



# **The Aurora Sterling Central Bank Digital Currency Platform**

*A briefing paper, confidential to recipients*

**11 May 2021**

## **1. Introduction**

*This document has been written by a team including UK Fintech entrepreneurs, central market infrastructure specialists, payment system architects, City Executives and other specialist personnel all of whom have strong connections with the City of London and the UK finance industry both at a wholesale and retail level.*

*The aim is to make the argument in support a UK Central Bank Digital Currency (CBDC) Platform, based on the world-leading and existing FinTech expertise of the City, and to provide further information on the issues surrounding this. This is a very complex topic and this paper does not purport to cover every aspect of the problem. Rather it seeks to outline how the technology that would underpin a Central Bank Digital Currency Platform would enhance the economic fortunes of the UK, by providing a fully digital currency for an increasingly digital economy.*

*We show how the use of 21st Century technology can radically and fundamentally improve the financial infrastructure of the UK, leveraging our leading capability with respect to this platform technology, and make the UK an even more compelling centre of choice for business, banking and global commerce.*

*Her Majesty's Treasury and the Bank of England have recognised the opportunity for a Sterling CBDC and are now exploring the best way forward.*

*This document draws on the experience of a wide variety of practitioners across a range of specialist disciplines to deliver Aurora – a workable solution to the rapid deployment of a Sterling CBDC Platform.*



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## 2. Executive summary

2.1 *The development of “Central Bank Digital Currencies” (CBDCs) is inevitable. The technology is there, and proven, and there are already multiple initiatives across the globe. It is vital to distinguish between wholesale and retail use cases for payments using a CBDC. Most observers assume that the retail use cases are the most important. This is simply not the case, as more than 98% of all payment activity in the UK is in wholesale financial flows. The cases highlighted below illustrate some of the retail applications.*

- a. *[China launches hers in February 2022](#) to mark the Beijing Winter Olympic Games*
- b. *The EU “[supports the exploration of a digital euro](#)”*
- c. *The US is launching [digital dollar pilots](#)*

2.2 *The China launch is a certainty, whereas the EU and US initiatives are, realistically, hampered in timing terms by the EU approach to such projects and by the US constitutional maze, respectively.*

2.3 *The China model would give the People’s Bank of China (and therefore the Chinese government) full knowledge and sight of all transactions undertaken via its CBDC platform. It is very likely that China will leverage its Belt and Road initiative and promote, in unison, its social media brands (such as TikTok) to expand the use of its CBDC platform by governments (i.e. repayment of debt), international businesses, and non-Chinese individuals. This would represent a sovereign privacy concern at all levels.*

2.4 *HMT and the Bank of England have recognised the opportunity and have recently set up a Taskforce “[to coordinate the exploration of a potential UK CBDC](#)”. The terms of reference for this initiative focus specifically on retail. We believe that retail is inherently very complex and given the advances made by various open banking initiatives over the past five years is not the place to start, especially when wholesale flows are so much bigger and easier to understand. We suggest that a parallel exercise concentrating on wholesale flows is both necessary and desirable.*

*We contend that the UK CBDC programme needs the same approach as the UK achieved with the COVID vaccine development and rollout programme. A highly accelerated, highly agile programme is both necessary and important.*

2.5 *The UK is home to some of the world’s leading thinking on ledgers, their construction, purposes, uses and features, coupled with an internationally recognised strength in the application of technology to finance, regulation and innovation. These strengths are supported by our constitutional and legal framework, the pro-innovative drive of successive administrations, and the financial marketplace enjoyed by the City. We believe that the UK is able to enjoy first mover advantage in delivering a wholesale CBDC which will confer substantial and consequent geopolitical and economic benefit for Britain.*



2.6 A team of senior financial market and technology experts, working with the [CityUnited Project](#) have collaborated to identify the areas that would potentially offer the greatest return for the UK, as compared to the likely complexity of implementation. The talent and approach available via the City of London is unique, and could be the main driver for the earliest possible rollout.

2.7 The Aurora CBDC envisages two phases, the first commencing with a pilot costing c.£10m, involving the wholesale payment and settlement transactions centred around the Bank of England, leading to limited wholesale adoption by elements of the UK financial system. The second phase would provide opportunities for more extensive wholesale as well as limited retail use.

2.8 Overall this model would be structured legally and technically to provide all the benefits of a CBDC, while protecting security and institutional privacy. It would sit alongside and operate to complement the existing financial market structures and participants, and could be relatively quickly deployed.

2.9 When complete, the Aurora model can provide significant efficiency, security, and cost benefits across the UK's political, security, economic, social and cultural spectrum, and would meet the Government's green and levelling-up objectives.

### **3. A CBDC and the platform on which it can be built**

#### **3.1 Overview**

A Central Bank Digital Currency (CBDC) is a digital currency issued and managed by a Central Bank, not a commercial bank. As such it is a charge on the balance sheet of the Central Bank and any payments made using it will enjoy settlement finality and be 'bankruptcy remote' in that an administrator cannot legally compel the return of assets transferred in this way.

The critical difference, and one that is often overlooked, is that the real advantage of a CBDC is conferred by the platform on which CBDCs are managed and transacted. This is subject to a set of user agreements, rules, customs and practices. The drafting, application, enforcement and dispute resolution of which will use English Law - a globally acknowledged comparative advantage of the UK.

There are a variety of technologies that can support a CBDC. This paper uses Distributed Ledger Technology [DLT] to illustrate the main features required to allow deployment.

A permissioned DLT used by a CBDC may operate in the following way. It begins with all the existing opening balances of each of the accounts on all ledgers. It then collects and accepts well-formed requests from participants to alter these balances by undertaking a series of transactions, e.g. can account A please pay Account B a sum of money.



*These requests are then processed every 5 seconds (or other defined time frame) and the resulting changes used to update the ledger. These changes to the ledger create a new record: the closing balance. The closing balance of one set of transformations becomes the opening balance of the next set. Each of these balances, and every sub-balance and every transformation request are individually stored. This is a crucial game-changer, because it will allow a snapshot of the market at any one time to be taken and replayed with respect to the actions of participants. In the event that the full transaction history needs to be reviewed, all of that information remains available.*

*A permissioned CBDC platform can record the digital balance of an account and the identity of the permissioned agents allowed to operate this account. Indeed this feature will significantly improve both KYC (“Know Your Client”) and AML (“Anti Money-Laundering”) compliance and make sanction checks more efficiently undertaken and reported.*

*With a CBDC platform, the speed of transaction processing is fast because the system uses the current account balances to add or subtract the transaction amount. This immediacy will allow for greater granularity in managing reserves, repo’s, other collateral and cash.*

*This means that a CBDC platform can replace multiple systems that form much of the current backbone comprising Western finance infrastructure. This infrastructure has grown organically over 100 years. However, this legacy infrastructure requires organisations to act as middle-men and charge fees, rightly for fulfilling a need. Over time, these fees have grown and made the cost of doing business more expensive than it needs to be, considering the technological solutions that are now available, i.e. sub-second communication and CBDC infrastructures.*

### **3.2 The China challenge**

*The UK is not the only country to recognise the potential advantage of a CBDC platform, but unfortunately it will be later to implement a CBDC platform than China, which has designed, launched and is trialling a retail-focused CBDC platform for implementation at the Winter Olympics 2022 as part of its wider ‘belt and road’ CBDC strategy. Many other countries are also currently reviewing a CBDC.*

*One of the most important design intentions of the Chinese CBDC system is to put further pressure on the US\$ as the principal international unit of account, and all developments need to be viewed against this objective.*

*China has recognised the potential of a CBDC well ahead of Western nations. It has been able to design a CBDC platform without any of the risk or disadvantages of incumbency, and has had time to consider a design that would maximise its advantage over all the other countries and is a genuine threat to existing business. This does not mean that a first mover advantage is a foregone conclusion, but it does mean that the UK (or another*



country) has a competitive challenge to answer after which it will become increasingly difficult to regain any advantage.

*To this point, China does not share the UK values of privacy, anonymity, and self-determination, and demonstrably it does not have the same regard for the rights of the individual. It would be fair to expect data extracted from its CBDC platform to support competitive action against a foreign competitor, or to support identification of individuals.*

## **4. Aurora: a Sterling Central Bank Digital Currency platform proposal**

### **4.1 Background**

*The current Western finance system is based on groupings of systems that still derive their architecture, security model, and essence from technology released in the 20th Century. Why? Many of these systems were first implemented in the 1970s and onwards, and to replace them wholesale would have been too expensive and costly in terms of the economies they served, compared to performing a relatively more simple and less risky upgrade. The systems themselves evolved from successive 'regulatory crises' from the Herstatt risk of the 1970's to the regulatory responses from the recent GFC. This is particularly relevant as each of the systems have incumbent operators and practices and – critically - were never designed to operate together. The only commonality that they exhibit is that they all use the ledgers of the central bank to effect settlement finality. Extending the functionality of settlement finality to empower disparate systems to deal directly with each other using a CBDC is a very significant development.*

*Hence, each group of systems has been upgraded, altered, but not fundamentally overhauled. This is crucial when considering the advantage that countries such as China enjoy when designing a new platform from the ground upwards, incorporating all transactional functionality present in the Western system, without any of the organically generated 'spaghetti'.*

*Furthermore, many of the current systems that form the current infrastructure do not reconcile in real time. Many of them rely on batching all the transactions after the markets have closed, and then running reconciliations to confirm with parties what is owed to whom, by whom. This is relevant with respect to the cost savings a CBDC platform would provide. It also means that regulation or 'sight' of these transactions cannot occur in real time. Everything is delayed to allow for the limitation of the system's processing capability.*

*The specialist and experienced Aurora team is ready to be deployed in support of the UK's broader economic interests.*





## 4.2 Recommended action

### *The Aurora proposal in tabular summary form for the wholesale implementation:*

RECOMMENDED ACTION	COMMENT
<p>1) <i>The immediate initiation of a pilot scheme trialling a UK CBDC, consisting of two stages:</i></p> <ul style="list-style-type: none"> <li data-bbox="264 551 1043 613"><i>a. The identification of a pool of UK companies / candidates who could demonstrably provide an immediate CBDC pilot for evaluation</i></li> <li data-bbox="264 651 1094 745"><i>b. The evaluation of successful candidate CBDC platforms, followed by a secondary trial of a wholesale system between live organisations (via the most suitable candidate)</i></li> </ul>	<p><i>Leveraging the world leading wholesale firms in the City of London.</i></p>
<p>2) <i>In parallel, the continued planning of rollout within the UK for high-value business adoption and eventual retail rollout comprising the following streams, but without disintermediating the commercial banking sector and their customer service:</i></p> <ul style="list-style-type: none"> <li data-bbox="280 949 1102 1106"><i>a. A technology stream. This is not just a matter of software and hardware but also based on leveraging the UK's collective intelligence in ledger design and application. The technology, expertise (and therefore know-how) already exists in the UK within the community driving CBDC innovation</i></li> <li data-bbox="280 1144 1094 1207"><i>b. A legal stream ensuring that existing rules and regulations are adapted to support the CBDC.</i></li> <li data-bbox="280 1245 1062 1308"><i>c. A stream looking at integration within HMG, and involvement of the ICO</i></li> <li data-bbox="280 1346 1094 1440"><i>d. An engagement or community stream focused on building the adoption and use of the digital pound. This would include socialisation and capturing hearts and minds</i></li> <li data-bbox="280 1476 839 1503"><i>e. A management and control stream alongside 1)</i></li> </ul>	<p><i>It is important (if not essential) that all individuals/groups involved in this phase have clear and proven track records with respect to technology excellence, innovation, and delivering agile projects.</i></p> <p><i>This project, using the skills listed above, would be an example of how an unshackled Britain can demonstrate its historic innovative edge. This project cannot be an exercise in 'problem admiration' when the opportunity to take a global position of advantage exists.</i></p>

## 4.3 Phase One: wholesale implementation

*It is proposed that an initial pilot of a CBDC platform be controlled and ringfenced to the wholesale side of the Bank of England operations. This currently equates to 98.85% by gross transaction value, according to the latest BoE figures<sup>1</sup>, and involves only a very limited number of clients. The remaining 1.15% is based around retail payment systems.*

<sup>1</sup> Average daily RTGS settlement values and volumes: <https://www.bankofengland.co.uk/payment-and-settlement/payment-and-settlement-statistics>



***This form of pilot will:***

- *Enable HMG via the Bank of England, HMT, HMRC, and other agencies to control and assess whilst working with key stakeholders*
- *Enable the most agile, controlled rollout of a CBDC capable platform, mindful of risk whilst laying the foundations to enable global strategic advantage*
- *Mitigate the risk of any deliberate adverse publicity during an evaluation phase*

*The obvious area of evaluation for a CBDC pilot scheme would be the Debt Management Office (DMO) where the BoE is in effect 'both sides' of the transaction. Once proven, the pilot could then be extended to the other systemic use cases such as the Sterling side of CLS (Continuous Link Settlement), and CREST (UK-based central securities depository).*

*In parallel, the planning within the UK for high-value business adoption and eventual retail rollout should be implemented. This would comprise streams in respect of technology, the law, integration within HMG involving ICO, and community engagement, but without disintermediating the commercial banking sector and their customer relationships. Individual representation from those that understand the CBDC landscape, and have innovated within it, would benefit the project.*

*It is also worth noting that incumbent providers within the retail payment landscape will see a CBDC platform as a threat.*

***Instant advantages of this approach include:***

- *Netting (and hence risk operations) of the current system could be retired and would allow a greater flexibility for regulatory oversight of funding positions and repo activities.*
- *In the wholesale financial services market, the benefits of an electronically deployable asset that could achieve final settlement would allow much of the capital currently tied up in clearing, payment and netting systems to be released for more productive activity like lending.*
- *AntiMoneyLaundering(AML) / KnowYourClient(KYC) data can be 'socialised'. Sanctions could be processed in an automated fashion, and reviewing ICAAP (internal capital adequacy assessment process) would be greatly augmented.*
- *A CBDC platform also allows multiple data types to be stored against an account. This could include not just payment value but also reference information such as Purchase Order or Invoice information, reducing the burdens on businesses.*
- *Regulators would have greatly improved surveillance monitoring for payments and liquidity in a similar way to market surveillance, but crucially in real time.*

*More details of the benefits and advantages are described in Section 6.*

***To summarise: An implementation focussed on wholesale would allow the UK to realise the benefits of a CBDC platform for the maximum value versus the smallest implementation footprint, in the shortest period of time.***





#### **4.4 Phase Two: subsequent retail implementation**

*A property that CBDC platforms offers is the ability to spend fractions of the currency, referred to as fractional spending. Currently in the UK it is impossible to spend less than 1p, and in many cases when buying products in a shop there is a minimum spend of five or ten pounds before being able to pay by card. This is because the payment processors charge the shop a percentage of the money spent to complete the transaction between the shop's bank and the individual's bank.*

*Using a CBDC platform, this problem no longer exists because the costs of transacting are very small compared to the current systems. This opens up the possibility for services providers to charge fractions of a penny. Examples would be the ability to 'buy' articles in a newspaper for a few pence, or pay for car insurance on a pay-as-you-drive basis.*

*The UK population is already orientated towards the notion that in modern society services are procured, not assets. Uber, Air B'n'B, Netflix, and Zipcar all being examples of this point. The BBC, one of the top global exporters of content, could adopt differential pricing for access to programmes based on the time of day or geographical location.*

*Fractional spending would open up the UK creative services industry in a unique manner, and confer a significant competitive advantage.*

#### **4.5 Approximate cost indications**

*It is estimated that the costs of a pilot and its implementation would be in the order of £10m. This breaks down as follows: An initial technology build for a deployable trial including connectivity, hosting arrangements, design, testing and deployment would cost between £5-6 million. This would not include on-going running costs or 'volume' based licences.*

*The legal and regulatory work would, because of the proposed deployment, be relatively straightforward and a sum of £2 million is considered reasonable. A further £2-3 million would be needed for 'adoption' communication, project management, and assessment.*

*These costs are based on real world experience. Clearly as the technology is rolled out to further payment types then additional costs both as a build and as licensing are to be expected.*

### **5. Conferring benefits and advantage to the UK**

**Note: This Section refers to benefits derived during both phases of implementation**

*As the nature of all systems that underpin Western finance rely on ledgers, the CBDC platform can replace a large number of independent but connected systems that form the central market infrastructure, and remove a large cost overhead from business.*



*A CBDC platform, once implemented, would confer benefits in the following areas, based on working, real-time implementations of the underlying platform technology, adopted by individual organisations for their specific purposes.*

### **5.1 Macroeconomic**

*There would be significant financial, social and cultural efficiency, competitive, and cost benefits across the whole spectrum of the UK's economy, Government, regulation, public and private sector business, financial services, security and intelligence, Green/energy initiatives, and private individuals, amounting to a lasting boost in GDP.*

### **5.2 Geopolitical**

*A CBDC platform would allow the UK to leverage its own financial sovereignty. By choosing to lead in this area, the UK can use its strong base in the services sector to encourage spending in Sterling CBDC outside of national borders, thereby enhancing its economic security. A successful implementation would also allow interface with China, but offer an alternative to other countries who would prefer the trusted model that a UK CBDC could represent.*

### **5.3 Financial services**

*The platform is also capable of processing data in real time, making it instantaneous to transact, which is not the case with many existing systems. This frees up capital that currently needs to be held in escrow until settlement, often once the markets have closed and when all of the day's transactions undertaken can be processed in one batch and the net amounts are calculated for each participant. This capital can be redeployed by organisations to generate more revenue and profit rather than being held in escrow.*

*Another financial service example would be in the insurance industry where CBDC payment wallet would be able to make and accept payments against events. Thus an insurance contract covering flooding could be paid automatically as soon as the environment agency or some such has 'certified' a flood, reducing the costs and better reflecting risks.*

*When considering this one simple aspect of immediate settlement finality and multiplying the effect this would have across the millions of transactions and thousands of organisations operating from within the UK, the net competitive effect would be substantial.*

### **5.4 Improving commercial issues/reconciliation**

*As the permissioned DLT system is effectively a balance sheet, any transfer from one account to another would appear on the ledgers available to all parties to the transaction in an identical form. This property effectively removes the need for complex and expensive reconciliations between institutions. It would also mean that both the*



*internal and external audits of firms would be aided as the ledger would be available in real time to auditors for substantiation.*

*Key to this is the ability of a permissioned DLT system to link all the parts of a transaction, ie the agreement to purchase, the details of the purchase, the payment for and receipt of the goods.*

### **5.5 Business advantages**

*The CBDC platform would aggregate the functions of a large number of existing backbone systems and standardise the data, ensuring uniformity. The embedded Know Your Customer (KYC) or similar data would also allow businesses to link transactions to, for instance, debtor ledgers and invoicing records. This would assist with the regulatory burdens faced by enterprises.*

*By cross matching differing identity data held on behalf of differing government, supervisory and regulatory departments and other institutions, verification of identity can occur in a fraction of a second compared to the hours or weeks used for verification currently. This would result in lower overheads by slashing red tape.*

*UK business would gain an inherent advantage over countries that still used multiple, non-integrated systems to enforce legislation. Whilst the existing operators of legacy infrastructure would likely be affected, the overall benefit conferred to the UK would outstrip this disadvantage.*

### **5.6 Retail opportunities**

*The capability to charge fractions of pence in real time will allow UK businesses to offer new revenue models to retail clients, opening up markets currently unavailable to anyone else, decreasing costs and increasing profit margins, crucial for high street business. It would also deliver an instant competitive pricing advantage for small but large volume items such as for transport fares/fees and media content (videos, films, music etc) purchases, with consonant cost benefits for retail customers.*

*The Internet of Things (IoT) is another area where opportunities could be opened up by the deployment of a retail CBDC. This connection between devices has led to payments fragmenting into smaller values due to changes in consumer behaviour and machine-to-machine communication. The ability to pay smaller values is sometimes called Atomisation. Take-up is currently slow and new business models created by connected devices paying in fragments of a penny are not currently viable because of the high costs associated with our current card-based retail payment supply chain. The FinTech game changer is a low cost CBDC enabling real payment atomisation; the ability to make fragments of a penny machine-to-machine payments.*

*From the point of view of the “levelling up” agenda these opportunities will particularly benefit lower socio-economic classes, since the relevant costs form a greater part of their net income. They would also give the large number of unbanked individuals greater and*



*more flexible receipt and payment alternatives, for instance through mobile phones and Post Offices.*

### **5.7 Regulation**

*The opportunity for real time regulation would enable the UK to provide safer markets and competitive advantage for any organisation transacting via the UK, through real time visibility of every transaction undertaken via the CBDC platform. All transactions at any moment, current or historic, can be monitored by anyone to whom the Central Bank grants appropriate access.*

### **5.8 Green benefits / energy use**

*A CBDC platform would have a lesser energy signature than any of the individual clearing platforms or payment platforms. It relies on a set of rules which do not have to be referenced for every transaction. The technology is already deployed. It can be scaled to meet demanding operating requirements. As it uses C21st technology it requires very little energy. Permissioned chains already operate in Europe and have been regulated by the Banque de France, for instance.*

*This brings it firmly in line with the Government's green policies and new climate change laws. Over time it would also replace many of the current payment systems, further reducing the UK energy footprint.*

### **5.9 HMT / HMRC**

*Real time tax collection would greatly improve the cash collection profile of HMRC and HM Treasury, simplifying tax collection both for HMRC and for individuals and businesses.*

*As the platform would also be able to detail all transactions for its users, it would also slash overheads with respect to tax reporting. As part of HMT's Green agenda, a CBDC represents a very practical way of replacing the £28bn collected annually as Fuel Duty by linking the movement of an electric vehicle to a payment account and allowing for real time road pricing. This would allow HMG to 'nudge' types of driving behavior.*

*In addition a CBDC would prevent counter erosion of revenue caused by payment being made using another country's CBDC, thus evading UK tax/VAT.*

### **5.10 Intelligence**

*If the UK loses control and sight of the data associated with its economic security, it will be unable to guarantee national security for its citizens, as national security is always reliant on prior economic security. If the UK does not innovate to keep sovereignty of its global financial status, it will greatly lose the ability to collect intelligence pertinent to state-sponsored and other threats ranged against the UK and its citizens. Furthermore, the UK will not be able to conduct any meaningful financial forensic assessment of any action / attack against it, as analysis of this data will be within the gift of the country*



across whose CBDC platform the data was transacted. The issue of whether they were to share that data would therefore depend on the owners' political alignment.

### 5.11 Security/protection against cyber attack

A CBDC would enable a significant increase in resilience to cyber-attack, making it hard for adversaries systematically to attack the UK by targeting the substantial number of payment systems that form the backbone of the western finance infrastructure. The platform on which a Central Bank Digital Currency is based uses a 21st century security model, which alters the UK government's susceptibility to cyber-attack against the sector that provides one of the biggest sources of our national revenue contributions (£60bn). This in turn allows the UK government differing options with respect to robust international postures against hostile threat actors.

### 5.12 Police and other crime fighting institutions' fraud prevention

Full forensic capabilities for the lifetime of the CBDC platform would allow every transaction and fraction of a transaction to be traced and accounted for. This enables the elimination of simple forms of fraud and financial crime, since it makes it hard for organised crime and petty criminals to hide fraudulent activity and hide money trails.

## 6. The risk of inaction

The main strategic outcomes dependent on the choice made by the UK government and institutions are as follows, compared with an unchallenged China CBDC.

<b>The UK develops a CBDC</b>	<b>China has an unopposed CBDC for x years</b>	<b>UK does not develop a CBDC but relies on allies</b>
<i>UK can leverage capability for political benefit with allies</i>	<i>Belt and Road – Greater control and visibility of transaction conducted in Renimbi</i>	<i>Reliant on allies for financial transaction data and forensics</i>
<i>The City of London can become a leading profit centre internationally coupled with real time regulation</i>	<i>Lessening of sanction effectiveness as Chinese CBDC is used by widening nations under sanctions</i>	<i>City of London certain to loose global status over time as processing is rerouted via lower cost centres</i>
<i>HMRC and Law Enforcement have the ability to combat fraud</i>	<i>Standards leadership will be used increasingly to block other nations</i>	<i>Loses ability to leverage world leading ledger expertise and remain relevant</i>



<i>Increase financial transaction processing, and collection of greater revenues</i>	<i>Adoption will drive lower the cost-transaction of organisations. Shanghai will gain financial market share</i>	<i>Beholden the pace of the slowest</i>
<i>UK can leverage capability to expand and protect democratic values</i>	<i>Increasing multi-lateral adoption will accelerate Renimbi candidacy for reserve currency</i>	<i>We lose our ability to set standards globally</i>
<i>Support UK services economy with the ability to use fractional spending</i>	<i>Services can be offered using fractional spending, providing competitive advantage</i>	<i>The Bank of England becomes a second tier central bank with the passing of time</i>
<i>HMRC will collect tax in real time, and greatly combat fraud</i>	<i>China will collect taxation in real time, and collect precise financial information on individuals and corporations</i>	
<i>UKIC gains enhanced capability to trace a financial trail when in pounds</i>	<i>Retail adoption implemented via Chinese companies (i.e. WeChat, Alipay etc), allowing identification of individual user information</i>	

## 7. Neutralising possible CBDC platform scepticism

### 7.1 Privacy

#### ***Why should the UK implement a platform or currency that allows identification of individuals or forensic tracing of all transactions?***

*The protection of privacy and civil liberties should be safeguarded by strong regulation, democratic structures, and ensuring that these do not become eroded. Trying to ignore technological advances has never worked as some other country will always take advantage. Better to move first and use the UK's reputation and democratic foundation to provide a positive alternative for use.*

*The current legacy systems are not really private as financial transactions can still be traced and examined, and the distributed ledger technology upon which a CBDC would be utilised would actually offer a far better privacy model, less likely to suffer from a widescale privacy breach. It is very likely that another country will implement an ambitious CBDC platform if the UK chooses not too, at which point the UK would have little control of any data collected on this alternative platform.*





## **7.2 Resistance by incumbent suppliers threatened by the efficiencies of a CBDC**

*There is likely to be a strong reaction from the many organisations who currently supply key components of the Western finance infrastructure, and whose existence and profits will be heavily impacted by the implementation of a CBDC Platform. As with any major technological advance, delaying the innovation frequently results in loss of competitive advantage.*

## **7.3 Bank customer relationships and balance sheet management**

*The relationship between a commercial bank and its customers remains essentially the same. Part of any implementation would be the specification of how much of a customer's deposits could be held in CBDC. This will differ in the cases of corporations and individuals. The formal distinctions between 'narrow banking' and fractional reserve models of commercial banking operations are recognised.*

*Corporations would still 'bank' with commercial banks but would be allowed to make and receive certain payments in CBDC, such as dividends, that were converted to their account by their banking providers. The same would be true for retail high value transactions such as house purchases. These would be effected by the commercial banks operating as 'agents' for their customers in much the same way that they currently do for CHAPS transactions.*

*The most significant change however would be to a bank's balance sheet if larger amounts of CBDC were permitted to be held, as the banks would then act as custodians of the deposited asset rather than owner. It would be assumed that any asset flight from one bank to another in CBDC would allow the institution losing the liquidity to borrow a similar amount from the Central Bank and any bank gaining liquidity to deposit that with the Central Bank.*

*Similarly, for lower value retail payments and fractional spending, elements of the existing payment supply chain would still be needed to support merchants in receiving payments. Banks would still need to operate as 'agents' for their customers, but the costs associated would be lower.*

## **7.4 Resilience**

*Instances of a suitable platform on which a CBDC could be based have already been commercially built, sold and regulated. Other instances using similar approaches are also in production. Technology permissioned DLT's are architected, well understood, use tested technology, and employ industry standard security/encryption mechanisms.*

*In addition the resilience of a CBDC running on a DLT backbone would offer a step change compared to the current technology deployment.*



## **8. Conclusion: Why implement the Aurora CBDC Platform?**

*The Chinese launch their global CBDC in 2022 and will progressively leverage the belt and road initiative to drive overseas adoption.*

*The UK has leading technology and expertise, and with the right stakeholder mix can move quickly to counter the first mover advantage. Not only this, but due to the ledger expertise resident within this country, the UK can implement a transformative wholesale CBDC very effectively in a short time. This will help to provide competitive advantage for the UK well into the 21<sup>st</sup> century.*

*It is of course essential that Her Majesty's Treasury and the Bank of England have the best possible team in place to assist with the rollout of a Sterling Central Bank Digital Currency. The Aurora CBDC team, sponsored by the CityUnited Project, contains world-leading expertise in this area and can now offer this in support of the stated objectives contained within the official documentation released to date.*

*The CityUnited Project's Aurora team stands ready to discuss all and every aspect of the contents of this document with interested parties.*



## APPENDIX I

### The Aurora Support Team

*The Aurora team consists of UK Fintech entrepreneurs, central market infrastructure specialists, payment system architects, City Executives and other specialist personnel all of whom have strong connections with the City of London and the UK finance industry both at a wholesale and retail level.*

*Some of the key individuals are listed below.*

- **Peter Randall** Founder & CEO of Chi\_X Europe , Founder and formerly President of SETL
- **Alex Fidgen:** Founder, MWR InfoSecurity
- **Daniel Hodson:** Chairman, The CityUnited Project and formerly CEO of LIFFE, Gresham Professor of Commerce and Deputy CEO of Nationwide BS
- **David Lester:** Director, Archax, and formerly Chief Strategy Officer of the London Stock Exchange Group
- **Peter Seymour:** Partner, Glenholme Consulting, formerly Head of Government Affairs at Vocalink

### ENQUIRIES

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