods, enhancing social cohesion and redistributing wealth and resources horizontally.

*‘Generally, KOI.NO has to stay within local limits. This doesn’t mean that we do not invite people from other areas to participate, just that we conduct the basic functions – assemblies and most of the open bazaars- in the Kalamaria area. [...] We simply encourage other areas to start similar social currencies, that have the same values and function with KOI.NO, so that each area will have control of its local production while cooperating with other local currency schemes at the city level [...] Both bazaars and assemblies help to strengthen trust bonds; assemblies, of course, are more important for resolving problems occurring within the network, and also for linking the network’s action with issues that emerge within the broader Kalamaria area. We link the*

*network's function with local political action, and we believe that in this way it [the network] can offer real alternatives to people.' (Michalis Panagiotidis, leading member of KOI.NO, 17/07/2015).*

### 3. Relation with the local social and economic context

The *KOI.NO* network has appeal to diverse social groups: men and women who want to be flexible in their working hours and/or need an extra source of income; unemployed who need to find resources in order to pay their bills and rent; pensioners of low income; local retailers who want to attract more customers. *KOI.NO*'s most important contribution to local economic empowerment is through the participation of local producers: the *SPAME* movement. The many open bazaars organised by *SPAME*, in which transactions are conducted in *KOI.NO* currency, help people to get to know *KOI.NO* and reinforce the relationship between local producers, retailers and consumers.

*'Product exchange is done mostly through local producers and cooperatives, so usually it takes place in open bazaars [...] People prefer to meet face to face and exchange products, so open markets actually work very well for that, while [also] creating opportunities for people from the network to work together. We always need some help with preparation, for which we offer KOI.NO credits in exchange. For exchanges in the bazaars, we provide vouchers. [...] Producers keep prices lower than the euro prices [for the same goods] – this is what makes KOI.NO competitive, otherwise people will simply prefer the dominant market currency [...] Generally we try not to make any use of the dominant currency within the network; we prefer to use KOI.NO exclusively. We want to keep KOI.NO as a local independent alternative that provides relief from financial pressures.'* (Michalis Panagiotidis, leading member of 'KOI.NO', 17/07/2015).

### 4. Trust and inclusivity

One of us (E.M.) had the opportunity to meet *KOI.NO* members and interview them about their motivation for becoming involved, and their trust to the network. Members' motives for involvement varied depending on age, profession, income and political outlook. A 45 year old member, for instance, became involved because she wanted to sell homemade products, while she was interested in receiving courses on production of homemade cosmetics. A 23 year old member was interested in language and software courses, as well as in *P2P* culture as a way for connecting with people. A 30 year-old economist who offered assistance with financial issues was keen to get involved with bazaars, open markets and local producers markets. Variable motives notwithstanding, all interviewees reported that, overall, they trusted the network.

Differences were also apparent in the ways members deal with the digital dimension of the network: the two younger interviewees found the platform very easy to use, but the older one claimed that it would be difficult for her to access regularly the network online, as she did

not have an Internet connection at home. Nonetheless, she did like the fact that services are available anytime on the Internet, enabling her to conduct transactions from places near her home. Besides, she would not trust people to come to her place to buy products; instead, she would prefer to arrange meetings outside. Younger members, on the other hand, claimed that they felt rather safe during exchanges. In general, digital voting feedback and local assemblies and markets, where members meet each other and introduce newcomers, are crucial for establishing relationships of trust between *KOI.NO* members and for strengthening the role of the network in the local economy.

## DISCUSSION

The *Trapeza Chronou* time bank and the *KOI.NO* currency illustrate ongoing efforts to establish participatory, inclusive socioeconomic alternatives to the capitalist market, supported and mediated by ICTs. A distinctive attribute of *Trapeza Chronou* is that it operates at many different 'speeds', due its members' variable capacity to contribute to the network functions. It is a comprehensive attempt to include lower income citizens of Thessaloniki in the economy; yet its funding by the state obliges it to retain (and perhaps perpetuate) several dependencies to extra-local centres of power. By not being integrated with other community activities, by not utilising direct democratic procedures such as local assemblies, and by connecting individuals and not collectives (cooperatives, local shops, etc.) *Trapeza Chronou* may be limiting its functions to that of a centrally managed *P2P* service exchange instead of a bottom up self-managed *P2P* local economic network.

The *KOI.NO* network is an example of grass-roots *P2P* urbanism, closely linked with local community action and situated firmly in its social, economic and local political scene. Spatially situated processes of participation are crucial for its success, as they strengthen trust between members and raise *KOI.NO*'s popularity. Members trust is also greatly enhanced by the anchoring of *KOI.NO* to the dominant currency, euro. *KOI.NO*'s acceptance by local producers and the inclusion of these producers in the *KOI.NO* network and decision-making processes is also crucial, as this is what gives *KOI.NO* the potential to invigorate local autonomy. Although ICTs have a secondary role in the operation of the *KOI.NO* network, they do afford flexibility in the exchange processes and produce an open and inviting interface. As with *Trapeza Chronou*, the digital dimension of the network has potential for further development (e-voting, e-participation systems, e-vouchers, etc.).

The emergence and propagation of these two networks generate several questions. How possible is it to keep these networks local, without them becoming subsumed by the dominant economy, or without extending them beyond their sustainable limits? In other words, how to remain under community control, while being open to new members and responsive to a rapidly changing economic and socio-political landscape? Since these networks are dependent

on the dominant economy, they are vulnerable to all those pressures that affect that economy, while their scope is limited: many economic functions are simply beyond their remit. The choice of not using formal currencies within these networks surely affects consumer behaviours. In the political milieu (anti-capitalist movement, social ecology) from which these initiatives sprang, it is imperative to develop mechanisms that prevent unhealthy competitiveness or exploitation between peers. Prerequisites to a sharing economy are a culture of sharing and solidarity, and trust between peers: perhaps quick to emerge in times of crisis but hard to sustain when the shocks of the crisis recede. This may be a major challenge to the long-term viability of both networks.

Significant differences between the two projects notwithstanding, the *Trapeza Chronou* time bank and the *KOI.NO* community currency network share some common characteristics:

-ICTs infrastructure has a decisive role in the dynamic expansion of the two networks, although its role is markedly more prominent in *Trapeza Chronou*. Both initiatives operate through open platforms. Dependence on ICTs infrastructure, however, is not unproblematic: members unable to connect to or use the online platforms are partly or completely excluded from the exchange process.

-Digital modules of exchange – digital currencies or immaterial modules – are used to enable transactions in both networks. The digital aspect appears to be both as a hortative and mitigatory aspect of the networks expansion, depending mostly on the age of participants, their familiarity with online exchange systems and their general ability to access on the Internet. Younger members relate better with the digital module of exchange than older ones. In order to balance the generation gap, the networks establish both digital and physical exchange means i.e. vouchers.

-Value of exchange and trust in the currency: the ways that the digital currency relates with dominant currency seems to enhance its popularity and trustworthiness as a valid exchange module. The *KOI.NO* currency relates more closely with how people traditionally understand the concept currency than the abstract time currency of *Trapeza Chronou* does. No clear conclusions can be drawn as to which of the two can better foster development of local economy and enhance social cohesion. Both projects emphasise the use-value of products and services as a basis for any transaction, while *KOI.NO* appears to be able to compete with the conventional currency (euro) at the local marketplace.

- *P2P* socioeconomic practices: in both networks services and products are not mediated by formal institutions or organisations but are provided from citizen to citizen, with each peer selecting his/her exchanged resources/services based on trustworthiness, and evaluates them through voting systems. These practices amount to emerging *P2P* ecologies, depending on and, at the same time promising to enhance trust and ethical conduct between participating agents. Both initiatives do this successfully. As *KOI.NO* illustrates, a combination of community

action and face to face contact contributes crucially to the building of trust and greatly expands the socio-political scope of a P2P project.

- Centralisation and horizontality: Both initiatives face the challenge of engaging citizens in their management, widening local community control and connecting with local governance structures, while ensuring their smooth operation and their trustworthiness to their members. A measure of centralised control is deemed necessary in both *Trapeza Chronou* and *KOI.NO*: safety reasons prevent the distribution of system as a fully decentralised network of interconnected independent agents, with all decisions made by peers. Instead, a central circle of peers – a digital community, a local assembly or a managing group – is responsible for ensuring the smooth operation of the network and the integration of newcomers in it.

Decentralisation takes the form of delegation of the governance of local resources to distributed communities, rather than total absence of hierarchical control. Each network strikes a different balance between centralised and decentralised governance. Generally, *KOI.NO* appears to have a more horizontal, democratic and participatory structure: it's assembly opens network management to every community member willing to participate in the assembly procedures. *Trapeza Chronou* allows community management of some network functions, but the strategic governing role of the tightly controlled managing circle is more pronounced. This could be counterbalanced by more extensive use of ICT infrastructure, improvement of existing platforms to support e-democracy and e-commerce functions, and the parallel co-development of local democratic structures in both spatial and digital communities.

-Pull economic structures within exchange networks: Both projects are exchange systems that do not sustain debt, surplus or monopolisation of resources, based on the premise that it is supply and not demand that moves the economy (Bollier, 2005). Pull approaches tend to be implemented on "platforms" designed to flexibly accommodate diverse providers and consumers of resources, more open-ended design in terms of what is offered since they are designed to evolve based on the changing needs of the participants, referring both to offer and demand (Bollier, 2005).

-These networks target to nurture responsible consumption and prosumption cultures, by "blurring of the line that separates producer from consumer" (Toffler, 1984). Peers are responsible for their economic contribution in the network, through both their active production- they have to offer services/products in order to participate in the network- and responsible consumption – they are invited to evaluate those service/products through voting feedback. Both networks allow and encourage participants to constantly alternate their economic role by seeking or offering various services/products in response to needs emerging within the network. Each peer has the right to undertake multiple tasks within the network, switch from producer to consumer and make connections with peers as many times as he/she

wants. This renders network operation dynamic and flexible, encourages a 'polyphonic' production, and enhances network resilience.

-Systems complementary to the formal economy: Both networks are mechanisms that relieve economic pressures at the local level; not stand-alone economic structures. Their dependency on the formal economy is unquestionable. Still, these networks involve local producers and consumers in a non-antagonistic manner, enhance local economy and social cohesion through P2P economic structures and establish opportunities for distributed *action* with the use of ICT infrastructure. All these are characteristics that although dependent to dominant economic system can enhance long-term socioeconomic resilience and change the ways people perceive, engage and act within local economy.

## CONCLUSIONS

The spontaneous burgeoning of grassroots P2P economic initiatives in Greek cities over the last five years manifests an urgent need for an economy of social solidarity and community empowerment. The *Trapeza Chronou* time bank and the *KOI.NO* currency exemplify viable alternatives of P2P economic exchange and democratic participation operating in both hybrid and spatial dimension outside formal institutions. These initiatives are a fertile ground for research on governance strategies that involve solidarity economy, ICT infrastructure and P2P models of management of local resources. This research contributes to a broader discussion on the importance of sharing-based economic and political responses to the financial crisis, drawing conclusions towards steps of preserving and broadening the action of existing P2P urban economic networks as networks complementary to dominant economy that establish inclusive and self-managed local economic alternatives, encouraging us to see the economic/financial crisis as an opportunity for radical socio-economic restructuring.

As Paul Mason argued (Guardian, 27/07/2015), we may be entering a post-capitalist era. The emergence of sharing economy and P2P urbanism reflect on different means of economic and social development. Prosumption cultures (where communities are both producers and consumers of facilities, goods and infrastructures) and sharing ethos may indeed be symptomatic of systemic change. As the welfare state collapses and growing numbers of people become expelled from the formal economy, these and similar social economy alternatives release economic pressures while involving people in the co-development of hybrid participatory practices, tactics and technologies of local communal control. Still, the success of sharing economy networks may not necessarily bring about the elimination of capitalism, but its potential re-organisation under new, more flexible, informal and blurred economic identities.<sup>105</sup> The radical potential of P2P post-capitalistic narrative is, therefore, not a given, but something to be sought, constructed and, inevitably, fought for.

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## DIGITAL RESOURCES

Time Bank Platforms in Thessaloniki, Greece:

<http://xronos.diktyodomwnthess.gr/>

<http://arsis.gr/en/time-bank/>

[http://www.enallaktikos.gr/kg15el\\_trapezes-xronoy\\_t41.html](http://www.enallaktikos.gr/kg15el_trapezes-xronoy_t41.html)

Alternative Economy Platforms in Thessaloniki, Greece

<http://koino.com.gr/index.php>  
<http://www.theguardian.com/world/2015/jul/17/solidarity-economy-greece-mixed-fortunes>  
[http://www.nytimes.com/2011/10/02/world/europe/in-greece-barter-networks-surge.html?\\_r=2&pagewanted=all](http://www.nytimes.com/2011/10/02/world/europe/in-greece-barter-networks-surge.html?_r=2&pagewanted=all)  
<http://www.neweconomics.org/blog/entry/alternatives-emerging-from-the-greek-crisis>  
[http://www.theguardian.com/world/2016/mar/12/refugee-crisis-greeks-strangers-migrants?CMP=share\\_btn\\_fb](http://www.theguardian.com/world/2016/mar/12/refugee-crisis-greeks-strangers-migrants?CMP=share_btn_fb)  
<http://www.neweconomics.org/blog/entry/alternatives-emerging-from-the-greek-crisis>  
<http://www.neweconomics.org/issues/entry/community-currencies>

Commons in Greece:

<http://commonstransition.org/public-policy-for-a-social-knowledge-economy/>  
<http://commonsfest.info/2015/3o-festival-commonsfest-anoixto-kalesma-symetoxis/>  
<http://commonsandconomics.org/>  
<http://designingtheurbancommons.org/details/>  
<http://berlinergazette.de/uncommons/>

P2P Greece:

<http://www.p2plab.gr/>  
<http://p2pfoundation.net/Greece>  
<http://p2purbanism.blogspot.co.uk/>  
<http://bollier.org/p2p-urbanism-greece>  
<https://plus.google.com/communities/108473553497302062678>

Sharing Cities and Sharing Economy:

<http://blog.p2pfoundation.net/video-juliet-schor-on-the-goods-and-bads-of-sharing-economy/2015/06/12>  
<http://www.shareable.net/sharing-cities>  
<http://blog.p2pfoundation.net/going-beyond-the-sharing-economy-an-event-in-gijon-spain/2014/10/02>  
<http://blog.p2pfoundation.net/video-juliet-schor-on-the-goods-and-bads-of-sharing-economy/2015/06/12>  
<http://sharinglab.dk/interview-michel-bauwens/>  
<http://www.experience-economy.com/page/view/95>  
<http://www.deliberatelyconsidered.com/2013/08/an-interview-of-zygmunt-bauman/>  
<http://www.thepolisblog.org/2012/08/commonwealth.html>  
<http://futureconomy.com/hacking-urbania-applying-open-source-development-to-cities/>  
<http://www.domusweb.it/en/op-ed/2011/06/29/open-source-urbanism.html#fb>  
<http://societyandspace.com/material/article-extras/the-city-as-open-source-pedagogy-alberto-corsin-jimenez/>  
<http://www.shareable.net/sharing-cities-toolkit#SHARING%20ECONOMY%20PRESENTATIONS>  
<http://www.theguardian.com/books/2015/jul/17/postcapitalism-end-of-capitalism-begun>  
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