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Digital Currencies – Call for Information
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Copy to: Australian Senate Inquiry into Digital Currency as a supplementary submission

3 December 2014

Dear Andrea Leadsom MP
andrea.leadsom.mp@parliament.uk
Economic Secretary to the Treasury (City Minister)

This Report has been written to provide information pursuant to your November 3rd “Call for Information” posted at: <https://www.gov.uk/government/consultations/digital-currencies-call-for-information>.

Section two of this Report presents highlights of the evidence provided to the first public hearings of the Australian Senate Inquiry into Digital Currency on 26 November. A four hour and sixteen minutes audio-visual recording of the hearing is available at: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Digital_currency/Submissions.

As part of this Report I have attached my written submission to the Senate Inquiry dated 31 October 2014. A link to my submission numbered three of the twenty posted is available at: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Digital_currency/Submissions. I extended¹ my submission into an academic working paper dated 9 November posted at: <http://ssrn.com/abstract=2518020>. This paper, “Which digital currency is best fit for purpose?” is being presented at the University of New South Wales in Sydney on 8 December to the 13 Annual conference of the Society of Heterodox Economists (SHE).

At the public hearing, Senators raised concerns about the sovereignty of money and tax avoidance. As these matters could be of interest to the UK, the second section of this Report explains how these concerns could be countered by the adoption of a currency that was best fit for purpose described as “\$Z”. My first recommendation “A” if presented in this section with three more **B**, **C**, & **D** in the third section that explains “Modern technology and market acceptance for creating \$Z”. The fourth section outlines the “Institutional architecture for creating \$Z” that contains a fourth recommendation **E**.

My recommendations with appropriate contextual changes are applicable to both Australia and the UK. The Australian Senate Inquiry has agreed to accept this report to you as a supplementary submission to their inquiry.

In the fifth section responses are provided to your 13 headline questions that contain 37 detailed sub-questions. Your **headline questions are presented in bold** with your sub-questions underlined. My six additional *recommendations are presented in italics* as they arise and all twelve recommendations **A to L** consolidated at the end of the section.

¹ The main extension were to increase the number of benefits of \$Z from 20 to 25 while identifying concerns about Bitcoin raised by Ali, R. Barrdear, J. Claws, R. & Southgate, J 2014.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

The sixth section records the eight public meetings of the Sustainable Money Working Group over the last three years since its formation in October 2011. It identifies the many experts and complementary currency practitioners who shared ideas and experiences. Also included were staff members of the Central Banks of Brazil, England and the Netherlands. I am sharing copies of this Report with individuals who represented organisational members of the SMWG. However, I make this Report as an individual who has benefited from their contributions.

2. Australian Senate public hearing 26 November 2014

At the first public hearing of the Australian Senate inquiry views were expressed that the regulatory approach to digital currencies in the UK and especially in the US were “muddled”. The confusion arose from different regulatory agencies interpreting the nature of a crypto currency according to their regulatory remit. The muddle was most complex in the US with 53 State agencies as well as various Federal agencies taking different views about Bitcoin. A common source of the muddle was if Bitcoin should be treated as a commodity or as a currency.

In August this year, the Australian Tax Office took the same view as the UK did originally in considering that bitcoins were a commodity. This meant that as a domestically traded commodity bitcoins become subject to the Australian Goods and Service Tax (GST). As a result, bitcoins are being procured offshore for domestic use to avoid the tax GST is only paid on the valued added by the domestic service providers². As my attached report to the Australian Senate identifies how bitcoin is not fit for purpose I recommend that:

A Bitcoin should not be recognised as a currency and not be given any favourable tax treatment.

The Senate Inquiry obtained advice from the Australian Digital Currency Commerce Association (ADCCA) and a tax lawyer that Australia should and could, without changing the law, follow the UK example and treat Bitcoin as a currency. This led to a discussion of how Australia taxes foreign currency transactions and concerns over currency and tax sovereignty. Questions were then raised as to how economic value could be determined for tax purposes of decentralised currencies, especially in regards to long-term values for Capital Gains Taxes (CGT).

The ADCCA advised the Senators that the first Digital Summit meeting was held with the G20 meeting in Brisbane last month. Another meeting was planned in San Francisco next year and with for the next G20 meeting in Turkey. The President of the US Chamber of Digital Commerce, a sister organisation to the ADCCA, also provided evidence online from Washington D.C. with another online US based participant shared UK experience.

One Senator expressed concern that even with existing official currencies, shadow banks are globally trading hundreds of trillions of dollars in derivatives with trillions of dollars being avoided in tax from these activities and those of global multinational corporations. The implication being that decentralised currencies would exacerbate the situation in future to deny Sovereign States a viable tax base.

Both the Senators and those providing evidence accepted that Bitcoin was here to stay and governments are forced to live with its existence. It was also accepted that cooperation was not likely to occur anytime soon for nations to agree on a global tax regime to stop

²Sier (2014) reported that the largest Bitcoin business in Australia is moving to the UK. The CoinJar submission to the Senate is number 12.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

multinational corporations shifting profits to minimise their tax even with existing official digital currencies.

However, the exceptional ability of crypto currencies to create an audit trail with the suggestion of ADCCA that all digital wallets should be licensed with a tax number could be used to overcome a number of problems that cannot be adequately managed with existing official currencies. These possibilities reinforce the arguments I presented in my submission to the Australian Senate for the Government to accept digital currencies or introduce their own custom designed supplementary digital currency that possessed characteristics of what I have described for a hypothetical \$Z currency (GMWG 2011, SMWG 2012, Turnbull 2013b,c; 2014b, c).

\$Zs do not carry out a traditional role of money of being a store of value. This is because such a role is inconsistent with the role of money to facilitate investment. It is inconsistent because the ability of official digital money to earn interest makes money a competitor for investment. This leads to “financialisation” of the economy (Palley 2007). It also creates inequality by allowing money owners to increase their claims on resources without the money or the owner adding value to society. These negative feature of money concerned Proudhon (1840) who inspired Gesell (1916) to propose depreciating money. A feature favoured by Fisher (1933), Keynes (1936), Buiter (2009) and others.

A \$Z currency is one whose value is tethered, but not backed, by kilo-watt hours of retail electricity generated from benign local sustainable sources. This solves both the sovereignty problem and the determination of economic value for tax or long-term investment purposes. It was interesting to note from the Senate Inquiry that the cost of mining new bitcoins was largely determined by the Kwhrs consumed by computers to solve the complex problem of adding new components to the blockchain and obtaining peer group acceptance. The Inquiry was informed that the best place to mine bitcoins was in Iceland that had low cost renewable energy and a cold climate to cool the computers. The cost of Kwhrs places a floor price on the cost of mining bitcoins. So in this way bitcoins represent a proxy of Sustainable Energy Dollars (SEDs=\$Z)!

However, currently bitcoins, like all official currencies, are not tethered. But a tethering feature could be introduced by a Sovereign or others, by using “Pegged Sidechains” described by Back, Coarallo, et al (2014). As noted on page 16 of this paper, the cost of servicing the side chains would best be achieved by introducing a “demurrage” fee. \$Z require a much larger demurrage fee to allow them to become self-liquidating from the revenues collected by the Sovereign State or other organisations establishing the side chains.

Privately issued demurrage or cost carrying money arose widely in Europe and the US in the Great Depression to provide liquidity when banks could not. The market acceptance of the private issue of cost carrying money, even when there is not a Great Depression, is illustrated by their re-introduction in Germany since 2003 (Gelleri 2009; Migchels 2012).

The above considerations indicate how crypto currency technology could be custom designed to become fit for purpose for every Sovereign State or smaller currency regions that may be more appropriate to sustain the host environment and society on a perpetual basis.

3. Modern technology and market acceptance for creating \$Z

Two steps are described for establishing \$Z on the Green Money Working Group (GMWG 2011) web page at <http://www.gmwg.org/>. The first step would be initiated by the next financial crisis. It would involve the issue of “helicopter” self-financing self-liquidating demurrage money as occurred during the Great Depression (Fisher 1933) to create “financial lifeboats” for Small and Medium sized Enterprises (SMEs) (Turnbull 2011a). The second step

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

would be for the gradual introduction of a supplementary tethered demurrage currency to establish a sustainable unit of value to allow market prices to efficiently allocate resources to sustain humanity on the planet in perpetuity (Turnbull 2010b).

The GMWG was formed in October 2011 in response to concerns that another financial crisis could deny liquidity for SMEs who were members of Coops UK Limited and the British Chambers of Commerce (BCC). The name of the working group was changed in 2012 to the [Sustainable Money Working Group](#) (SMWG 2012) because SME members of the BCC did not consider green initiatives as being positive.

The private issue of demurrage or negative interest rate money during the Great Depression inspired the formation of the Working Group. Also, the [Bankhead-Pettengill Bill](#) introduced into the US Congress on February 17th 1933. The Bill proposed that the US Treasury, not the Federal Reserve, issue one trillion dollars of stamp scrip (Fisher 1933: Appendix I).

At that time private issues of self-liquidating Stamp Scrip were circulating in Europe and the US to finance SMEs (Fisher 1933). A chamber of commerce or a local government body typically initiated the private issue of Stamp Scrip. The scrip was accepted by SMEs as money. There were many types of Stamp Scrip and various ways of making issues. Some might be given away as “helicopter” money and/or as part payment for goods and services.

The reason that it was practical to give away the money was because it lost all value after a specified time unless a stamp was purchased from the issuer and affixed to the back of the note. The revenues from the sale of stamps then allowed the issuer to fully fund the redemption of the scrip over a given time period. This made the scrip self-financing and so self-cancelling. The cost of the stamps represented a “demurrage cost” (Back, Coarallo, et al 2014) to create negative interest rate money (Buiter 2009; Suhr 1989).

The Bankhead-Pettengill Bill of 1933 would have largely replaced the operations of the privately owned Federal Reserve as the notes were to be issued by the US Treasury and the stamps sold by the government owned Post Office. It would represent “Sovereign” or “Positive money” (Dyson 2014, Jackson 2013). However, the Bill was replaced by the newly elected President Roosevelt introducing two weeks later the New Deal. This extended the powers of the Federal Reserve that manufactures and distributes non-positive money.

The notes to be issued under the Bankhead-Pettengill Bill would become worthless every seven days unless a stamp valued at 2% of its face value was affixed to the back of the note. After a year the notes could be redeemed for \$1.00 each of their face value. During the year the Post Office would have sold 52 stamps with a total valued of \$1.04 for each note given away valued at \$1.00. In this way the US Post Office would have made a net \$US40 billion gross profit on the one trillion dollars issued.

The one trillion dollars was to be distributed to each US State in proportion to its population with half of the money to be spent by State governments building infrastructure and the other half to provide welfare for the unemployed. This approach ***provides a way for modern governments to stimulate their economies without going into debt or raising taxes.*** Instead of Central Banks creating money through “Quantitative Easing” to finance financial institutions, governments could issue negative interest rate money directly to the mobile phones of citizens (Turnbull 2010a). Income inequality is so ubiquitous that more citizens own mobile phones than possess bank accounts.

The use of self-liquidating money would have allowed the Australian government to pay its 2009 “citizens dividend” (Jackson 2013: 33) of \$900 to all taxpayers to stimulate the economy after the 2008 global financial crisis without incurring debt or taxes. Turnbull (2009c) was published to explain this possibility. When the proposed dividend was being

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

considered by Parliament the idea of using self-liquidating money was raised by Senator Milne but apparently not understood by her colleagues or Australian Treasury officials.

In your 20 November 2014 speech³ to Parliament during the Back Bench debate on “Money Creation and Society” you raised seven concerns about the proposal for the Government to create digital official money rather than the banks (Dyson 2014, Fisher 1934, Jackson 2013). You stated: “the current system, modified and improved with far greater competition, can service the economy best. However, reform is vital.” The need for root and branch reform is revealed in my essay “Root causes of economic breakdown” (Turnbull 1997c); “Mysteries of a failed financial system and how failure could be avoided” (Turnbull 2009b) and Turnbull (2009a).

Your seven concerns about the Sovereign money proposal related to the existing form of official digital currency that earns interest. This feature makes it not fit for purpose as raised above. The government issue of \$Z substantially changes the calculus of your concerns. So does the ability of the government to directly fund the mobile phones of your constituents when the next financial crisis arises. Without the facility of the government providing supplementary liquidity to your constituents many could be forced to use bitcoins and other alternatives. For the reasons described in my submission to the Australian Senate Inquiry, even untethered \$Z provide a number advantages over bitcoins or official money.

For these reasons and also as a means for the government to collect **any sort of taxes** on a continuous or instant basis please consider my recommendations:

B. *The government immediately procure a mobile phone application to allow the government and any citizen to receive or send both official money and \$Z like currencies.*

C. *The government introduces tax registration of all digital wallets transacting official or any other digital currencies or negotiable benefits.*

D. *The government trials the acceptance of cost carrying mobile money within its departments, welfare recipients, payment of taxes and for funding infrastructure.*

These recommendations would be consistent with your 20 November speech where you stated:

In the medium to long term, we need to create a culture where research and analysis do not shy away from going against the orthodoxy. As hon. Members across the House have said, we need to consider alternatives, and we should be having that discussion; it is healthy to do so, because that is how to make progress. For that reason, the call from [Andy Haldane](#), the [Deputy Governor](#) of the Bank of England, for a broader look at new and existing monetary ideas is exactly right.

This was also the view of Martin Wolfe (2014) in his column on “Economic ills need drastic treatment” where he concluded that: “The answers are likely to be unorthodox. But so, too, is today’s economic conditions. Rare ailments need unusual treatments. So look for them.”

May I suggest you need to look no further? One way for implementing my recommendations would be to follow the lead of the Royal Canadian Mint. In April 2012 they announced⁴ a competition for software developers to design a mobile phone application for their MintChip technology. They also ran a competition of how best such an application could be used. In February 2014 they announced⁵ that: “The Mint has issued MintChip accounts to 200 employees at its Ottawa and Winnipeg offices”. This trial is to test how mobile phone

³ <http://www.theyworkforyou.com/debates/?id=2014-11-20a.434.1&s=speaker%3A24829#g463.2>

⁴ <http://developer.mintchipchallenge.com/index.php>

⁵ <http://www.mobilepaymentstoday.com/articles/royal-canadian-mint-conducts-crypto-currency-trial/>

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

technology can introduce a cashless society by replacing notes and coins. CBS news reported⁶ on April 13 this year that Sweden is moving like others, to becoming a “cashless society”.

4. Institutional architecture for creating \$Z

The creation of tethered \$Z requires two types of institutional infrastructure. One to create: the money and the other to establish the tether. My preferred way to create \$Z is not by the Government, Banks or by mathematical processes used by Bitcoin. As proposed in my essay on “Who should create money and credit?” (Turnbull 2012b) my preference is for the process to be initiated on a decentralised market driving system by those who create wealth by being producers, consumers, traders or investors.

In this way the total money supply could be determined by market transactions rather than by the current system that relies on the blunt policy instruments of interest rates and reserve requirements established regulators or in the case of Sovereign money, bureaucratic judgements, or in the case of Bitcoin by the built in diminishing incentive to mine additional money.

The *Foundations of the Australian Monetary System 1799-1851* (Butlin 1968: 26-30) describes how hand written promissory notes circulated as hand-to-hand money. Each hand added their endorsement so it represented a private sector bottom up mutual credit scheme. It was a democratic open technique for creating money as proposed in my seminar discussion on: “Can Democratic Money with Environmental Values Reduce Market Failures?” (Turnbull 2013b). The biggest bottom up mutual credit scheme existing today is the Swiss Wirtschaftsring or WIR (Economic Ring) founded in the 1930’s. However, participation is restricted to businesses. Stodder (2005) reported it was “highly stabilizing” to the business cycle.

To create \$Z a mutually controlled credit union would procure guarantees for contracts between its members so that the contracts could become widely negotiable and used as a medium of exchange for third parties. Part of the cost of the credit insurance would be attached to the contracts with the contracting parties paying part of the credit guarantee fee according to their perceived risk in liquidating the credit created. The credit risk would need to be sub-underwritten by non leveraged high net worth individuals and institutions seeking income on what may otherwise be non income producing assets⁷.

The credit union might carry out other banking functions like liquidity intermediation. It would be important that only “Positive Money” would be created on contracts that were based on real goods, services and productive investments that did not involve financial assets. That is there would be no “fractional” banking. This adds a second dimension to Positive Money by having money not backed by government fiat but by real world goods, services and investments. The contracts for consumption, production and/or investment would also add another third new dimension for making money positive by having its value tethered to a sustainable service of nature. I hope this may also sustain the advocacy work of Ben Dyson, the founder of “Positive Money”, who kindly participated in a SMWG panel session last year⁸.

The value of the insured contracts would be negotiated by the parties involved to be defined in retail units of Kwhrs generated from benign local sustainable energy sources. To minimize

⁶ <http://www.cbc.ca/m/touch/world/story/1.1202565>

⁷ A basis is established for economies and communities to establish self-financing prosperity is described in Turnbull (2002, 2007).

⁸ Details are provided in Section six of the SMWG panel session at a Nottingham University 26 June 2013.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

the possibilities of price rigging that has occurred with LIBOR and Foreign Exchange (FX) trading, the retail value should be subjected to auditing by all retail consumers of power who may also be suppliers from their own domestic renewable sources. The reference value for money would then become tethered to millions of customers/suppliers members of a domestically located cooperative for power distribution. The opposing interests between producers and consumers provides a basis for establishing contested political markets for control of the organization with self-stabilizing checks and balances on a highly open and transparent basis. The governance architecture for achieving this outcome is based on my PhD Thesis (Turnbull 2000b) and the literature I have developed with colleagues describing “Network governance”.

My co-author, Professor Michael Pirson and I recommended that regulators should require all systematically important banks to introduce network governance in our peer reviewed article: ‘Could the 2008 US Financial Crisis been avoided with Network Governance?’(Turnbull & Pirson 2012). The John Lewis Partnership illustrates network governance in the UK. How Network governance can add value with citations of our literature is posted at: <http://preview.tinyurl.com/GovernanceArchitect>. In my latest publications I point out that the Cadbury Code and those developed from it in the UK and Australia creates unethical conflicted counter-productive toxic governance (Turnbull 2014a, d, e, f). As “City Minister” please also consider my recommendation:

E. The Bank of England as the prudential regulator immediately ceases to enforce on banks and other institutions systemic unethical and counter productive conflicts for directors and auditors by requiring the introduction of network governance.

My answers to your 13 questions use \$Z as a basis of reference. I have set out below your **13 questions in bold** with each sub-question underlined. As above my *recommendations are presented in italics* identified by capital letters from **A** to **L**. My recommendations are consolidated at the end before the final section listing the public discussions of the SMWG.

5. Your Questions

Question 1

1.1 What are the benefits of digital currencies?

Digital currencies introduce “Choice in currency” as proposed by Hayek (1976a,b). Crypto digital currencies with a distributed ledger make decentralised banking both practical and desirable. Mervyn King (1999: 47) suggested that decentralized banking could be inevitable. A view confirmed by the BoE last month by Ali, Barrdear, Claws, & Southgate (2014) when explaining the Bitcoin technology.

The most important benefits are:

1. Reduce the cost of financial transactions by using mobile phones;
2. Reduced administration costs of governments collecting taxes and paying welfare;
3. Shrinking the ever rising cost of the financial system that has steadily increased in proportion to GDP (Turnbull 2012; 2010a);
4. Minimising fraud, tax evasion and money laundering from the outstanding auditing ability of crypto currencies (Refer to the discussion above on registering digital wallets for tax purposes);
5. Establishing a more level investment playing field by introducing cost carrying money to remove the bias to invest in interest earning money rather than in investments that increase productivity and/or human well being (Turnbull 2011c);

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

6. Introducing cost carrying money to reduce wealth inequality from money owners increasing their claims on resources from earning interest when neither the money nor its owners are contributing to increasing prosperity to society (Turnbull 2011b);
7. Facilitate the introduction of currencies tethered to essential service of nature to define economic values so as to create incentives for the global population to stabilise and be distributed around the globe on a sustainable basis in perpetuity (Turnbull 2012a);
8. Reducing or eliminating the need for carbon taxing or trading by resetting price signals to favour renewable energy through tethering the value of money to the retail value of benign renewable energy (Turnbull 2012a,b);
9. Maintaining the sovereignty of national currencies and/or any bioregional currencies;
10. Allowing the introduction of self-financing and so self-liquidating supplementary currencies to provide:
 - a) “Financial lifeboats” for SMEs in the event of another financial crisis (Turnbull 2011a);
 - b) “Pump priming” the economy (Fisher 1933: 2) or stimulating the economy without government incurring debt or taxes (Turnbull 2011c);
 - c) Provide superior forms of money to Bitcoin in the event of official money being subjected to a crisis (Turnbull 2011c);
 - d) Introduce “Sovereign fire walls” between nations to minimise costs of another global crisis;
 - e) Eventually eliminate the possibility of global financial crises (Turnbull 1997b; 2009a,b);
 - f) Introduce intra Sovereign fire walls within nations in the event of a national financial crisis (Turnbull 1997a, b);
 - g) Allow new types of currencies to be market tested to determine those that are best fit for purpose (Turnbull 1983; 1997a; 2014g);
 - h) Provide the means for the gradual introduction of currencies that are better fit for purpose than Bitcoins or existing official currencies (Turnbull 2012a,b);
11. Makes it feasible to collect micro payments from web browsing, etc.
12. Establishing a cashless economy;
13. Improving automation in the preparation of financial statements from digital tagging of transactions.
14. Make assembling of macro management transaction data automatic, comprehensive and immediate.
15. Introduce 25 benefits in comparison with current official digital currency by adopting a \$Z like currency as set out in the table below:

Table 1, Comparison of official digital money with sustainable value money (\$Z)

| | Difference between: | Official digital money | Sustainable value money (\$Z) |
|---|----------------------------|-------------------------------|--|
| 1 | Money created by: | Government & banks | Preferably consumers, producers, traders and investors |
| 2 | Interest rates set by: | Central Bank | Cost of risk ins. & redemption |
| 3 | Expansion of money: | Government ratios/regulation | Value of market transactions |
| 4 | Value defined by: | Government fiat | Benign renewable electricity |
| 5 | Unit of value | Not defined | Renewable kwhs (\$Z) |
| 6 | Store of value | Yes, subject to inflation | Not a store of value |
| 7 | Integrity of value | Indeterminate | Tethered to renewable energy |
| 8 | Integrity of system | Exposed to contagion | Little exposed to contagion |
| 9 | Choice of currency | Government monopoly | Determined by currency region |

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

| | | | |
|----|-----------------------|--------------------------------|--------------------------------|
| 10 | Inflation control by: | ‘Blunt’ policy instruments | Value of renewable energy |
| 11 | Structure of money: | Unlimited accrual of interest | Carrying cost limiting life |
| 12 | Economic flaw-1 | Incentive to own money | Disincentive to hold money |
| 13 | Economic flaw-2 | Allocates resources to finance | Real assets more attractive |
| 14 | Economic flaw-3 | Distorts price relativities | Prices set by renewable energy |
| 15 | Financial system cost | Ever increasing | Minimized |
| 16 | Financial assets/real | Ratio increases | Incentive to minimize |
| 17 | Economic growth | Required to pay interest costs | Accommodates de-growth |
| 18 | Social flaw-1 | Compounds unearned income | No unearned income |
| 19 | Social flaw -2 | Concentrates influence | Localizes influence |
| 20 | Political flaw-1 | Concentrates power | Enriches local democracy |
| 21 | Political flaw-2 | Low accountability | Cooperative accountability |
| 22 | Environmental flaw 1 | Incentive to burn carbon | Favours renewable energy |
| 23 | Environmental flaw 2 | No feedback from nature | Nature controls price signals |
| 24 | Ecological feedback | None | Local renewable energy service |
| 25 | Sustainability | Highly questionable | More likely |

1.2 How significant are these benefits?

Very substantial.

1.3 How do these benefits fall to different groups e.g. consumers, businesses, government, the wider economy?

Specific benefits for consumers and businesses very much depend upon how access to digital currency is introduced. Even if only \$Z are considered, the answer to the question very much depends upon how they are introduced and the size of the currency areas. Complex economic and social advantages and disadvantages are involved that need to be mediated by political processes.

1.4 How do these benefits vary according to different digital currencies?

The big issue to consider is if digital currencies are best governed by a distributed ledger like the current Bitcoin technology or by Sovereign nations?

For the reasons argued in Turnbull (2009c; 2010a,b; 2011a,c; 2012a,b; 2013b,c; 2014b,c,g) it is recommended that:

F. Neither a centralised or decentralised digital currency be enforced.

Experimentation will be required that may result in a new options developing such as bioregional currencies regulated by each region.

Decentralised tethered currencies with “autonomous banking” (Turnbull 1997b; Swann 1977) could be used to establish firewalls to insulate local financial systems from being contaminated by a financial crisis in another part of the world. In this way the “Doom Loop” described by Haldane (2009) can be avoided with appropriately designed digital local currencies.

\$Z could create a global unit of account with a local measure of value tethered to the ability of the host environment to sustain a prosperous society in its region on a perpetual basis. In this way market forces could be created to distribute humanity around the planet on a sustainable basis and so also introduce disincentives for over population of the planet.

Question 2

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

2.1 Should the government intervene to support the development and usage of digital currencies and related businesses and technologies in the UK, or maintain the status quo?

G. The government provide leadership in testing digital currencies by introducing official supplementary self-liquidating forms of Sovereign (“Positive”) money to finance welfare and infrastructure to increase prosperity and well being without taxes or borrowings.

2.2 If the government were to intervene, what action should it take?

Implement the recommendations above (*A, B, C, D, F, G, H, I, J, K & L*).

Question 3

3.1 If the government were to regulate digital currencies, which types of digital currency should be covered?

There are unknown types of digital currencies that could emerge besides digital and mobile phone versions discussed in Turnbull (1977; 1983; 1997; 2009a; 2010a,b; 2011c; 2012). My paper on ‘Options for reforming the financial system’ (Turnbull 2011c) presents the arguments for only accepting cost carrying currencies.

H. Accept cost carrying or negative interest rate currencies issued on a self-liquidating basis to reduce: (a) the incentive to use money as a store of value to exacerbate inequality and (b) financialization of the economy.

I. Give preference to cost carrying money whose value is defined by a local sustainable service of nature whose consumption is made available to all and governed on a transparent and democratic basis.

3.2 Should it create a bespoke regulatory regime, or regulate through an existing national, European or international regime?

The “Principle of Subsidiary Function” (Pope Pius XI, 1931; Schumacher 1975: 203) should be adopted. One formulation of the Principle is that government should undertake only those initiatives that exceed the capacity of individuals or private groups acting independently. How this principal might be applied in integrating the financial requirements of local communities into a global system is suggested in “Table 4.1, Global Governance and Political Economy” in Turnbull (2013a: 89).

However, the convenience of sharing a single currency area may justify extending boundaries to bioregions and even larger domains. While Robert Mundell (1961) and Jane Jacobs (1985) raised important issues in determining optimum currency areas their analysis was not based on defining a unit of value to connect the production and consumption of goods and services in the host bioregion on a sustainable basis. As considered below, the smallest practical currency region may be a topic of local political choice. This in turn could depend upon if digital currencies were self-liquidating and/or if and how monetary values were determined by local sustainable conditions.

3.3 For each option: what are the advantages and disadvantages?

There are too many options and contingencies to consider. Trials and monetary experiments should be facilitated. In any event it should not be a top down decision-making process. Ideally it should be a Locally-led initiative in the spirit of the Locally-led Garden City program announced by The Rt Nick Clegg MP, Deputy Prime Minister & The Rt Hon Eric Pickles MP, Secretary of State for Communities and Local Government as set out in a prospectus dated 14 April 2014 posted at <https://www.gov.uk/government/publications/locally-led-garden-cities-prospectus>.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

3.4 What are the possible unintended consequences (for instance, creating a barrier to entry due to compliance costs)?

The greatest barriers could be social and political concerns about loss of privacy introduced by the requirement to licence digital wallets for tax purposes. Just as each individual bank note has a unique number the block chain could keep details of every transaction. Self-liquidating units of value would allow this information to be purged from the block chain but stored elsewhere.

Question 4

4.1 Are there currently barriers to digital currency businesses setting up in the UK? If so, what are they?

Members of the SMWG expect that the private issue of “lifeboat” funding in the event of a crisis might be illegal. The judgement by some is that in a major global crisis the government would accept private emergency forms of liquidity to keep the economy going. This is an argument for the government to initiate trials of non-tethered \$Z as soon as practical to provide an emergency legal fall back position as soon as possible.

Question 5

5.1 What are the potential benefits of this distributed ledger technology?

The benefit of introducing distributed ledger technology is to decentralise the power of creating and controlling money. Money represents power and power tends to corrupt. Central banking after all is but a specialised form of central planning. It imposes one set of policy prescriptions to fit all. It can deny choice and innovation and when power becomes absolute there arises the risk of corruption becoming absolute. This is why natural systems are neither based on extended command and control hierarchies of governed centrally. There is no chief executive neuron in our brains.

5.2 How significant are these benefits?

Distribute power facilitates democracy. It also facilitates decentralising the power structure and nature of society to vary as much as required to sustain both local host environments and society on a symbiotic basis

Question 6

6.1 What risks do digital currencies pose to users?

Loss or damage to computers or mobile phones that store digital wallets would result in the loss of money as would occur with plastic or paper currency notes, bearer bonds, etc. Duplicate wallet can be kept but that introduces risks in control of the copies. But we are recommending that money is not accepted that can be a store of value. So there should be little or no incentive to use money as a store of any significant value.

6.2 How significant are these risks?

For the reason explained above the risk are likely to be not significant when the type of money is designed not to be a store of value.

6.3 How do these risks vary according to different digital currencies?

As noted above the variety of types of digital currencies make it impractical to attempt to answer this question. But the fact that there can be so many types of currencies is an argument for the government to discourage those types that can be a store of value. This would force investment into securities that are regulated.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

Question 7

7.1 Should the government intervene to address these risks, or maintain the status quo?

J. *The government should not facilitate any digital currencies that can carry out the role of being a store of value and/or are not tethered to a sustainable service of nature to define its value.*

7.2 What are the outcomes of taking no action?

Giant global information corporations could establish private distributed currencies that tied citizens to their other activities.

7.3 Would the market be able to address these risks itself?

The answer is no. Giant corporations can pervert market forces.

During the 17th century, English Sovereigns developed corporate charters as a way to privatise the cost of building an empire. Corporations were given unlimited life for this purpose like incorporated local government bodies. Until corporate concepts are reformed to have limited life so that they can give birth to many smaller offspring entities corporations will continue to: (a) overpay investors in a way not reported by accountants and so not noticed by economists (Turnbull 2000a; 2006) and (b) grow too large to be reliably managed or regulated or further the common good. The former problem will exacerbate inequality in similar manner to interest earning money.

Question 8

Should the government regulate digital currencies to protect users?

8.1 The answer is yes.

8.2 If so, should it create a bespoke regime, or regulate through an existing national, European or international regime?

K. *A bespoke regulatory regime is required to maximise the common good to deny currencies whose characteristics are not best fit for purpose are discouraged and/or denied.*

8.3 For each option: what are the advantages and disadvantages?

Refer to response to 6.3

8.4 What are possible unintended consequences (for instance, creating a barrier to entry due to compliance costs)?

No comment.

8.5 What other means could the government use to mitigate user detriment apart from regulation?

J. *It is recommended that the government takes action to counter market failure in creating incentives for developing the technology and supportive infrastructure that can best further the common good by introducing the most economically, socially and politically effective medium of exchange and unit of value.*

Question 9

9.1 What are the crime risks associated with digital currencies?

Digital currencies as explained above have the potential to detect any illegal transactions if loss of privacy is accepted.

9.2 How significant are these risks?

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

If the loss of privacy is accepted the risks become minimal. So the risk is of obtaining political acceptance of minimising loss of revenue in return for loss of privacy.

9.3 How do these risks vary according to different digital currencies?

Refer to response to 6.3.

Question 10

10.1 Should the government intervene to address these risks, or maintain the status quo?

Same recommendation as for 8.2.

10.2 What are the outcomes of taking no action?

Refer to response to 6.3.

Question 11

11.1 If the government were to take action to address the risks of financial crime, should it introduce regulation, or use other powers?

Same recommendation as for 8.2.

11.2 If the government were to introduce regulation, should it create a bespoke regime, or regulate through an existing national, European or international regime?

Refer to response to 8.2.

11.3 For each option: what are the advantages and disadvantages?

Refer to response to 6.3.

11.4 What are possible unintended consequences (for instance, creating a barrier to entry due to compliance costs)?

Refer to response to 6.3.

11.5 What has been the impact of FinCEN's decision in the USA on digital currencies?

No comment.

Question 12

What difficulties could occur with digital currencies and financial sanctions?

Refer to response to 6.3.

Question 13

13.1 What risks do digital currencies pose to monetary and financial stability?

Provided only \$Z like currencies are accepted then they can be used to establish international and intra-national and inter-regional “fire-walls” against systemic risk. During the phase out period of current official digital currencies that are not fit for purpose, supplementary \$Z like currencies could reduce monetary and systemic risks and contagion.

13.2 How significant are these risks?

Not significant as explained above.

Consolidated recommendations (12):

A Bitcoin should not be recognised as a currency and not be given any favourable tax treatment.

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

- B.** *The government immediately procure a mobile phone application to allow the government and any citizen to receive or send both official money and \$Z like currencies.*
- C.** *The government introduces tax registration of all digital wallets transacting official or any other digital currencies or negotiable benefits*
- D.** *The government trials the acceptance of cost carrying mobile money within its departments, welfare recipients, payment of taxes and for funding infrastructure.*
- E.** *The Bank of England as the prudential regulator immediately ceases to enforce on banks and other institutions systemic unethical and counter productive conflicts for directors and auditors by requiring the introduction of network governance.*
- F.** *Neither a centralised or decentralised digital currency be enforced*
- G.** *The government provide leadership in testing digital currencies by introducing official supplementary self-liquidating forms of Sovereign (“Positive”) money to finance welfare and infrastructure to increase prosperity and well being without taxes or borrowings.*
- H.** *Accept cost carrying or negative interest rate currencies issued on a self-liquidating basis to reduce: (a) the incentive to use money as a store of value to exacerbate inequality and (b) financialization of the economy.*
- I.** *Give preference to cost carrying money whose value is defined by a local sustainable service of nature whose consumption is made available to all and governed on a transparent and democratic basis.*
- J.** *The government should not facilitate any digital currencies that can carry out the role of being a store of value and/or are not tethered to a sustainable service of nature to define its value.*
- K.** *A bespoke regulatory regime is required to maximise the common good to deny currencies whose characteristics are not best fit for purpose are discouraged and/or denied.*
- L.** *It is recommended that the government takes action to counter market failure in creating incentives for developing the technology and supportive infrastructure that can best further the common good by introducing the most economically, socially and politically effective medium of exchange and unit of value.*

6. Sustainable Money Working Group (SMWG) eight public discussions 2012-2014

2012, London – 13 February

First public meeting of Sustainable Money Working Group, then described as the Green Money Working Group (www.gmwg.org) held in the Great Hall, Institute of Chartered Accountants of England and Wales, Monday, February 13th. Panel members included: Ed Mayo: Secretary-General, Coops UK Limited (Chair); Richard Spencer: Head of Sustainability, Institute of Chartered Accounts in England & Wales (ICAEW Host); Steve Hughes: Economist, British Chambers of Commerce; Tony Greenham: Head of Business and Finance, New Economics Foundation; Pat Conaty: Adviser, Coops UK; Margrit Kennedy, MonNetA Germany; David Boyle: Author; Martin Hockley: CEO, Street UK Foundation; Yuri Riphayak: Secretary The 40 Foundation, Dr. Shann Turnbull: Principal: International Institute of Self-governance.

2012, Split Croatia – 10-12 July

Presentations by members of the [Sustainable Money Working Group](http://www.gmwg.org) (SMWG) and others during a three day conference at the Faculty of Economics, University of Split Croatia, July 10-12. Presenters noted on the web pages at <http://teslaconference.com/> are: Hazel Henderson,

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

Prof. Michael Hudson, Dr. Marusa Vasconcelos Freire, Prof. Ivo Slaus, Prof. Dr. Margrit Kennedy, Prof. Momir Djurovic, Ellen Brown, Dr. Christian Arnsberger, Pat Conaty, Tony Greenham, Prof. Raoul Weiler; Prof. Erich Hödl, Prof Mark T. Brown, Dr. Joan Majó, Dr. Sgouris Sgouridis, Josh Ryan-Collins, Ludwig Schuster, Dr. Jeff Eisen & Dr. Shann Turnbull.

2013, London – 2 June

‘Stimulating the economy with new types of mobile phone money’. A roundtable discussion with Dr Shann Turnbull (Sustainable Money Working Group), David Boyle (New Economics Foundation), Leander Binderwald (NEF) and David Birch (Consult Hyperion and CSFI Fellow in Identity), chaired by CSFI executive director Andrew Hilton, Tuesday, July 2, 2013 from 12:30-2:15pm. At the London Capital Club 15 Abchurch Lane, London, EC4N 7BW, organized by the Centre for the Study of Financial Innovations (CSFI), <http://www.csfi.org>. http://www.csfi.org/index.php?option=com_content&view=article&id=446:how-should-regulators-control-alternative-types-of-e-money&catid=:round-tables

2013, Amsterdam – 21 June

‘How should regulators control alternative types of e-money?’ Panel discussion/debate at the [2nd International conference on complementary currencies systems](#), University of Rotterdam in The Hague, June 21st with discussion/debating paper posted at: <http://ssrn.com/abstract=2202108>. Other panelists organized by Sustainable Money Working Group (SMWG): Tony Greenham: Head of finance and business - New Economics Foundation, London; Tom Greco: Complementary Currency specialist; Ludwig Schuster: Member of the scientific committee of the German Regiogeld Association; Wieske Ebben: Policy Advisor Payments, Dutch Central bank; Chair: Simon Lelieveldt - Financieel Erfgoed / Banking Expert.

2013, Nottingham – 26 June

‘How should regulators control alternative types of e-money for SME’s?’ Panel discussion at the 5th International Finance and Banking Society Conference (IFABS), University of Nottingham, jointly organized by University of Leicester, University of Cambridge and University of Warwick (United Kingdom) June 26-27. Panel chaired by Martin Brooke, Head of International Finance Bank of England. Panelists were: Tony Greenham: Head of finance and business - New Economics Foundation, London; Bruce Davis: pioneer of p2p lending as Co-founder Zopa and Abundance Generation; Ben Dyson: founder of “Positive Money”; and Dr. Shann Turnbull, co-founding member of Sustainable Money Working Group. Refer to discussion paper posted at: <http://ssrn.com/abstract=2261519>.

2013, SYDNEY – 3 December

‘Agenda’s for an inquiry into the financial system”. Panel session at the 12th Annual Conference of the Society of Heterodox Economists (SHE), University of NSW, December 3, 2013. Panel members were: Professor Dick Bryan, University of Sydney, Emeritus Professor John Nevile, University of New South Wales; Associate Professor Neville Norman, University of Melbourne, Stephen Long, Australian Broadcasting Commission Economic correspondent, and Dr. Shann Turnbull. Economic discussion paper ‘Money fit for purpose?’ posted at: <https://docs.google.com/document/d/1MICW6n6D-HEJ2jnfG6KQuVv5NcBYn2KpqmBYP-r7A/edit>

2014, London – 16 January

‘Evolution or Revolution? Democratising money’. Seminar hosted and chaired by Alderman Professor Michael Mainelli. Panel members included: Dr David Bholat from the Bank of England; Andrew Hilton: Executive Director for the Centre to Study of Financial Innovations;

Digital Currencies – Call for Information: Response by Dr Shann Turnbull

Tony Greenham: Head of Finance and Economics, New Economics Foundation (nef); Leander Bindwald, nef; and Dr. Shann Turnbull, January 16th, 8:30 am to 10:00 am, Z/Yen Group, 90 Basinghall Street, London EC2V 5AY. Discussion paper a posted at: <http://www.longfinance.net/component/content/article.html?id=828>.

2014, London – 4 July

‘What future for Money?’ panel discussion and others at the 16th Annual Conference of the Association of Heterodox Economics, Greenwich University chaired by Robin Latimer the presenter of a paper ‘One money many currencies’ July 4th. Panelists: Prof. Molly Scott Cato, University of Roehampton and Green Member of European Parliament: Alderman Professor Michael Mainelli: Executive Chairman Z/Yen Group: Tony Greenham: Head of Finance and Business (nef): and Dr Shann Turnbull, co-founding member of the Sustainable Money Working Group.

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Yours faithfully

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