

## LOCAL ECONOMIC ZONES FOR ECONOMIC DEVELOPMENT

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### ABSTRACT

**Research purpose:** The paper identifies a framework to strengthen local economic networks in the face of Covid Pandemic and Ukraine war economic shocks and an already politically fracturing global economy as the USA and China re-evaluate their relationship in response to China's rise.

**Research motivation:** Economic networks are being destabilised and fractured as geopolitical tensions and Pandemic "Bull Whip" effects drive supply chain disruption, energy price rises and changes in the relative strength of the United States Dollar. To date, different forms of "development structure" have been envisaged (including Export Processing Zones, Special Economic Zones, Free Trade Zones, High Technology Zones, clusters) to strengthen region and country performance. Whilst in a narrow sense instance these have been acclaimed as "successful", evidence suggests that there is no inevitable linkage that drives business in the nearby locality to grow and benefit from this success, rather these zones can act to displace activity from one location to another, without stimulating the entrepreneurial framework that drives the higher rates of successful innovation and entrepreneurship required for economic progress. This contribution outlines aspects to underpin a framework for collaborative "Local Economic Zones" that enable innovation, entrepreneurship, and economic progress. These Local Economic Zone are typified by anchor firms that drive local activity whilst being themselves strengthened to compete on a regional, pan-regional and global level.

**Research design, approach, and method:** This research paper combines author experience-based action research with statistical compilation, transliterational modelling and literature review. We focus on opportunities to drive economic progress by understanding what already exists within the locality and then gap filling by (i) providing access to technology, finance and skills development through a local anchor institution, the "entrepreneurial university" that is local in character, but global in outlook and (ii) to enable complementary MSME capability together to support anchor firm competitiveness by providing a low cost solution to MSME access to finance that helps successful MSME's develop the information infrastructure to enable medium term affordable access to commercial bank and capital market capital. Our vehicle for this is to introduce a Central Bank regulated community currency related to the Local Economic Zone that acts as a limited convertibility "Stable Coin" that supports intra- Local Economic network trade.

**Main findings:** Opportunities exist to combine driving geo-spatially dimensioned economic growth and development with strengthening that defined economic geography's economic resilience. Local networks are crucial to foster collaborative working and supply flexibility based upon deep trust. These need to be facilitated by an anchor institution such as an Entrepreneurial University and augmented by improved MSME access to finance. For the latter we propose a Central Bank integrated stable coin that only be used within the specific region and that collects the data on MSME transactions that can help transition them into the mainstream commercial banking sector.

**Practical/managerial implications:** The framework opens the door to raising local growth rates and improving economic resilience within a defined region or country. The framework combines academic research with practical experiences, so offers an implementable framework that is locally driven to (i) strengthen local relationships and trade, (ii) enhance external competitiveness of the anchor firms and (iii) help MSME network members to freedom from finance constraints. Local implementation goes hand in hand with "Regulatory Integration" into Central Bank for the stable coin and a local anchoring institution (we propose the Entrepreneurial University) to grow and nurture network connections.

**Keywords:** Local Economic Zones, Supply Chains, Economic Development, Entrepreneurial University, Entrepreneurial Capitalism, Economic Growth.

## 1. Introduction

Economic progress, consisting of both economic growth and economic development is the goal of almost all nations. Economic growth arises from continued improvements in existing product sets and markets whilst economic development is associated with the introduction of new products that disrupt existing and make new markets. (Schumpeter, 1934). Economic growth sits within a model of Cumulative Causation whilst economic development within a Quadruple Innovation Vortex (Simmons & Culkin, 2022). Successful firms depend upon networks of relationships with customers, suppliers, like minded innovators, scientists, skills enhancers, regulators, infrastructure providers and critically risk finance. These networks necessarily provide both the information and the capability to enhance international firm performance to deal with the five competitive forces that “shape strategy” and success (Porter, 2008).

Developed Nations subsequent to the 2008 crisis have increasingly experienced socio-political strains relating to globalisation as nations, firms and their populations adapted to the “financial near-death experience” and rise of China. Geopolitically this has expressed itself as a progressive decoupling between the United States and China together with the resurgent Russia evident in the Ukraine war. Concurrently as global economy tensions rise with China and in response to lessons learned from the Pandemic, firms are quietly re-engineering their global supply chains with a view to make them more resilient. For example, Apple has executed serial moves to drive subcontractor Foxconn to relocate production from China to Vietnam (Reuters,

2022). Equally, the 2022 “Chips Act” aims to build a US capability in latest generation microchip mass production. Whilst existing investments and multinational enterprise desires to access all significant markets suggest a preference to retain many elements of the current supply network (Williamson, 2021), partial decoupling is already underway in high technology supply chains. This decoupling is not only hurting Chinese and US firms, but also intermediate suppliers who provided parts and assemblies to Chinese manufacturers, so decoupling is impacting other markets, especially South Korea and Chinese Taipei (Hu *et al.*, 2021).

Even with decoupling inertia, both firms and nations are looking at how they drive economic success in this highly uncertain world. Following Williamson (2021), strains in international supply networks are inevitably acting as a spur for firms and States to look at their home localities and see how they can develop home locality strengths to reduce decoupling risk. In this space that we introduce the concept of Local Economic Zones.

The “Local Economic Zone” is a geographically distinct area that sustains economic relations between locally located businesses (private, public, charity or socially owned) to trade between each other and compete effectively regionally, nationally and internationally.

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For at least several centuries and arguably much longer<sup>1</sup> informally bounded Local Economic Zones (sometimes called Industrial Areas or Clusters), such as in Silicon Valley California or Baden Württemberg (the German automotive cluster), have been an established feature of economic development. Developing a strong and dynamic home base, with both horizontal (across supplier tiers) and vertical (from OEM manufacturer down the supply) “thick trust” enables global success. The *raison d’être* for these zones has often been ascribed to a combination of Industrial Agglomeration Theory, access to skilled labour, links to their local supply chain and knowledge sharing, reductions in transport costs associated arguments regarding “trade gravity” and economies of scale.

Whilst all of these considerations contribute to the strength of a Local Economic Zone, examples such as Silicon Valley (USA), Silicon Fen (UK), Baden Württemberg (Germany) suggest that MSME innovation is supported and accelerated by the close proximity of similar innovators to each other, and their interconnection by both anchor contracts / firms (such as DARPA contracts in the US or leadership from OEM’s such as Mercedes in Germany) and University anchor institutions such as Stanford (USA) or Cambridge (UK). Although both the UK and Germany have growing venture capital industry, firms

located in such zones in the USA have a specific advantage related to their proximity to significant venture capital funds.

Success in a zone is due to many factors. However, in this paper, we focus on two specifics, first the role of anchor firms and institutions as network guardians and facilitators, and secondly access to plentiful seed and early-stage risk finance so firms can mature to the point where they are included within the formal commercial bank system.

The rationale in establishing this focus is based upon the critical role external competition and adequate risk finance availability play in driving economic growth, innovation and rises in firm-level productivity rises. Anchor firms are the principal conduit that connects their “family” of associated SME’s with the outside competitive world, as anchor firms have the scale, resources and credibility to engage with national and multinational customers. Concurrently, associating an SME with these anchor firms, raises external funder (both banks and capital market funders) confidence regarding both firm and project viability. This confidence is augmented by building a solid and verifiable transaction track record for each SME (this is not generally available within conventional credit rating agencies for many SME firms) to enable lender credit officers to provide smaller firms with the working and capital investment resources they need to innovate, expand and grow.

This paper outlines some of the features relating to anchor firms and institutions, moves on to evaluate the global MSME financial constraint, outlines updated models of cumulative causation and the quadruple innovation vortex, examines how anchor led networks can be set up to build “thick trust” and then finally integrate these with a “stable coin” central bank regulated local

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<sup>1</sup> Historical examples such as the post 1850 German Rhurland, and the post 1780 Lancashire Textile Industry, the 1680’s Southwark and Bermondsey Felt Hat Industry suggests that “Local Economic Zones” have a long history, and that what is ascendant may not be so in twenty years’ time, as markets and technologies and associated firms continually evolve.

community currency to provide MSME's with the access to the affordable finance they need to grow and to build detailed credit histories for them to help transition them into the formal banking system

## 2. Methodology

Economic Progress comprising of both Economic Growth and Economic Development (Schumpeter, 1934) is an exceptionally complex area to apply conventional economic modelling to. The simplifying assumptions required to attain even partial static equilibrium are "heroic". Consequently a mathematical model, even though it will be multi – period, is likely to be of limited value. Such models are normally based upon core functions that are set within the "static universe" of a known production function, rather than where the production function itself is constantly changing due to technical change, global supply gravities and improved production techniques.

In the construct we seek to understand, growth is not "uniquely", (or indeed even mainly), a question of either substituting capital for labour or improving either labour or capital, but is something far more complex. On the one hand, there is one set of functions that "deepening capital and labour intensity and quantities" in line with their implicit relative input prices and that depend upon access to capital. This aligns to a focus on capital provision to SME's as capital adequacy is oft cited as a major block to SME firm level growth (Culkin & Simmons, 2018). This type of growth is often understood by reference to the conventional labour / capital / productivity combination that is associated with some variant of the Solow (1956).

The implicit "Growth Model" underpinning this article **combines** conventional thinking with "shifts in state" or tipping points subsequent ripples such as described by Grebogi *et al.* (1986) that are more akin to quantum and chaos theories. Economic systems arguably handle these "shifts" in state by shifts in expectations, something in concept akin to the Keynes (1936) "animal spirits" and Knight's (1921) "uncertainty". In consequence the use of a "rational expectations" (Muth, 1961) simplifying assumption is not appropriate in this setting.

These challenges (and others such as macroeconomic instabilities as embodied in "Minsky Moments" (Minsky, 1982) have led us to combine concepts into a model of "Cumulative Causation". We combine the very broad literature where it touches our thinking, (but we do not attempt to summarise the field) with our own detailed action research experiences, trans-literative modelling and statistical consolidation into the growth framework developed in Simmons & Culkin (2022). This framework blends and updates the economic and social strands of cumulative causation with a Quadruple Innovation Vortex to create a descriptive, (rather than mathematical), view of the dynamic growth process. In this article, we give special weight to the spatial concentration and agglomeration that drive external economies of scale, including innovation frameworks that can enable long term economic success within a model of cumulative causation.

## 3. The local economic zone

For over a century the importance of economic geo-spatial concentration has been recognised. Economists including Weber (1909), Marshall (1920), Arrow (1962),

Krugman (1980), Kaldor (2013) and Porter (2003) and many others have made significant contributions to the literature of regional economic development and agglomeration. To this literature can be added the very considerable contributions from economic geographers and economic historians.

Cumulative causation, the concept that continual economic growth results from a complex interaction differing factors has two specific roots. First, a social dimension relates social conditions to economic progress (Myrdal, 1944 and 1957). In this construct<sup>2</sup>, social conditions, and most especially their associated institutions have a critical and self-reinforcing role in driving economic progress. Added to this is the second economic strand developed by Kaldor (1972) that associates interactions between manufacturing economies of scale under Verdoorn's Law (Verdoorn, 1980) with improved total factor productivity and cost competitiveness to drive export led growth. In both conceptions, the overall system is never still but rather in a constant state of evolution. Steps toward integrating both approaches into a cumulative growth framework<sup>3</sup> have been demonstrated through a 500+ year review of growth dynamics in Southwark, an area just south of the river Thames in London (Simmons & Culkin, 2022).

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<sup>2</sup> Myrdal took the condition of pre-civil rights legislation Black America as an example. His work was of sufficient impact that he made a significant contribution to the notable *Brown vs The School Board* 1954 Supreme Court Case that is recognised as the starting point of the civil rights reforms of the second half of the twentieth century.

<sup>3</sup> This literal description is yet to be formalised into a mathematical structure.

Cumulative causation results in either a virtuous cycle of continual growth, or a vicious cycle of decline. The virtuous cycle not only drives rising economies of scale with associated improvements in total factor productivity that (assuming broadly stable exchange rates) yield improved global competitiveness and associated export performance together with rising societal benefits, but it also drives and supports continued innovation and competitiveness. Long term success requires complementary economic development driven by the Quadruple Innovation Vortex to grow new leading-edge products and industries. Long term economically sustainable competitive advantage requires both processes to be working in synchronicity.

Each Local Economic Zone contains anchor firms who have both the critical mass and brand identity to be competitive in national and international markets. For example, Mercedes is a key anchor firm to Baden Württemberg. Despite each anchor firms brand identity, its continued success is also dependent upon continual innovation across the whole supply chain, especially in more entrepreneurially managed firms that can often be MSME's. Both anchor and its network of MSME's are co-dependant and in consequence, the Local Economic Zone becomes "sticky" (Markusen, 1996) to drive a virtuous cycle of mutual success.

All actors depend upon each other. Anchors provide access to national and global markets and market/ product development briefs that translate evolving customer needs into specific opportunities that anchors and their supply chains (especially MSME's) innovate to exploit. They also anchor the zone's financial stability. its employment and skills through their links with local higher education

institutions. By providing stability anchor firms also remove much market facing Knightian uncertainty (Knight, 1921) for MSME's, enabling smaller firms to innovate and plan within a known paradigm. These MSME's are significant innovation engines that help maintain the zones competitiveness whilst both drawing from and adding to a network of shared ideas (Sorenson, 2003). They can also act as "growth points" within the zone, notwithstanding that their output is often driven by providing intermediate goods to the anchor firm (Gries & Naudé, 2009). Success requires continual "knowledge transfers" and "market need" signalling between different participants to help sustain the innovation process (Davies, 2008:66). These positive<sup>4</sup> "network externalities" help build critical mass (Liebowitz & Margolis, 1994) within an industry and network economies of scale help build and reinforce growth dynamics in the geospatial locality or industry as a whole (Perry, 1999).

Developing our "Local Economic Zone" definition, this is a geographically distinct area that sustains economic relations between 50+% of its locally located businesses, thereby supporting "out of zone" sales performance and growing inter-regional trade. The Zone hosts the "Local Economic Network" which includes private and public sector firms, social enterprises, infrastructure providers, charities, the state (local, regional and national) and anchor neutral civic institutions such as a local "Entrepreneurial University" or local scientific research institutes. The Local Economic Zone "anchor institution", ideally an Entrepreneurial

University, bonds, nurtures and facilitates the Local Economic Network.

This fosters local inter-firm links to drive a virtuous cycle of cumulative causation that (i) raises local content, (ii) signals needs and market gaps to participating firms, (iii) enables innovation, (iv) nurtures skills and (v) builds a more resilient and cooperative local business environment. Strengthening the network ties helps build capability, enhance productivity and deliver higher out of region "export sales" (Ricci & Trionfetti, 2012).

Economic gravity (Krugman, 1991) relates the proximity of local demand with transport costs thereby establishing that proximity to market is a key economic driver (Head & Mayer, 2010). This drives anchor firms to catalyse their local networks so called "company towns" such as Bentonville, Alabama (Hopper, 2004), where local anchors company have a disproportionate impact in driving local activity.

Success requires developing "thick trust" between all member firms to unlock and connect MSME innovation capabilities into anchor firm product and process development (Buchmann & Pyka, 2012). Overall zone performance depends upon the performance of all actors in the zone. Stronger anchors raise innovation and zone dynamism (Autry & Griffis, 2008), but these anchors in turn are interdependent upon the firms within their networks. This contrasts with the weak diffusion of firm level benefits that is sometimes associated with a variety of types (export processing, free trade, innovation and specific industry "special economic zone" where benefits are restricted to firms within the formal "special zone" and are not diffused to the locality (Zheng *et al.*, 2016).

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<sup>4</sup> Liebowitz & Margolis demonstrate that in the "usual paradigm" negative network costs (sometimes called externalities) do not exist.

This fusion of private capital, anchor customer contracts, anchor firm feedback on market requirements and competitive pressures, university engagement and State enabling action support entrepreneurs to start and maintain the Quadruple Innovation Vortex. For example, Silicon Valley established itself as the result of a fusion between science from Stanford University, State defence contracts and venture capital to support innovating entrepreneurs.

Within each zone a thriving micro and small and medium sized enterprises (MSME) sector is an essential structural component (Beck *et al.*, 2005; Aris, 2007). These MSMEs<sup>5</sup> employ large numbers of people, act as engines of local cohesion, and can sometimes in themselves grow to become key innovation engines (for example Google started as a start-up) with innovative growing MSME's tending to export more and be more highly connected to market, cluster and other business networks (Love & Roper, 2015). MSMEs face many challenges, but one that consistently challenges development strategies is how to provide "seamless" access to growth finance (both working capital and capital expenditure) that enables MSMEs to grow and build commercial bank credit credibility. We will return to this issue later.

### ***3.1. Entrepreneurial universities as anchor institutions***

Entrepreneurial Universities provide a focal point for regional networking and development. They are disconnected from the commercial process, so are "neutral" and equipped to both facilitate local networks, to

open doors to scientific and innovation links, enabling business plan review and endorsement and offer core upskilling and mentoring expertise. As such they offer a focal point to enable and upskilling the entrepreneur (Culkin, 2016).

With their focus on business and innovation and building transferrable skills such "as creativity, leadership and research analysis" (Culkin & Malik, 2011) these universities contrast with "Research Universities" such as the US Ivy League and the UK's "Oxbridge" and "Russell Group". Although Research Universities may have highly successful "spin-out" arms, these institutions focus primarily on being world leaders in research (Brint, 2005). In contrast, the Entrepreneurial University is more multi-disciplinary mission focused on delivering change and innovation within their own geography, often partnered with local institutions (Culkin 2016).

The Entrepreneurial University, in its role of anchoring a Local Economic Zone seeks to enable firms and entrepreneurs to successfully apply innovations to drive business success. With local roots and connections, it is integrated into the local business community notwithstanding its global network that allows it to act as a gateway to resources and skills that may be needed but that are only available elsewhere.

### ***3.2. Msme financial constraints***

MSMEs are generally challenged and restricted in their ability to access capital markets, so they are left dependent upon conservative commercial bank lending (Bhalla & Kaur, 2012) or the informal "shadow" banking sector (Wang *et al.*, 2021). Mainstream banking channels are negatively

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<sup>5</sup> These are formally registered businesses, so micro enterprises do not include sole traders or the self employed

impacted by both regulation<sup>6</sup> and cost cutting moves can reduce the opportunity for “relationship lending in a world of imperfect information (Udell, 2015).

As post 2008 developed market commercial bank lending flows to smaller companies fell back, capital markets outside the USA expanded their role. For example, in 2008 just over 70% of Euro area funding to smaller companies was from commercial banks, by the onset of the Covid 19 Pandemic this had fallen to just over 50%. By contrast the commercial bank share of lending remained at just over 30% in both the USA and UK over this period. Notably finance provided to smaller companies in the original EU 6 and the UK fell as a percentage of bank assets whilst it rose in the USA (Kraemer-Eis *et al.*, 2020).

Whilst venture capital can be available to fund growth, firms with small asset bases often need help accessing bank credit. For them, capital market funded leasing and invoice discounting can be important (Kraemer-Eis *et al.*, 2020).

Notably, “Developed Nations” offer better MSME access to finance than emerging or Less Developed states. Within a dataset of 2,520 “UK entrepreneurial firms” 84.5% of the 38% of firms looking for external finance found it (Cosh *et al.*, 2009). Including these firms suggests that in stable macro-economic conditions 10% of these firms have difficulty accessing external finance, whilst in “stressed” conditions this percentage rises to something over 20%. In both situations the percentage varies across

countries according to local market conditions (ECB, 2019).

Overall, within Developed Nations, MSME loan amounts are too small for primary capital markets, so they tend to be mediated through Shadow Bank institutions. These actors provide finance but are not formally categorised as banks. In most developed markets plus (especially) China, leasing and hire purchase have a significant role in funding SME asset investment. In the EU this is the most significant source (at 18.9%) of MSME external capital investment finance (Leaseurope, 2015). By contrast, leasing has little, if any presence, in most non-Chinese East Asian economies, reflecting the higher dependence of MSME’s on conventional commercial banks for formal capital.

Shadow Banking (commercial non-banking) loans to MSE’s by contrast are largely unregulated. These have had historical importance in China, and more recently have been growing in Developed Nations, although generally for medium and larger companies. Within the EU, loans made by “private debt vehicles” in 2021 focused mainly on medium and larger companies seeking a loan in the range of €9 million to €45 million to fund an acquisition (35%), expansion (30%), capital expenditure (15%) or working capital (10%). About half the firms funded could not obtain similar funding from commercial banks. Most debt was issued as floating rate senior (first call on business assets and cashflows) with a 2021 average return of 6.92% (a huge mark up over (Krämer-Eis, 2022).

Table 1 below sets out some constituent elements of Shadow Banking and seeks to give rough estimates as to the overall global MSME market size.

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<sup>6</sup> Basel Capital Requirements can result in restrictions to business, especially MSME, risk lending flows

Table 1. *Shadow Banking Instruments For MSME's estimated 2019 Global Business Market US\$149bn*<sup>7</sup>

Category	Method	Summary	Est 2019 Lend (US\$bn)
Financial Leasing	Operating and term leases	Equipment leases	1,481 <sup>8</sup>
Peer To Peer Loans	Lending Platforms Supplier Loans	Repayable from cashflow, based on firm net worth	20.8
Asset Based Loans	Leasing Sale / lease back Asset based lend	Lend secured against specific assets with optional covenant against firm level cash flow	19.8
Invoice Factoring	Lend against trade invoices	Advance cash payment of supplier invoices with full recourse for non-payment	3.7
Floating Rate Debenture	Private Debt Fund Loan	Usually over €5 million, larger SME's	0.496
Mini Bonds	Privately issues and tradable debt, not registered on a debt exchange	Usually for larger SME's but can be issued as a consolidation of individual loans	0.006

Developed from Ziegler *et al.* (2021), overall lent assets amount to trillions but no central bank data on lending flows. This table is an “informal estimate” and has internal consistency issues so should only be used to judge the overall relative importance of each financial instrument.

<sup>7</sup> Ziegler *et al.*, (2021) US\$ 85 billion is related to Chinese Shadow Bank Debt

<sup>8</sup> Estimate from OECD data adjusted to average 2019 US\$ exchange rates (OECD, 2022) and as global data not fully available. EU total from Leaseurope (2015)

In many emerging nations, especially in East Asia (excluding China, Chinese Taipei<sup>9</sup> and Korea) and Africa access to Shadow Bank instruments is limited, and with lending flow restraints related to the implementation of Basel III, the MSME finance gap in East Asia is estimated at US\$2.1 trillion representing 45% of the global Developing Nations overall US\$4.8 trillion 2017 MSME finance gap (SMEFF, 2017). The financing gap is still widening with the World Bank estimating that 40% of developing nation MSME's cannot access the necessary financing. This amounts to 65 million firms, 40% of developing country MSMEs and now totals \$5.2 trillion annually, about 1.4 times current global MSME lending (World Bank, 2022).

MSME companies are intrinsically less “information rich” for external actors than larger firms. For example, International Accounting Standards allow small firms to submit limited and summarised accounts, giving less detailed audited information to lend against (IFRS, 2015). As banks have consolidated and looked to reduce their cost base by removing decentralized layers the collection of “soft” information relating to relationship lending has correspondingly reduced. Consequently, banking organisations have tended to rely more on “hard information” such as audited accounts and upon lending collateral, such as fixed assets or factored trade invoices. This tendency to replace “soft” information with “hard” has led to the paradox that banks may reject or even cut off profitable lending to conform with the needs of more automated and hierarchical lending organisation structures resulting in lending disadvantages the smaller firm (Stein, 2002). This echoes

<sup>9</sup> Also known as Taiwan

the information asymmetry challenge facing funders with limited knowledge of the firms they are lending to (Stiglitz & Weiss, 1981).

Lack of readily available quality credit assessment data and the cost of obtaining this information can be prohibitive when making loans to MSMEs, a feature that has been magnified by the risk-weighting requirements specified under the Basel Capital Accords. On the demand side, there are disincentives to accessing bank finance arising from the requirements for collateral and the interest rate premium charged for this lending with a significant estimated lending gap to MSMEs (Culkin & Simmons, 2018). Reviewing 40,000 Spanish firms between 1994 and 2010 trade credit from suppliers to SME's was found to be an increasingly important source of SME (and by extension MSME) finance (Carbo-Valverde *et al.*, 2016).

Recent shocks such as the Covid-19 lockdown and Ukraine conflict have delivered economic "trauma" globally, and made the non-state supported MSME landscape even more challenging. The need for structural change, support to challenges MSME's, close the funding gap and provided appropriate access to affordable MSME finance in both developed and developing markets is clear (Caniato *et al.*, 2020).

In consequence, we argue that opportunity exists for to introduce a "local" community crypto (this reduces administration costs) business only currency that is "Central Bank" supervised<sup>10</sup>. The currency is not a "Central Bank Digital Currency" but is a local

transacting medium that is based upon existing "thick trust" between participating firms. There is both historical and current evidence that such an initiative can help reduce MSME working capital constraints, further raise levels of "intra network" firm trade and provide helpful data to commercial bank lending officers to integrate MSME's into more conventional loan frameworks.

### 3.3. *Can crypto currencies close the gap?*

"*Crypto*" currencies have been floated as a general replacement for Central Bank national fiat currencies, which poses the question, can these be used to close the MSME funding gap?

In themselves, "*Crypto*" currencies are split between *Cryptoassets*" such as "Bitcoin" that have a variable value and "*Stablecoin*" that peg their value through reference to some algorithmically determined reserve (which can range from being on a 1:1 basis into conventional assets or based upon a blend of digital assets). Trading into *Cryptoassets* occurs through exchanges that often rely upon "*Stablecoin*" to underpin transactions and through direct *Cryptoasset* trades. Exchanges are more prevalent in the USA and Europe, with direct *Cryptoasset* trades dominating the landscape in the Asia / Pacific region (Blandin *et al.*, 2020).

Notwithstanding, claims that "*stablecoin*" crypto assets are 100% backed by fiat money assets, the 2022 "*Crypto*" currency downturn that impacted both "*cryptoassets*" and "*stablecoin*" reinforced regulatory conduct and financial stability concerns. These can be summarised as (i) concerns as to whether underlying collateral is itself has a stable value<sup>11</sup> (FT LEX, 2022), and (ii) if the

<sup>10</sup> Being "business only" the local currency is a medium of exchange and cannot be a traded "speculative asset". This obviates the wild price swings and stability challenges seen in many crypto currencies.

<sup>11</sup> For example, even US Treasury Bills change value according to market conditions, let alone some of the

liquidation of collateral to satisfy instant “*stablecoin*” to “*fiat*” currency conversion requirements in either times of “stress” or for asset arbitrage reasons could destabilise financial money markets and drive wider financial instability (Kelly, 2022). Global central banks and regulators are reacting to these challenges by undertaking steps to introduce ubiquitous *Central Bank Digital Currencies* that will offer a Central Bank value underpin for the currency, but this is at the expense of several other serious concerns.

First, Central Banks have historically mediated credit conditions and monetary policy through commercial banks and credit markets, which since the 1980’s has led to the creation of money for many markets being in the commercial banking system (Bank of England, 2014). Money creation is inextricably bound up with commercial bank operational activities, so great care is required to avoid disturbing commercial bank business and regulatory models. Several studies have suggested that a Central Bank Digital Currency can complement existing commercial bank lending flows (Carapella & Flemming, 2020), whilst others suggest that a “deposit holding only” Central Bank Digital Currency will result in both market distortions and lending flow and welfare reductions (Piazzesi & Schneider, 2020). Modelling as to how a Central Bank Digital Currency can be designed in a way that

minimises risks to commercial bank lending flows and maintains plurality of payment instruments including cash suggests that the currency will need to be interest bearing, and that the management of its interest rate (including the possibility of it being negative) will be key (Agur *et al.*, 2022). Equally there are concerns that bank deposit holders could move out of commercial bank deposits into a Central Bank Digital Currency thereby exacerbating bank runs in the event of financial instability (Sanchez-Roger & Puyol-Antón, 2021). Finally, if such a currency is to be more than “digital token” there are privacy, liberty (Rennie & Steele, 2021) and social inclusion concerns (Fáykiss *et al.*, 2022).

Both the private sector and Central Banks are actively developing strategies (and in some cases are in tension with each other) to address the stability, design and social aspects of both “*stablecoins*” and Central Bank Digital Currencies. One suggestion that could offer a point of convergence would be if regulated “*stablecoins*” could become “*synthetic*” Central Bank Digital Currencies, where, similar to the current role of creating and managing fiat currency, “*Stablecoin*” providers could offer the same functionality in respect of a Central Bank Digital Currency. Private providers would control privacy by the payment instrument would be underwritten by the Central Bank.

New monetary instruments should also consider if they can be introduced in a manner that addresses gaps in the financial mediation by existing financial institutions, such as the MSME funding gap. Monetary transmission channel developments since 1980 have underpinned progressive “*financialisation*” at the expense of providing credit to MSME’s to drive progress in the real economy (Simmons *et al.*, 2021). With this background, the deep

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more esoteric crypto assets some “*stablecoin*” providers have claimed as collateral. “*Stablecoin*” Tether reported in its December 2021 financial statements that its reserves were composed of 5% Cash & bank deposits, 44% Treasuries, 30% Commercial paper and certificates of deposit, 6% Cryptoassets and 15% other. Tether also incurred an October 2021 US\$41 million regulatory fine relating to the misstatement of underlying US dollar reserve assets between 2016 and 2019 (FTLEX, 2022).

and complex issues in implementing Central Bank moderated “*stablecoin*” are challenging. It is unknown as to whether they can, as currently pursued, be fully and satisfactorily resolved. The combination of needing to channel Central Bank created cash to the real economy under post 2008 “Quantitative Easing” plus the 2022 *cryptocurrency* value adjustment and consequent challenges to *stablecoin* values have highlighted *cryptocurrency* stability concerns.

Any transacting currency needs to maintain a stable value that allows for both the predictability of exchange and makes it a “known” store of value. Over two hundred years of bank run experience have established that such currencies can only maintain both liquidity and value if they are backed by a credible<sup>12</sup> Central Bank. This requires that *stablecoin* is integrated into Central Bank regulatory frameworks. Equally, post 2008 experiences demonstrate that Central Bank Quantitative Easing programs fail to deliver credit in sufficient volume to needy MSME’s to free their financing constraint.

Could restricting a *stablecoin* scope to a more limited geographic area, and integrating its introduction into “real economy” wealth creating firms help resolve some of these issues and help relax the MSME funding constraint at the same time?

### 3.4. A “community” *stablecoin* for local economic zones?

Integrating “*stablecoin*” within the Central Bank regulated and supported

environment **and** inextricably binding it into the Local Economic Network offer the opportunity to create a *stablecoin* that can help drive economic growth and development as demonstrated by experiences over the past 100 years. For example, the 1932 Austrian small town Wörgl (pop 4,000) used locally issued public certificates such as the Wörgl Schilling to pay for public works that the town could not afford to finance from conventional taxation. These local vouchers were taken to be local money exchangeable within the local economy thereby enabling a rise in business activity (Blanc, 1998). The spirit of the endeavour is captured on the reverse side of each Wörgl certificate:

*“To all whom it may concern! Sluggishly circulating money has provoked an unprecedented trade depression and plunged millions into utter misery.... Human beings live by exchanging their services. Sluggish circulation has largely stopped this exchange and thrown millions of willing workers out of employment. We must therefore revive this exchange of services and by its means bring the unemployed back to the ranks of the producers. Such is the object of the labour certificate issued by the market town of Wörgl: it softens sufferings dread; it offers work and bread.”* Reverse side of the Wörgl Schilling 1932

Eyewitness Claude Bourdet, wrote in 1933:-

*“One has to acknowledge that the result borders on the miraculous. ... Prices have not gone up.... Taxpayers [are] not protesting at the top of their voices when parting with their money. In Wörgl no one was protesting. On the contrary, taxes are paid in advance; people are enthusiastic about the experiment ... As far as saving is concerned one can say that the new money*

<sup>12</sup> The Zimbabwean experience when Zimbabwe replaced its local currency with US Dollars is a recent example of the importance of Central Bank credibility in enabling its issued currency to function (Hanke, 2008).

*favours saving properly so-called rather than hoarding money.*" (Bourdet, 1933)

Imitating this success, a 21<sup>st</sup> Century *Wörgl Schilling* community currency *stablecoin* would be implemented as a "Synthetic Central Bank Digital Currency" (Kiff *et al.*, 2020) that fully integrates into the Central Bank regulatory framework and is run by a not-for-profit private sector operator.

The workings can be summarised as follows. A *stablecoin* that works within its locality, the *Community Credit Circuit* is linked to the Local Economic Network. The *stablecoin* can only be used for business transactions within the Local Area Network. It supports business to business and consumer to business transactions. However, it does not support consumer to consumer transactions and, just as cash, it cannot be used as an investment asset class. Consumers can purchase *stablecoin balances* at a **fixed conversion rate** to the national currency, or they can be paid them as part of their salary.

The Local Economic Network is of sufficient size<sup>13</sup> that it supports multiple business sectors that interact and transact with each other. Each member of the Local Economic Network enrolls into the local *stablecoin* system, which is managed by an independent not for profit circuit manager. Upon enrolment, each firm is issued with a number of *stablecoin* tokens in return for an annual subscription. The tokens may be spent at any other network member in exchange for goods and services provided by that member. Settlement is immediate, so supplying firms

are encouraged to offer prices for settlement by token that embeds a "cash discount" that reflects the absence of trade credit. The tokens can be reused to purchase goods and services from other enrolled suppliers. This model has been operating in Sardinia, Italy for over 10 years under the name Sardex (Littera *et al.*, 2014). The whole network is "anchored" by the local anchor firms who also have facilities to exchange the tokens into national fiat currencies through a central bank regulated and underpinned "exchange" account.

As the *stablecoin* is recognised and registered with the Central Bank it is formally recognisable as a cash equivalent and so can be held on the balance sheet of firms as "a cash equivalent" rather than as a receivable<sup>14</sup>. The capacity of the exchange account support conversions is set by matching cash or near cash assets held in commercial bank undertaking the conversion. These assets to support conversion can be added to be either a State grant or a State Contingent Guarantees against a commercial bank credit line in favour of the exchange fund. Subject to central bank status a guarantee would carry a zero-capital risk weighting under the Basel Capital Accords, giving the State a "cashless" way to help close the MSME funding gap. Network activity is enforced by credits that are unused after 90 days being progressively cancelled and firms that increase their use of credits being rewarded with access to additional credits. Annual member fee structures are also set to

<sup>13</sup> Expectations are that it would align to a metropolitan area, county or group of counties within a US State or a NUTS 2 or group of NUTS 2 region(s) within the EU. Within the UK it would align to a group of "Unitary" authorities.

<sup>14</sup> The cash equivalence is established through the regulatory arrangements with the Central Bank that underpin the *stablecoin* through its ability to act as a "lender of last resort" through the exchange account.

incentivise constant reuse of the credits. Usage history, and member turnover statistics are then available to conventional commercial lenders to enable them to onboard them into their credit systems with a detailed transacting and financial history, thereby helping credit evaluation.

While helping free the MSME credit constraint, the currency also tracks MSME business and credit performance enabling the mainstream commercial banking system to be provided with credit and informational background to smoothly “onboard” firms into more conventional credit settings. It also provides a “smart” monetary policy transmission channel to stimulate economic activity in the MSME sector – in essence, “business-targeted helicopter money” (Simmons *et al.*, 2020) as it focuses Local Economic Zone “*stablecoin*” usable finance into supporting MSME financial needs within a specific local economic context.

#### 4. Results and discussion

Our results are summarised as follows.

1. Growth and development processes are complex and due to “shifts in state” challenging to effectively model mathematically.

2. Cumulative Causation provides a more appropriate framework for ongoing economic growth whilst the Quadruple Innovation Vortex framework focuses on innovation and some of the market factors that can drive a change in “economic state”.

3. Firms exist within their supply chain context, much of which is local.

4. “Anchor Firms” both provide orders to their associated network of smaller firms, and transmit wider market innovation and competitive pressures to these self-same SME.

5. These local links provide more than orders, they provide a network of firms that work together to address common challenges, and most especially if this network is highly functional can provide a “horizontal” innovation space.

6. This is a space where firms, especially smaller firms can combine ideas and knowledge, so they drive innovation up the supply chain as well as executing engineering instructions from higher supply chain tiers.

7. Smaller firms play a key role in innovating high technology components and subassemblies.

8. Smaller firms face tight risk capital and financing constraints that restrict their ability to innovate and grow.

9. Nurturing regional supply networks builds thick (deep) trust, especially if these networks are encouraged to collaborate informally on innovation.

10. Such links creates provides the basis to introduce a business focused local community *stable coin* currency that is pegged on a 1:1 basis with the national currency and integrated into a nation’s Central Bank regulatory system.

11. The *stable coin* provides affordable non-bank working capital to the regional network members, especially credit constrained micro, small and medium sized enterprises (MSME’s), based upon mutual trust between network members. It also provides a detailed transaction history for MSME’s that can be provided to commercial banks to enable them to gradually “on board” MSME’s into competitively priced commercial bank lending.

12. Encouraging tight regional supply networks has the potential for the dual benefits of raising innovation levels and

using mutual trust to mitigate financing constraints.

## 5. Conclusion

All firms exist with the context of their supply chains, and most especially from an innovation and growth perspective, within their geographically bounded region. Formalising these bounded regions as “Local Economic Networks” enables a clear definition of their member firms and their relationships. Some firms are “anchors” who have the critical mass and brand identity to export outside the region, whilst others maybe MSME’s serving these anchors and each other.

Deep innovation requires that all relevant actors right the way down to micro firms have the incentives, network and resources to innovate and grow their businesses as appropriate to their aspirations and the overall market dynamics. Such innovation needs fostering by a neutral institution. For this, we propose the Entrepreneurial

University, an institution with deep local links, that is well placed to foster intra business networking, skills development, innovation support, assistance validating business plans and connecting to external actors be they at a regional, national or supranational level.

This coordination brings together firm (or entrepreneur), Entrepreneurial University, the State and critically private capital to support economic growth in a Virtuous Cycle of Cumulative Causation and economic development in a Quadruple Vortex of Innovation. The inherent strengths of the network can then be integrated into a local community *stablecoin* to provide additional finance to close the MSME financing gap, The *stablecoin* is both integrated into central bank regulatory frameworks and provides detailed transacting and credit information to help “onboard” MSME’s into conventional commercial banking credit.

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